

A quartercentury of cremation in North America ; being a report of progress in the United States and Canada for the last quarter of the nineteenth century; to which have been added, as an afterthought, a few words about the advance in Europe during the same period.

Contributors

Cobb, John Storer.
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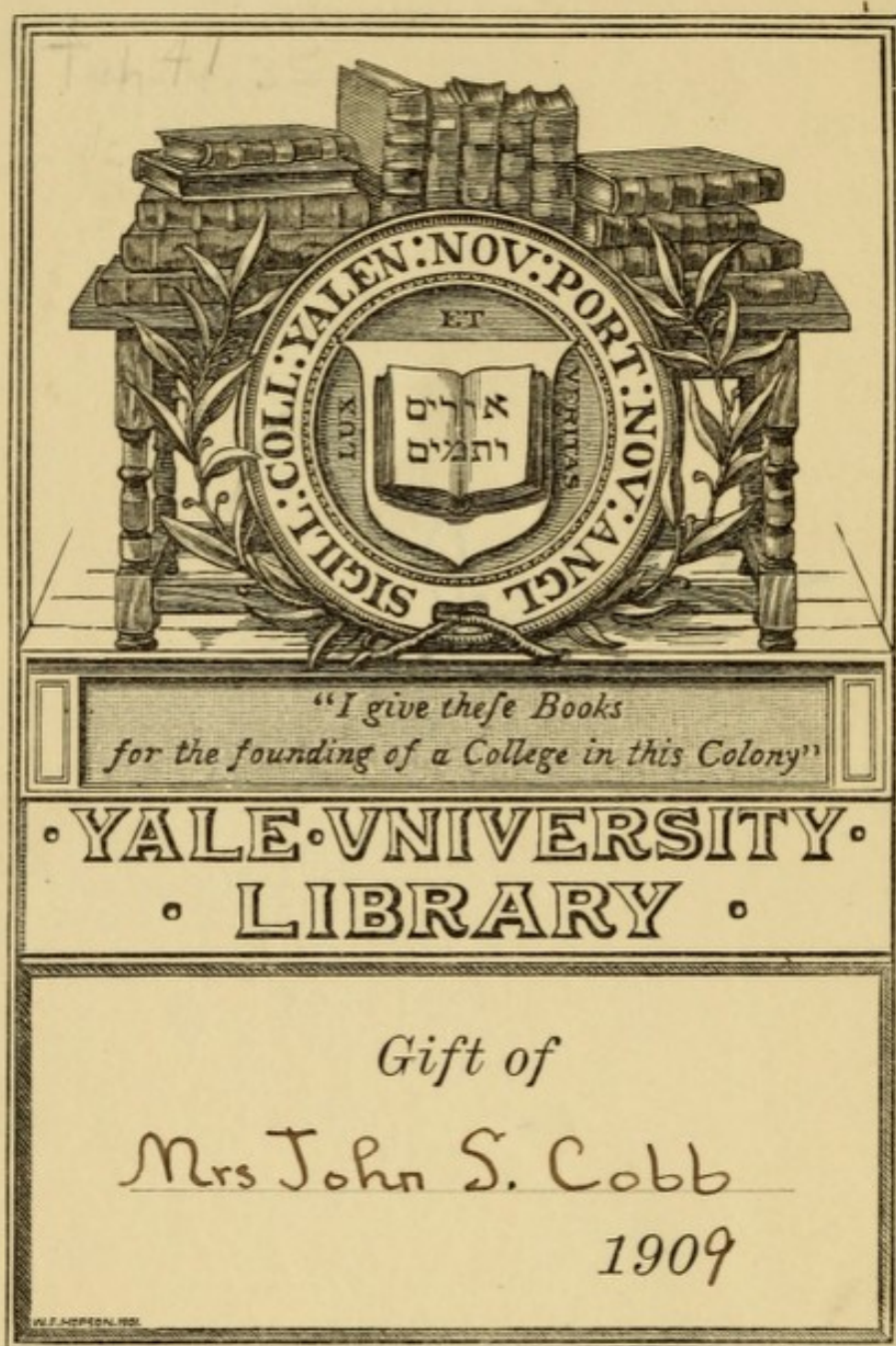
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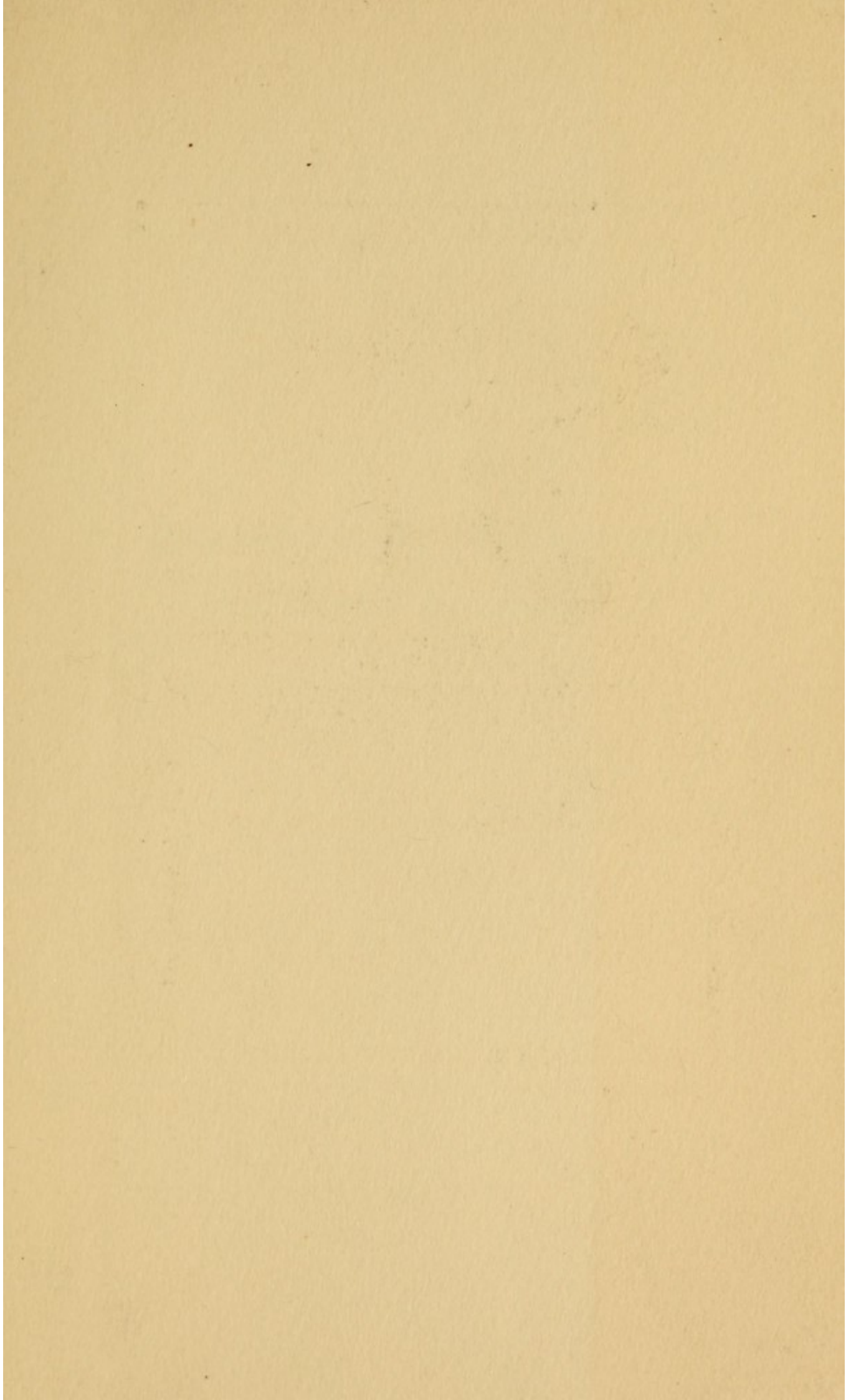
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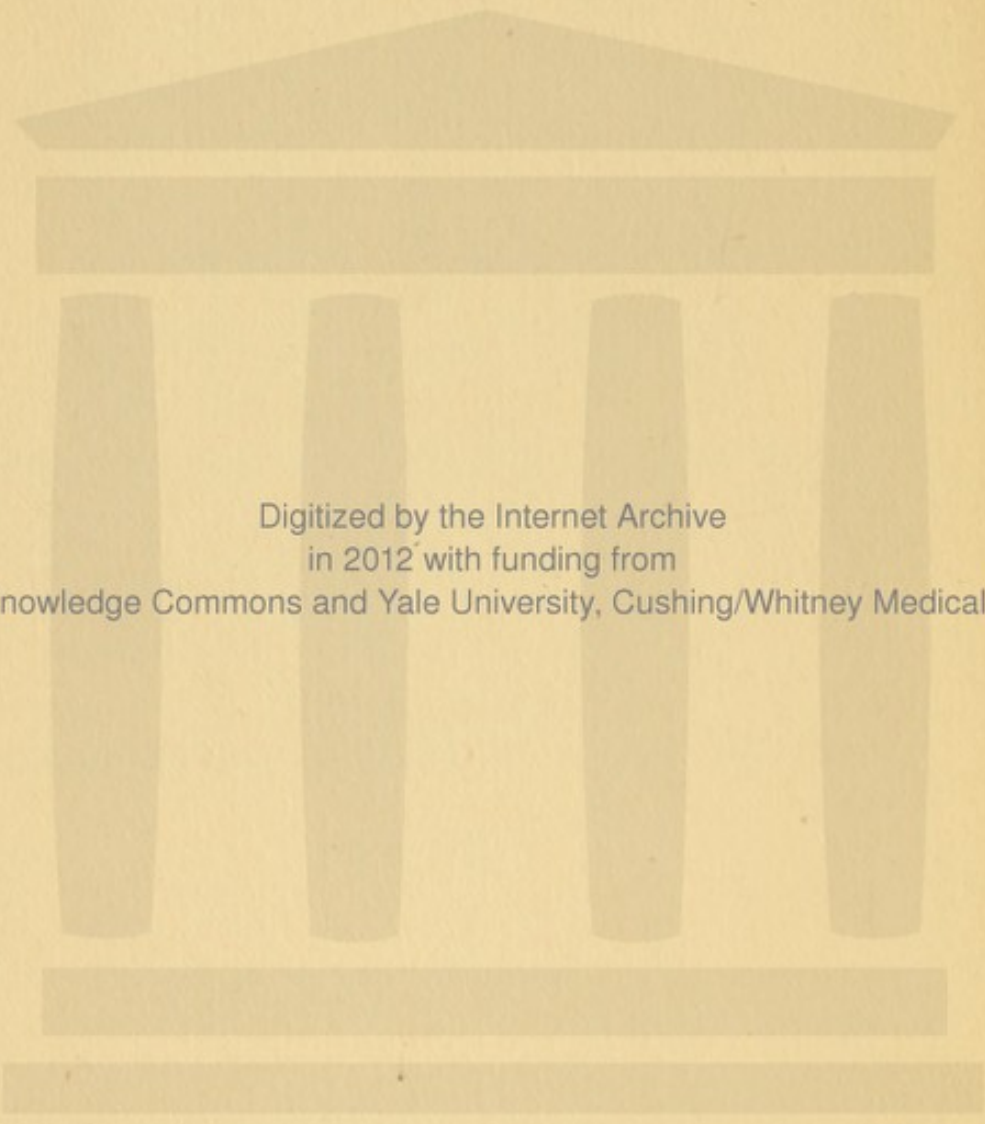
A Quartercentury
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John Storer Cobb.





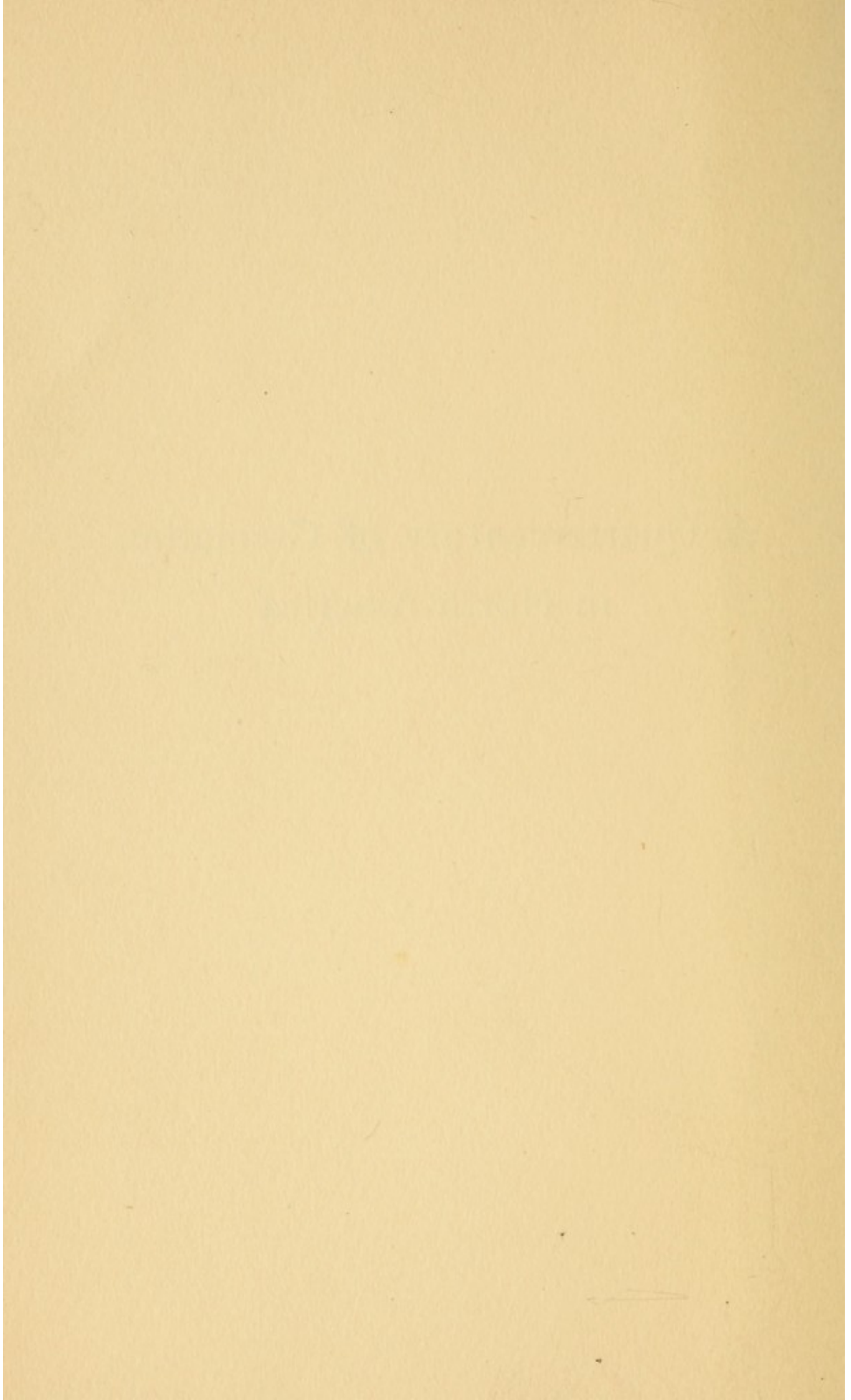
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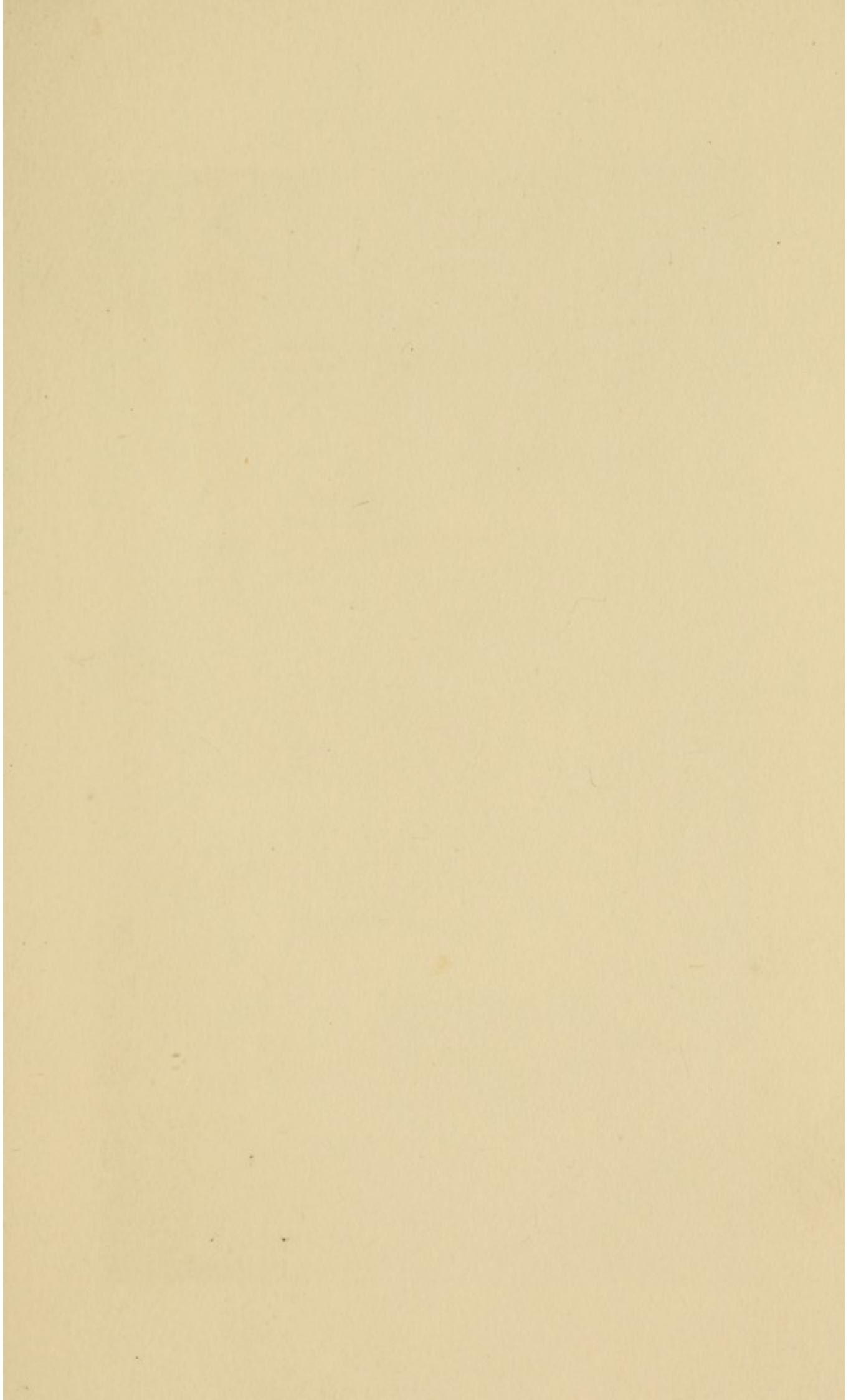


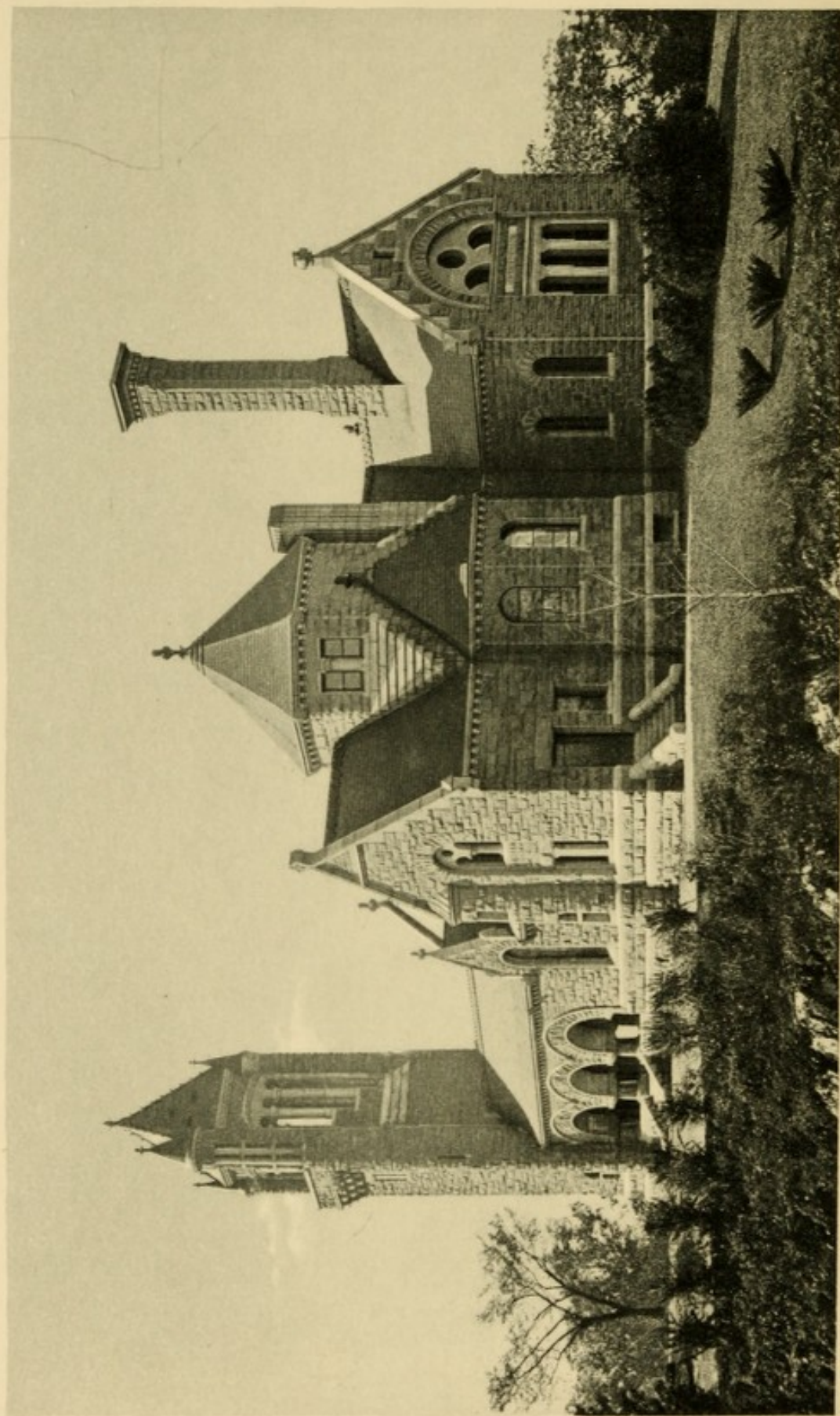


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A Quartercentury of Cremation
in North America







THE EARL CREMATORIUM, TROY, NEW YORK.

A Quartercentury
of
Cremation *in* North America

*Being a report of progress in the United States and Canada
for the last quarter of the Nineteenth Century; to
which have been added, as an afterthought, a
few words about the advance in Europe
during the same period*

By
John Storer Cobb

Hon. Pres. New England Cremation Society, etc.

Boston
Knight and Millet

1901

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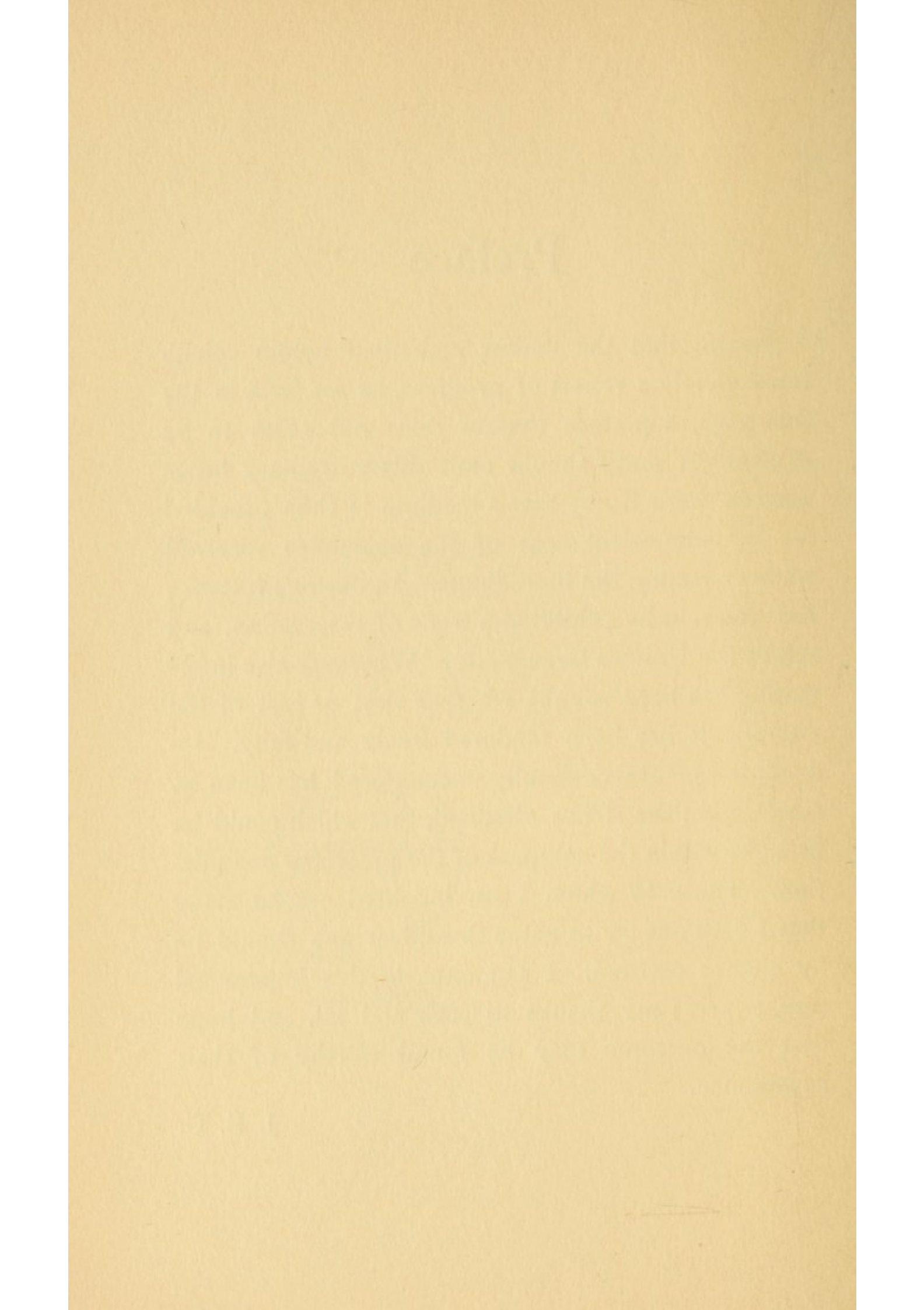


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Preface

SEEING that the matter embodied herein constitutes merely a report of progress, as set forth in the title-page, a preface thereto does not seem to be demanded; and I should omit this customary introduction, were it not that a medium is thus provided for an acknowledgment of the courtesies received while collecting the ingredients. In but one instance has there been exhibited a trace of reservation, and this in the Union's largest city. Wherever else information has been sought, whether west or east of the Atlantic, it has been rendered freely and fully. Indeed, the greatest difficulty encountered has been to select, from the riches obtained, that which could be brought within the compass of the projected compilation. Those to whom I am indebted are so many that I dare not try to name them, lest one should be by chance omitted. I can only, in this impersonal way, express my thanks to each and all, and hope that the outcome may be found worthy of their acceptance.

J. S. C.



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A Quartercentury of Cremation in North America

GENERAL OUTLINE

IT was in the city of New York that the subject of cremation was first brought systematically to general attention in the United States of America. Towards the end of 1873 and during the early months of 1874 it was discussed at occasional assemblages of the sympathetic few, and in April of the latter year it was brought forward at a meeting of a more public nature. At this it was decided to take measures for the establishment of a crematorium. But the time was not favorable for the pursuit of the project and, before long, it had to be abandoned.

The seed, however, which had been sown was not all lost. Some had fallen upon fertile ground and taken root, as soon afterwards appeared in the village of Washington, Pennsylvania. In the year 1876, Dr. F. Julius LeMoyne, of that place, erected a small building, and set up within it the necessary apparatus. This was constructed primarily for the incineration of his own body, but was not allowed to stand idle until the time for that ceremony should arrive. As a means of familiarizing the public with this method of dealing with our dead, and thereby educa-

of incinerations for that year in the four existing crematoria was forty-seven.

In 1884 a cremation society was organized in New Orleans, and it went so far as to buy a piece of land upon which to erect a crematorium. Here it was stopped, and no efforts which have since been made by those who were desirous of promoting, in this way, the welfare of the city have succeeded in attracting public interest to the project. This cannot fail to cause surprise, for it would be difficult to name a place where some reasonable method of disposing of the dead is more urgently needed. Situated on the Mississippi river, with its streets considerably below the level of high water, and its outskirts a swamp, the digging of graves is an impossibility. For this reason the bodies of the dead are placed in brick apertures or "ovens" above the surface of the ground, and from these they are removed after a stated length of time, to make room for new incumbents. This cannot be regarded as a reasonable way of dealing with the dead. It is a menace to the health and lives of the community, and it is difficult to believe that the inhabitants of a city thus placed are so steeped in the lethargy of conservatism that it is impossible to rouse them to the acceptance of a system which has demonstrated its ability to carry out its purpose without any cause for fear of resultant harm.

In the following year an attempt was made to build a crematorium in La Crosse, Wisconsin. Plans and specifications were prepared, land was appropriated in the Oak Grove Cemetery, and the basement of the

intended building was constructed. Beyond this it was found impossible to go, as the necessary funds were not to be obtained. The La Crosse Cremation Society, however, still maintains its organization in the hope that sufficient interest may yet be aroused to enable it to carry its project to completion. About the same time a building was erected in San Antonio, Texas, and was itself reduced to ashes before it could be put to its intended use.

In 1886 we do not find any new societies formed. For all that, this is a notable year, for it sees the opening of the first crematorium established and conducted by an undertaker. Again it is Pennsylvania that comes to the front. Pittsburg falls into line and cremates fourteen bodies. New York's number has increased from ten to eighty-five; and although, as a consequence of this growth, Lancaster's number has fallen to fourteen, yet the total number for the year is found to be one hundred and fourteen, which is considerably more than double that of 1885.

Speedier headway is now made. The next two years see the number of appliances increased twofold. Three are added in 1887 and two in 1888. The former year is hardly born ere the fires are lighted in Ohio, and at Cincinnati a body is subjected to the influence of their purifying power. Before its first six months have fled California makes it notable, and Los Angeles achieves the distinction of being the first place upon the continent to establish a crematory plant within the confines of a cemetery. By this time Michigan is earnestly at work, and Detroit does not allow the final month to close without being pre-

pared to do her part in the practical exemplification of the new method.

The month of May in the year 1888 is unique. So far it is the only month in which the names of two cities have been added to our list. The first day of the month sees a second cemetery opening its gates to a reception of the new idea. Pennsylvania affords fresh evidence of her interest, and, in Philadelphia, supplies the fourth of these appliances within her borders. Before a week has passed Missouri yields to the extending influence and lends her aid to the promulgation of this system. The result is shown in the increase of the number of bodies cremated. The one hundred and fourteen of 1886 has become one hundred and twenty-seven in 1887, and this in turn is succeeded by one hundred and ninety in 1888, making for the United States, at the end of this year, a total of five hundred and nineteen.

Progress is seldom continuous, and here, as almost everywhere, we find, as the years roll by, the rule of ebb and flow in operation. The rate of progress which had held up to this time is checked, and but one addition of apparatus is made in 1889. This is in Maryland, which State would sooner have taken her place in the line of march, had she not been held back by adverse conditions. In 1885 a company was incorporated in Baltimore. But those who were interested in the matter had a four years' struggle with legal and other difficulties which finally compelled them to abandon their project. At this time, however, an arrangement was made with the Loudon Park Cemetery Company, and the year 1889 was not

allowed to depart until it had witnessed the erection of a crematorium, and seen the incineration of a body within the cemetery grounds.

The year 1887 found the State of New York grappling with the problem of contagious and infectious diseases. The quarantine burial-ground on Staten Island had for a long time been an object of dread and suspicion among those who resided in its vicinity. Opposition to its further use as a repository for the dead now assumed a form and character which compelled its recognition. The Legislature of 1888 passed an act authorizing the erection of a public crematory for disposing of the bodies of those who died in the public hospital of such distempers. This was constructed upon Swinburne Island, not far from New York City. For a period of three years it was not much used, but in 1892 the whole country was agitated by a threatened invasion of cholera, and the bodies of sixty immigrants were incinerated. Since 1893 the average yearly number of bodies cremated here has been but three; and it is to be hoped that, for its original purpose, there may be little demand for its further service. The year 1890 saw the construction, at Troy, in the same State, of the most costly structure devoted to this purpose in our land. It is erected as a memorial to an only son, and stands within a cemetery to which it has been made a gift by its founders, for the reception of whose ashes provision has been made, so that for all that is left of the parents a final resting place may be secured by the side of the remains of their departed child. During the same year an appliance was fabricated in Phila-

delphia for the cremation of the unclaimed city dead, and is still in operation.

Before the end of the year 1891 the city of Davenport, in Iowa, began to incinerate her dead, and this was the only addition made to the number of appliances until 1893, when Illinois augmented the list. The Chicago society, aided by the already mentioned general agitation respecting the advent of cholera, succeeded in inducing the directors of Graceland Cemetery to place upon their land, in connection with their chapel, the means of incinerating the bodies of those for whom this method of disposition was desired. New York also felt the influence, and in the cemetery of the village of Waterville was constructed, by private effort, a little Gothic structure devoted to the cremation of her dead.

The eastward boundary of this State had hitherto presented an obstacle which it seemed impossible to surmount. This barrier is now passed, entrance is gained into New England, and a crematorium is established within the commonwealth of Massachusetts. The New England Society in Boston and the Massachusetts Society in Worcester had been chartered several years before. They did not succeed in their objects, however, and the former was reorganized as a propagandist society, while the charter of the latter was transferred to Boston. Under these auspices, rapid steps were made towards the completion of the new organization. Within a moderate time the stock was all subscribed, and the money paid into the treasury of the society, as is required by the laws of the commonwealth before a corporation organized under

its statutes can begin business. Land was bought and the erection of a building entered upon. As soon as that portion necessary to the carrying out of the society's objects was completed, a modern plant was installed, and the body of Mrs. Henry B. Blackwell (Lucy Stone) was reduced to ashes on the last day but one of the year 1893.

We pass again to California where, for several years, some of the German citizens had been manfully trying to obtain from their fellows of the Fatherland the means of establishing this reform more firmly in San Francisco. After nine years of futile exertion, they made a union with their native fellow-citizens, and bought the ground upon which they hoped to carry out their purpose. But they were doomed to further disappointment. The years still passed without any encouraging outlook. But success is the inevitable result of unflinching effort. The well sustained exertions of these advocates caused the Cypress Lawn Cemetery Company to become interested in their scheme, and with this association an agreement was at length entered into whereby the necessary building and equipment might be provided within the cemetery ground. San Francisco is thus added to Los Angeles, and we have a second place upon the Pacific coast where incineration of the dead can be effected. Thus the year 1893 sees four additions to our number, which has, by this time, been increased to eighteen; while that of the bodies cremated, up to the end of the year, has been raised to 2846.

At this point another check is met. The year 1894 is passed without any gain in number, but, in 1895,

California again shows the beneficent effect of the work done within her borders in previous years. Pasadena furnishes evidence of progress in two directions. The money needed for the erection and equipment of a crematorium is furnished by a firm of funeral undertakers, and the land required is found within the area of a cemetery. A new impetus is also felt in San Francisco. The ancient order of Odd Fellows, incited by the success of endeavors already noted, is found establishing a second plant within a cemetery ground. Four institutions are now pursuing their calling within the State, each within a cemetery, and one of them, as above shown, also the property of a firm of undertakers. At the end of the year 1895, upwards of five hundred bodies have been reduced to ashes through their agency, while the total number for the whole country has risen to 4687.

During the year 1896 Wisconsin is the only State that adds its name to our list. She comes among us, however, in a peculiarly gratifying manner. Her building is constructed, and her apparatus is supplied and operated by an Episcopal church, within a cemetery which is the property of that church. The efforts of a cremation society, organized about three years previously, not having been received with practical favor, co-operation was asked of the parish, which, after considerable debate, decided, somewhat to its own astonishment, that, at the hour of death, the wishes of the deceased touching the disposal of the body should be paramount, and that provision should be made for their execution. The significance

of the fact that so conservative an institution has shown itself imbued with a liberality of thought sufficient to lend its aid to the promotion of such an innovation in its manner of dealing with the dead, will be appreciated by those who know anything of the repugnance which churchmen of the olden school feel to almost any kind of change, and who understand how radical, to these conscientious upholders and defenders of the traditional and established must appear such a deviation from what they regard as an ordained and sacred custom. If, therefore, this year has not seen more than one addition to the number of our crematoria, yet the example of Milwaukee furnishes abundant cause for gratification, as indicating, on the part of the parish in question, a mental robustness and a release from conventional habits of thought, such as was hardly to have been looked for, and might well be copied by other institutions of the kind.

What was wanting in the way of numbers in 1896, is made up in the following year. Four new plants are installed in 1897; one of them again by an undertaker, two within cemeteries, and a fourth in the grounds of an asylum for the insane. They are situated in the District of Columbia, Minnesota, Indiana, and Connecticut. The former of these should have belonged to 1896, and would have done so, but for the inertia which seemed to possess the minds of the residents in the nation's capital. This it was found impossible to overcome, and it was left for a private citizen to supply the public need as an adjunct to his personal business. Fort Wayne and St. Paul gave

clearer signs of mental emancipation, and a cemetery in each case furnished a location for the employment of the better way by those who so desired.

Connecticut is the only State which has erected a crematorium that was not put into requisition almost as soon as constructed. There is, however, a possible reason for this. She has but one within her borders, and this, as has been said, in connection with an asylum for the insane. Presumably this is intended for use upon the bodies of those patients who shall have expressed a desire or a willingness for such a disposition of their bodies. But the expression of such assent or wish would be an undoubted indication of sanity. Those with such a mental predilection are not likely to be found between the walls of such a refuge, and Middletown, therefore, is likely to see its incinerating apparatus long remain rusting for want of work, unless those within its asylum are coerced, or the doors of its crematorium are thrown open to the use of those who breathe their last beyond its jurisdiction.

In 1889 there was considerable discussion in Boston respecting the creation of a municipal crematory. The cemetery department of the city received the idea with favor, and would doubtless have succeeded in carrying it into execution, but for the prevalence of a mistaken notion as to its intended service. As it would be a public institution, it was thought that its use would be compulsory, and that the bodies of all who died in charge of the municipality would be disposed of through its agency, regardless of religious scruple or pre-existent disapproval. This raised a

natural and reasonable objection to its construction, and the city authorities decided to delay proceeding with the matter until a general confidence in the true character of its contemplated discretionary employment had been established.

A practical step is taken, however, not far away. The directors of the Mount Auburn Cemetery, in the university city of Cambridge, having for some time discerned a growing desire for crematorial resources within its borders, decide that it is within their province to provide the requisite facilities. They accordingly obtain from the legislature of the commonwealth the necessary authority, and convert into a crematorium the building that had formerly served them as a chapel. This work was finished early in 1900, and on the eighteenth of April in that year the first incineration here took place. Before the close of the year this number was increased to fifty.

During the latter year plans were also laid for the establishment of three other institutions of the kind, of which two are to be located in the United States and one in Canada. As early as 1891, a society was formed in Cleveland, Ohio, for the purpose of providing facilities for the incineration of the dead. But the fate of a first attempt of the kind in several other places was met with here. For a time funds were received with a celerity which seemed to bode success; but, in a little while, the interest flagged and the undertaking had to be relinquished. The next phase of the question appears to have been the adoption of a resolution by the Lake View Cemetery Association to provide cremation facilities within the

cemetery, but this project also had to be abandoned. During the year 1900, however, the matter was once more taken in hand by some citizens of repute, the organization of the Cleveland Cremation Company was effected, and as a result we have the commencement of a crematorium which, in all probability, will be finished and ready for operation early in the new century.

Again we travel to the far west and, farther north than hitherto, we find matters assuming tangibility upon the Pacific coast. Very early in the year some of the more influential residents of Oregon's capital city were led to view rapid dissolution by means of fire as preferable to the slower process which is carried on within the earth. The Portland Cremation Association was formed, land purchased, and a contract executed for the erection of a building and the furnishing of the necessary equipment, and there is but little doubt that, before the year 1901 has passed away, a crematorium will be in operation in Portland.

But perhaps the most notable achievement of the last year of the nineteenth century was the successful invasion of Canada. Several attempts had already been made to create a public sentiment in favor of cremation, especially by the proprietors of the Mount Royal Cemetery at Montreal, and it is with this company that success has been at last attained. The practical result was brought about through the death of a resident, who left a sum of money to the cemetery company for the purpose of establishing a crematorium. This was supplemented by the generosity of a

philanthropic citizen who undertook to supply such further amount as might be deemed necessary for the erection, equipment, and permanent endowment of a suitable edifice. By the end of the year the building had been erected, legal obstacles to its use by the cemetery company were in process of removal, and there is a probability that incinerations will be carried on within its walls during the summer of 1901.

About this time evidence of a still wider spread of thought upon the subject may be discerned in New England. In one or two of his annual addresses the president of the board of directors of the Swan Point Cemetery at Providence, Rhode Island, introduced the topic and recommended the erection of a crematorium within the cemetery. At the last annual meeting of the century the proprietors of the cemetery gave the directors authority to erect a building for this purpose. The plans which have been adopted embrace a chapel with a receiving tomb upon one side of it and a crematorium on the other. The receiving tomb will probably be constructed during the year 1901, and a reasonable hope is entertained that this will be followed, without undue delay, by the other portions of the designed structure.

From this cursory glance it will be seen that up to the end of the nineteenth century twenty-eight crematoria had been established in the United States, and that two others were in course of construction, as well as one in Canada. Of those which had been erected, two were destroyed, and of the remaining twenty-six the State of New York possesses five; California and

Pennsylvania, four each; Massachusetts, two; and the remaining eleven are distributed among Connecticut, the District of Columbia, Illinois, Indiana, Iowa, Maryland, Michigan, Minnesota, Missouri, Ohio, and Wisconsin, each of which has one. Of these, twenty-four are now open to the service of the public, one of them has practically closed its doors, and one has not yet been brought into use. Fifteen, or more than half the total number, are found to have their places in cemeteries, and three are operated in connection with undertakers' establishments; while one, that of Pasadena, belongs to both these classes, being, as has been stated, within a burial-ground and in the possession and control of a firm of funeral directors. Further than this, it appears that five have been constructed at the initiative and expense of individuals, one by a church organization, two by State appropriation of funds, and the rest, either directly or indirectly, by cemetery associations or by societies formed with the object of promoting and extending the practice of incineration.

Although, considering the time — sixteen years — that has elapsed since the first of the crematoria now in general use was opened, the number of these establishments is fairly large, yet must it be candidly acknowledged that the territory over which the benefit of their service can presumably extend is comparatively small. The area of our land which is without facilities for cremation is nearly, if not quite, three times as great as that which lies within a reasonably available distance of such facilities. Of the 49 States and territories of which the United States con-

sists, thirty-five are yet, at the close of the nineteenth century, without the means of incinerating their dead. Although this continent extends from the 67th to the 125th degree of east longitude, and from the 25th to the 49th degree of north latitude, yet, leaving out the four in California, not an appliance for incineration can be found west of 93 degrees of longitude, nor south of 38 degrees of latitude. In the near future a slight modification of this statement will probably have to be made; for a crematorium in Oregon, as has been shown, will in all likelihood have to be added to those existing west of the line mentioned. This change, however, will scarcely affect the importance of the comparison. It can still be said that, except in California and Oregon, there is not a crematorium to be found in North America west of St. Paul, Minnesota, or south of St. Louis, Missouri.

Turning our attention now from what has been left undone to that which has been accomplished, we see that in sixteen years the number of our crematoria has increased from two to twenty-six, with an additional three in course of construction. A reference to the annual table given on page 117 will enable us to see that the number of incinerations in the United States has risen from sixteen to more than thirteen thousand. And this has come about by a well sustained gradual expansion which speaks encouragingly for the future. In individual places there have been interruptions, owing chiefly to the opening of additional appliances in the neighborhood; but the totals of each year show that a persistent progressive increase has been maintained. This will be seen even

more clearly by a review of the several annual averages for the period in question.

As nearly as possibly this average for the past

16 years is	825		
15 " "	875	an increase of	50
14 " "	930	a further increase of	55
13 " "	995	"	65
12 " "	1060	"	65
11 " "	1135	"	75
10 " "	1210	"	75
9 " "	1295	"	85
8 " "	1380	"	85
7 " "	1490	"	110
6 " "	1600	"	110
5 " "	1710	"	110
4 " "	1870	"	160
3 " "	2030	"	160
2 " "	2190	"	160

The annual average of fifteen years is thus seen to be greater by fifty than that of sixteen, and the average of fourteen years to be fifty-five more than that of fifteen. The increase then rises to sixty-five, and this is once repeated; next it swells to seventy-five, and is there maintained a second year, when it becomes eighty-five, and so continues for the same length of time, making the average of eight years five hundred and fifty more than that of sixteen. We next find the average of seven years greater by one hundred and ten than that of eight, an increase which is duplicated in each of the next two years, when it becomes annually one hundred and sixty to the end of the series, so that for the last two years the average is greater by 1360 than that of the whole sixteen. In other words, the annual averages advance

by steps of about ten until 1894, when a leap of twenty-five is made ; this is twice repeated, and then is doubled for each of the three remaining years. These two extended and repeated jumps are significant of future growth, especially when looked at in conjunction with the fact that the total of 1900 is more than two hundred greater than the average of the last two years, and over four hundred more than the number of 1899 taken by itself.

During the period covered by this record, there were published in the United States three magazines for the spread of knowledge concerning the subject before us. The "Columbarium" was issued from Philadelphia; "The Urn," from New York; and "The Modern Crematist," from Lancaster, Pennsylvania. All of them met with the fate that seems to be the inexorable lot of such efforts to promulgate a solitary idea, the adoption of which involves the overthrow of an established custom. Friends and allies are too few and, in the main, too poor to furnish the requisite financial aid, and the general reader cannot be interested unless there be variety in the matter offered. Such serial effusions, for the most part, come to an early end, and those in question proved no exception to the rule. After a brief and valiant struggle for existence, they were compelled to quit the field, and there is not to-day printed in the English language a single journal devoted to the interests of cremation.

The States possessing crematoria will now be presented in alphabetical order, and examined a little more closely.

BALTIMORE, MARYLAND

THE initial attempt to improve the burial customs of Baltimore was made in the year 1884, when the Baltimore Cremation Cemetery Company was organized. In March of the following year this company was incorporated under the laws of the State, and a site for the establishment of a crematorium on one of the most prominent avenues of the city was selected, and negotiations entered into for its purchase. Legal difficulties regarding the title, however, arose; and, after a considerable amount of litigation with an unsatisfactory result, the matter was abandoned, and it was determined to form a union, if possible, with one of the leading cemeteries. After having thus lost a considerable amount of valuable time, a piece of land was at length, in 1888, purchased in the grounds of the Loudon Park Cemetery Company, and the erection of a building at once entered upon. Through unavoidable conditions, operations proceeded somewhat slowly, so that it was not until late in the following year that the edifice was completed. The first incineration was conducted within its walls on the first day of November, 1889.

Owing to the silent but powerful antagonism of the deeply rooted prejudices of an extremely conservative community, and the loudly expressed opposition of a hostile press, the progress of the association in the prosecution of its enterprise has not been so rapid as in some other communities, still a reference to its annual list of incinerations will show that the enkindled interest in the matter has been

well maintained. At the end of 1900, one hundred and seventy-six cremations had been conducted within the cemetery; an assurance to the projectors that their labors had not been in vain, and that in consequence of their endeavors, united to those of others in various parts of the land, the time was fast approaching when, in the disposal of our dead, consideration would be generally had for the welfare of the living.

The crematorium stands upon the highest elevation in Loudon Park Cemetery, southwest of Baltimore on the Frederick turnpike. Approaching it by the walks which lead in a southwesterly direction from the main gate of the park, the visitor sees a tasteful structure of one tall story, relieved by a back building with bevelled corners. The edifice is built of rugged-faced local blue-gray stone, with a projecting base trimmed with a light-colored granite ledge, which is on a level with its door-sill. By six broad granite steps is reached a pair of wide, open-work, iron doors continued above with an arched window of stained glass, between which and the door is a marble tablet containing the word "Crematorium." This window, with a similar one on each side of the door, and the triple windows at the sides, are trimmed with brownstone. A pediment surmounts the projection containing the door, and it is flanked by stone urns set on capitals, while the slated roof rises to a slightly ornamental ridge.

Behind the iron doors are others of oak leading into the chapel. The funeral party which enters here finds itself in a churchlike apartment, tastefully

and comfortably arranged for carrying out the service for the dead. It has a central aisle, at the head of which is a neat oak pulpit for the clergyman's use, and before the pulpit rail stands an oak bier for holding the casket with the remains, during the celebration of the last rites.

After the ceremonial, the casket is borne through a door which leads into the preparation-room, which forms the vestibule of the cremating department. One wall, stretching nearly across the room, has two iron doors in it. When these are opened, the visitor may see the retorts of fire clay, clean and white when the furnace is cold, or glowing if a cremation is about to take place.

This crematorium may be visited at almost any time by persons who wish to inform themselves. It is reached by taking a City and Suburban Railway electric car to its western terminus, and then riding to Loudon Park Cemetery gate on the Frederick Avenue horse-car, the aggregate fare being ten cents. The cemetery may be reached also by taking a west-bound red car of the City Passenger Railway. The visitor will alight at Pulaski Street and walk southward a short distance.

The Baltimore and Potomac Railroad, which is the Pennsylvania's branch to Washington, D. C., has a station at one of the entrances to Loudon Park Cemetery. The crematory is therefore as convenient to Washington as to Baltimore; and, as a matter of fact, has been used for more Washingtonians than Baltimoreans. Advantage can be taken of four stations in various parts of the city, to either of which a

body may be sent. These are Calvert, Union, Pennsylvania Avenue, and Fulton Avenue stations, all of which are within easy distance from the crematorium.

BOSTON, MASSACHUSETTS

THE introduction of cremation to general consideration in New England was made late in the year 1883. In response to an invitation, conveyed through the public press, several ladies and gentlemen came together in Boston, considered the question, and endeavored, early in the following year, to establish a society which it was intended should be known as The New England Cremation Society. Upon consultation with the Commissioner of Corporations, it was found that, although there was no law prohibiting this method of disposing of the dead, he was yet unwilling to recommend the incorporation of a society for the promotion of this object, until legislative sanction had been given to the project.

A special act, authorizing the formation of the society in question, was therefore drafted and presented to the General Court which assembled in January, 1885. At the suggestion of some Worcester friends, who desired that their city might also have the benefit of the proposed legislation, this was changed to a general act; and, as such, it became a law in the following May.

In consequence of the lateness of the season, further action was postponed until the autumn. A meeting was called in the following September, and it was then resolved to proceed with the organization of the society. An agreement of association was

drawn up, declaring that the corporation was to be called The New England Cremation Society, and that the capital stock should be placed at twenty-five thousand dollars, divided into twenty-five hundred shares, each of the par value of ten dollars.

The certificate of incorporation was granted on the second day of November, 1885, and as soon as this was received, measures were taken to dispose of the stock, which, for a short time, was applied for with satisfactory alacrity. This did not last long, however, and after about six hundred shares had been taken, interest began to fall off, and it became daily more apparent that the time was not yet ripe for the successful launching of the enterprise.

At the annual meeting held in November, 1887, it was found that seven hundred and ten shares had been disposed of, to two hundred and sixteen subscribers, and that for several months no further applications had been received. It was therefore decided to disband the society, and legal steps were taken for this purpose. The amounts paid into the treasury, as legal deposits upon the subscriptions, were returned to the various depositors, and in May, 1888, an application was made to the Supreme Judicial Court for a dissolution of the society, for which a decree was granted on the sixteenth day of the following October, at which time the first New England Cremation Society went out of existence.

For two years the subject was allowed to lie in abeyance, and it was not until late in 1890 that an endeavor was made to reintroduce it to public attention. The lack of practical sympathy was then so

apparent that those interested thought it best to change the programme of procedure, and decided "to form an educational society and defer the incorporation of a joint-stock company until a later date." The present New England Cremation Society resulted from this action. This society began at once to hold meetings and circulate literature bearing upon incineration, and its membership increased in a very encouraging manner; so that, after a few years, the time was regarded as favorable to the inception of the suspended project.

At this point it becomes necessary to say a few words about proceedings in another city. As soon as the act of 1885 was passed, as already mentioned, advantage of its provisions was taken in Worcester, where the Massachusetts Cremation Society was incorporated. It was eventually found that public opinion in Worcester was not such as would warrant a reasonable expectation of carrying the undertaking to a favorable issue in that city. The corporation did not, however, surrender its charter, and when the Boston Society concluded to make another attempt to put the matter upon a practical basis, the question of removing the Worcester society and reorganizing it in Boston was brought forward. This was eventually done, and the second part of the programme which the New England Cremation Society set out to accomplish was inaugurated by the reconstitution of the Massachusetts Cremation Society in Boston.

The newly constituted society delayed not in the prosecution of its work. As soon as legally possible, it purchased land and began the erection and equip-

ment of a building. When sufficient of this edifice for operative purposes had been built, the requisite appliances were furnished; and, in December, 1893, the first of several bodies which had been entrusted to its care was incinerated. The grounds have now been laid out and the building finished, while the number of cremations conducted therein has shown a gradual increase year by year, until 1900, when it became somewhat less than that of 1899. This is not altogether surprising; for during the latter year, a crematorium was brought into use in the neighboring city of Cambridge. This would naturally, for the time being, cause some diversion from the Boston institution. The number cremated in the two during 1900 shows a slight increase over that of Boston alone in the preceding year.

BUFFALO, NEW YORK

THE Buffalo Cremation Company was incorporated in July, 1884, under the New York limited liability act of 1875. Sufficient capital was raised to enable an organization to be effected in March of the following year. Early in April the first meeting of the stockholders was held, a constitution and by-laws were adopted, and a board of directors was elected. Land was soon after purchased, a building erected, and in December following the furnace was tested by the incineration of a human body. From this time a gradual yearly increase of numbers, with but slight variation, was maintained until 1900, when a leap was made considerably longer than any previous advance.

The location of the building is in one of the most

convenient and most beautiful parts of the city, fronting the Forest Lawn Cemetery on Delavan Avenue and about twenty minutes' drive from the city hall. Its outer walls are formed of a dark brown sandstone, plainly and substantially constructed with a massive square tower and a steep slanting roof. It is of composite architecture, covered with ivy and surrounded with sloping lawns, reminding one of the small chapels built in the north country centuries ago. The interior comprises, on the ground or entrance floor, five rooms and a porch. The largest of these rooms is a chapel, for the holding of such services as may accord with the desires of the survivors. This contains seven hundred and ninety-two square feet, and has seating accommodation for one hundred and fifty persons; it is also supplemented by a chancel fourteen feet by nineteen, decorated in the early Italian style, and containing stalls for those by whom the funeral ceremony may be conducted. The other rooms on this floor are a mortuary chamber, ten feet by nineteen, for the reception and preparation of the body for incineration; an incinerating-room, twenty-nine feet by nineteen, in which is situated the sarcophagus or retort; a robing-room for the convenience of whomsoever may be about to officiate at the service; and an office for the transaction of business connected with the company.

In the mortuary chamber the body is taken from the coffin and placed upon a draped bier, which is then rolled noiselessly into the chancel. Here it remains until the conclusion of the service, when it proceeds to the incinerating-room and is privately reduced to

ashes, which are afterwards collected for disposal according to the wishes of the family or friends of the deceased.

The furnace employed in this crematorium was obtained in Milan, Italy, and is of the Venini pattern.

CAMBRIDGE, MASSACHUSETTS

THE crematorium here is situated in Mount Auburn Cemetery. It has been found advisable to build a new chapel, and the building which had formerly been used for this purpose has been reconstructed, so as to be made available for the more rapid disintegration of the human body. It had been for a long time apparent to the trustees that there was, among the proprietors and the public generally, a growing desire for the means of incineration within the confines of their cemetery. Application was therefore made to the legislature for an act authorizing the satisfaction of this demand, and a general law was passed granting this right to all cemetery corporations within the commonwealth.

After an extended investigation into the matter at various places where incineration was being practised, it was decided to make use of the discarded chapel, and work was begun to render it applicable to its new purpose. As a result, the trustees came into possession, in 1900, of a thoroughly equipped crematorium, in which, on the 18th day of April, the first incineration was conducted.

The roof and interior side walls of the old chapel were removed and replaced by fire-proof tiling, the

floor and roof being supported by the Guastivino tile arch, and side aisles added, in which niches for urns may be placed. The interior has been entirely remodelled, the lath and plaster partitions having been removed and a new interior of fire-proof decorative material substituted. In the centre of the chapel floor there is a space for the bier, which after the religious services descends to the operating-room and furnaces in a rear building. Here the body is reduced to ashes through the action of kerosene furnaces, supplied with a strong, forced draught from powerful fans. The chapel is of granite, the style of architecture composite, with the Egyptian predominating. The building contains two waiting-rooms and two lavatories, besides the operating-rooms in the basement.

The upper part is finished in brick, in a manner very similar to the new chapel; it is finely furnished, and is tastefully decorated with potted plants. Around the upper part there is a mezzanine story, of brick, which is intended to be used for the deposit of urns containing the ashes of bodies cremated, if the friends desire them placed there. The first cremation within this building took place on the 18th day of April, 1900; and at the end of the year the number had reached fifty.

The incinerators are each eight feet long, three feet high, and three feet wide, and lined with fire-brick. The four burners are examples of a remarkable mechanical development, attained in the coal regions in other lines of work, where the burning oil jet has been wonderfully improved. The fuel is blown into

the chamber in a fine mist that burns readily and completely; a term that implies an absence of smoke. The heat is intensified by the introduction of additional air under a pressure of about eighteen ounces, affording an ample supply of the necessary oxygen. A temperature of 3000 degrees Fahrenheit is said to be reached when fully working. To provide against the possibility of incomplete combustion, everything that escapes from this chamber is conducted to a smaller one, where the burning jets and the supply of air are duplicated. Upon leaving this, these gaseous products pass, in an absolutely inodorous condition, into the chimney, which conveys them to the outer air.

The power needed in compressing the air and forcing the oil through the burners is supplied by an electric motor, which, with the air compressors and other machinery, is in a sub-cellar about forty feet away from the incinerators and is reached by an underground passage.

In the secondary furnace the fires are started 45 minutes before the bier is placed in the retort. Fifteen minutes later the burners in the incinerator are started, the draught having by that time been well established, this step being intended to anticipate the arrival of the funeral party by half an hour. For a few minutes before the insertion of the body the burners are turned off and the temperature so reduced that a view of the interior does not suggest the intense degree of heat employed. The incineration is said to be completed in about an hour.

CHICAGO, ILLINOIS

THE crematorium in operation at Chicago has its place in the Graceland Cemetery. It was constructed in the basement of the cemetery chapel, during the year 1893, at a time when the people of the country were in fear of a visitation of cholera, which was said to be rapidly approaching our shores. A cremation society had been for some years in existence endeavoring to raise the capital necessary to the building and working of a crematorium. The public mind, however, was not inclined to favor the contemplated action, and, when dread of the predicted cholera was at its height, the organization had not money enough to purchase even the requisite land.

Under these circumstances, the cemetery company, moved by a desire to furnish a more reliable means than inhumation for disposing of the victims of cholera and other zymotic diseases, undertook the establishment of a crematory within its own grounds and decided to make use of the basement of the cemetery chapel for that purpose. The needed alterations and additions were immediately put under way and, by the end of the year, the work had been brought to completion and six bodies had been reduced to ashes in the building.

The chapel beneath which this crematory apparatus has been placed, and with which it is so connected that services can be held therein over bodies destined for incineration as well as those to be committed to the earth, was built in the year 1888 at a cost of about thirty-two thousand dollars, and is constructed

of Waupaca granite with a tile roof. It is about thirty-nine by fifty-one feet, and inclines towards the Romanesque in style. The interior is finished in oak, with a space devoted to ornamental plants.

The changes made for the purpose of introducing cremation were effected at a cost of about six thousand dollars. The furnaces were built by the Engle Sanitary & Cremation Company, and the whole fuel employed at first was oil, but coke and coal are now used in the second or lower chamber. A Jordan oil burner is used for the generation of the necessary heat in the upper chamber; and the gases are consumed or oxidized in the lower chamber, heated, as said, with coal and coke. The time required for heating these furnaces is from one to two hours, and the usual time engaged in the incineration of a body of average weight and ordinary condition is between two and three hours. The ashes are, as a rule, left in the retort until the morning following the cremation, but can, if necessary, be withdrawn about two hours after the completion of the operation.

CINCINNATI, OHIO

THE Cincinnati Cremation Company was organized in the city of Cincinnati Oct. 8, 1884, and immediate steps were taken to dispose of its stock. In the following year a piece of ground, two and a quarter acres in extent, was purchased in the northern part of the city, near the suburban village of Clifton. In September of this year building operations were begun, but the company had an experi-

ence similar to that of most projectors of innovations in long cherished customs and deeply rooted prejudices. The funds necessary to the carrying out of their purpose were slow in forthcoming, and it was not until November, 1888, that the edifice was in a condition to be dedicated, although it had for nearly a year contained the appliances for incineration, and the first body had been cremated in June of the previous year. The cost of the structure and the laying out of the grounds was about forty thousand dollars.

The building is octagonal in shape, of a composite style of architecture, and has an imposing entrance and stairways constructed of stone. The foundation is extremely heavy and substantial, and the basement is built of cut limestone, while the superstructure comprises alternate series of stone and brick, and almost the entire edifice is covered with a dense growth of Virginia creeper, which gives it, in the proper season, a picturesque and even a romantic appearance. On the first floor will be found the janitor's apartment, a preparing-room, a columbarium, and the rooms containing the sarcophagi or retorts. Above these, on the second floor, is the chapel, which has a seating accommodation for about one hundred and fifty persons, and is provided with an appliance for lowering the body to the incinerating-room.

The first cremation took place on the 22d day of June, 1887, and one apparatus did good service until August, 1893. At that time this was found incompetent to meet the demands which were made upon it. It was therefore removed and replaced by two new appliances, constructed upon the best known

principles, and each capable of bringing an incineration to completion within two hours.

This crematory has been in operation a little over thirteen years, and, during that time, 647 bodies have been reduced to ashes by its agency. In the chapel the company is about to place a number of niches for the reception of urns containing the ashes of the bodies cremated. The hope is entertained that thereby the general favor towards this method of disposing of the dead may be materially increased, the directors being of the opinion that there are many who would prefer incineration to inhumation had they the assurance of a resting place for the resultant ashes.

One hundred and five of these receptacles have been provided, with the expectation of adding sections as required. They are constructed of hammered and bronzed artistic iron-work, and the door of every compartment is supplied with a lock, of which no facsimile is to be found in the room. The buyer of a niche is furnished with a key, a duplicate of which will be retained by the company to permit cleaning and other attention that may be necessary.

The retorts now in use were constructed about seven years ago, by a local firm, after plans of their own, and have given very satisfactory service. A very small outlay has been required for repairs, and they are practically in as good a condition as when put in.

The fuel used is coke, of which about half a ton is consumed at each operation. No power draughts are

employed, the fire-box being the full length of the retorts, and the heat being conducted by an elaborate system of flues around and through the retorts into the chimney. Each retort, with its appurtenances, is independent of the other, and thoroughly insulated so as to retain its heat. About three hours are required for heating, two and one-half hours for an incineration, and two or three hours for cooling sufficiently to withdraw the ashes. Emitted gases are carried back into the furnace, and completely deodorized before finding an outlet into the air.

CLEVELAND, OHIO

IN this city a society, having for its object the building and operation of a crematorium, was formed in 1891. It was incorporated as the Cleveland Cremation Company, with a capital stock of \$25,000, divided into one thousand shares. At the end of about two years, six hundred and forty of these shares had been taken. Plans for the contemplated building were then prepared, and an endeavor made to have it erected in the Lake View Cemetery. The majority of the trustees, however, were opposed to this, and a site was therefore purchased at the corner of Page Road and Euclid Avenue. In this locality many wealthy and influential citizens had their residences, and, when it became known for what purpose the land in question had been secured, a strong protest was made against its use in this way.

The company paid no heed to this, but proceeded to break ground and lay the foundation of their

building. At this stage, application was made to the legislature, and this resulted in the passage of an act prohibiting the erection of a crematorium within nine hundred feet of the public highway or any dwelling-house. Further advance here was thus made impracticable, wherefore the land was sold and the project abandoned. The company relinquished its charter and returned to the subscribers the amounts they had severally paid in, except the proportion which was consumed in the work that had been done.

It was not until about seven years later that any serious effort was made to reawaken an interest in the subject. In 1900 a new company was formed under the old name, and this soon found itself hampered by the legal exaction regarding the distance that must intervene between any building it might erect and the nearest private dwelling. It therefore petitioned the legislature for a modification of the proviso, and secured a reduction of three hundred feet. Soon after this about two acres of well wooded land were purchased, and contracts for putting up the crematorium were awarded. Here a cloud in the title to some of the land was discovered, and a further delay was occasioned by the legal proceedings necessary to its removal. Everything at length was clear. Work was begun and carried on in earnest, and in the last month of the year and the century the erection was finished and in readiness for its interior fittings and adornment.

This is composed of brick intermingled with stone, and the main building is of three stories, one of

which is mostly below the level of the ground. The first floor, or the middle of these three stories, comprises a vestibule, a reception-hall, and a chapel. Below is a store-room and a room for the furnace, while the upper floor is intended for a columbarium. Adjoining the main building is an extension of one story, containing an incineration-room, an apparatus-room, and a receiving vault. In the fitting up of the chapel and the other rooms upon this floor an endeavor has evidently been made to avoid all sombre and gloomy accessories to a funeral service, and to banish from the minds of attending friends all melancholy thoughts in relation to the one who has gone forward a little in advance of them.

Upon entering the vestibule one stands upon a floor of marble mosaic, surrounded with a deep red marble wainscoting, and walls in harmony. The shade becomes continuously lighter as it approaches the ceiling, which is finished in the faintest hue. Through a pair of heavy antique oak doors entrance is permitted to the chapel, where a different color obtains. The floor here is also laid in pattern; and, in lieu of the ruddy wainscot of the vestibule, we find one of the purest white just flecked with the darkest blue. It is composed of Georgia marble, and in the upper walls the blue is continued, with a gradually receding depth, to the ceiling, where, as in the other case, it shows an almost imperceptible tint. The upper frames of the windows are filled with art glass in designs of wreaths and vases, while the lower sashes are supplied with the clearest plate, through which are obtained glimpses of the trees and

the skies outside. The seats remind one somewhat of the modern church pew, although more suggestive of comfort in their use, and are provided in sufficient number to accommodate one hundred and fifty people. A reading-desk and an organ, whose use can be had without charge at any service, complete the furniture.

In the incineration-room again the prevailing color changes. Here is a panelling of pink Tennessee marble, whose dye is continued in the walls and ceilings, as in the other rooms, and is relieved with window curtains of a rich, deep green. Two heavy iron doors in the opposite wall indicate where bodies pass into the sarcophagus for incineration. Connected with this room, by means of massive oak doors, is the receiving vault, where provision is made for keeping and preserving bodies not destined to immediate cremation. This room is supplied with delicate electric apparatus, of the most improved and modern type, for detecting any indication of returning life in cases of suspended animation.

It is interesting to know that the street-railroads have made a successful attempt to minister to the convenience of those desiring to use this crematorium. A special electric car has been constructed for conveying the body and the accompanying funeral party to the building, and can be engaged from numerous points within and around the city. A fixed scale of charges from the various starting places has been issued, and it is expected that this means of conveyance will be found of great service.

DAVENPORT, IOWA

CREMATION, as a method of disposition for the human body, was first openly brought to the attention of the citizens of Davenport at a meeting of the A. O. U. W. in February, 1880. On that occasion an address was delivered by a prominent citizen, and received considerable notice in the newspapers of the country, thus creating a strong general as well as local interest in the matter discussed. The extension of this interest, however, was not equal to its intension, and it was allowed to expand for about five years, when a public meeting was called for the especial purpose of considering the subject in its practical aspects. A goodly number of the substantial business and professional residents attended, resolutions favorable to the enterprise were passed, and a committee appointed to formulate plans for a permanent organization. At a subsequent meeting the North Western Cremation Society (a name since changed to the Davenport Cremation Society) was organized, stock was issued, and a committee appointed to procure plans for a suitable building and select a site for its erection. In the year 1890 a piece of ground one hundred and twelve feet square was purchased from the West Davenport Cemetery Company, and a building put up and supplied with the appliances for carrying out the object for which it was constructed.

This building is a handsome, Romanesque structure of brick, terra-cotta, and cut-stone, and occupies a good location west of the city, about half a mile from the Mississippi River and two and one-half miles from

the City Hall. It consists of one story and a basement. Its entrance leads directly into the chapel on the upper floor, a beautifully frescoed room neatly finished in natural wood, and giving a seating capacity for about one hundred persons. Herein is contained a catafalque, rising about one foot above the surface of the floor, and furnished with an elevator upon which is placed the coffin containing the body to be cremated. By a simple mechanism, after a given signal, when the ceremonies are over, the coffin descends slowly and noiselessly into the basement, and a trap door closes over it. At the head of the catafalque is a platform for the person appointed to conduct the funeral ceremony. The remainder of this floor contains a waiting-room, and a second room from which leads a stairway into the incineration-room, situated under the chapel, and containing the elevator, a table, and the crib. The front, or door, of the retort is at one side of this room, while the furnace and coal-room occupy a one-story building at the back.

In addition to the above, the basement contains a room for the reception of bodies, where, if any doubt exists as to death, they may be retained until such tests can be applied as shall dispel this uncertainty.

The Davis system of incineration has been established here, and has given complete satisfaction. The total cost of buildings, including alterations and improvements, and the incinerator has been about six thousand dollars. For fuel, coke or hard coal is used, and about three-quarters of a ton of

the latter is regarded as the average quantity required for an incineration. The time occupied in heating the furnace is from five to six hours, and about the same time for cooling it after the incineration has been completed, which process occupies from an hour to an hour and a half, according to the size and weight of the body. The furnace is so constructed as to render complete the consumption of gases and odors, none of which can find an escape into the air. The first incineration of a human body took place on the 15th day of March, 1891, and at the end of 1900 the total number of bodies here cremated was one hundred and thirty-three.

DETROIT, MICHIGAN

It was early in the year 1885 that the attention of the citizens of Detroit was directed to the merits of the hygienic argument in favor of cremation as opposed to inhumation for the disposition of the dead. The Michigan Cremation Association was founded in August of that year, and, in the following March, it was incorporated as a joint-stock company with a capital of twenty-five thousand dollars, divided into one thousand shares of the par value of twenty-five dollars each. As soon as possible after this the erection of a crematorium was begun, but progress was interfered with through various obstacles. The land first selected had to be relinquished on account of opposition from surrounding property owners, and another location substituted. The work was thus considerably delayed, and the

building finally constructed was not ready for the carrying out of its purpose until December, 1887, on the 10th day of which month it was dedicated, with its initial cremation as a part of an impressive ceremony.

The crematorium is built of brick with stone trimmings, of one story in height, with a basement, and has a small turreted tower in front. It is entered by means of a vestibule, through which one passes to the chapel, which is a spacious and well-ordered room occupying nearly two-thirds of the enclosed space upon the ground floor, and capable of seating about two hundred people. It is tastefully furnished, and supplied with stained glass windows. Within it stands a catafalque raised about one foot above the level of the floor, in front of an elevated platform for occupancy by the person conducting the funeral service, or uttering an oration over the deceased. This catafalque consists practically of an elevator upon which the coffin is placed, there to remain during the exercises which are carried out in connection with the incineration, and which, at the conclusion of this ceremony, begins slowly and noiselessly to descend to the room beneath. Here it disappears from view, and the aperture left by its removal is automatically closed by a trap door which restores the level of the floor.

The remainder of this story is divided into three rooms, one of which is used as an urn-room or columbarium, supplied with niches for the reception of urns containing the ashes of the dead; another is the janitor's room, and the third forms the entrance to a stairway which leads directly to a room below the vesti-

bule, and of the same size. Through this, entrance is gained to the preparation-room, underneath the chapel and of similar dimensions. The remainder of the basement is occupied by the furnace and a bin for holding the necessary supply of coal.

In preparation for the retort, the body is removed from the coffin and enveloped in a white sheet saturated with a solution of alum. It is then conveyed to the interior of the sarcophagus, which has already been heated to about 2600° F. Before the entrance of the body, the retort contains nothing whatever but this superheated air. The flames from the furnace fires cannot penetrate it. The body is speedily oxidized, the chemical union of the oxygen and the organic matter being so complete that the most favorable conditions are secured for a gentle though swift disintegration and a harmless resolution into its original elements, all of which, after purification, make their escape into the air, with the exception of a handful of clean gray ashes which can be removed and preserved by surviving friends in any way they please. For use in this connection a columbarium has been recently built in the Elmwood Cemetery.

The apparatus here used is the Davis incinerator, and about a ton of fuel, half of coal and half of coke, is consumed at each cremation. For a body of average weight and condition, a little over an hour is required for complete disintegration. The construction of the furnace is such that all gaseous emanations from the body are compelled to pass through the fire beneath the sarcophagus. After having done this three or four times, these exhalations reach the chimney, from

which they emerge, deodorized and harmless. A second furnace is about to be constructed, and a remodeling of the present one is in contemplation. With these and other improvements, many of which have already been recently made, the society will undoubtedly proceed to carry on its work with results even more satisfactory than those already achieved.

FORT WAYNE, INDIANA

THE crematory building here was erected in the year 1895, at a cost of between six thousand and seven thousand dollars, and is placed in the Lindenwood Cemetery in connection with the receiving vault. It occupies a good position upon a little knoll; and, with its graceful Roman style, raised well above the adjacent ground, it is a conspicuous and pleasing object in the landscape. The receiving vault is in the basement, and above this is the crematorium, built of stone and furnished with a Davis incinerator. There is no chapel in the building, but in the room which has been constructed for the reception of the body, simple services can well be held. The fuel employed is a mixture of coal and coke in about equal proportions, and it takes about an hour and a half to reduce a subject to ashes. As in all the Davis incinerators, the gaseous emanations from the disintegrating body have to pass several times through the furnace fire, and thus become thoroughly purified before finding their way into the chimney. Although the apparatus here was in its place and tested late in 1895, it was yet not until 1897 that it was brought into regular service. It is now serving a useful educational purpose, but from the

small number of times it has been called into service, it is evident that the process has not yet commended itself in large degree to the public mind of the vicinity.

LANCASTER, PENNSYLVANIA

OF the series of American cities and towns which have modern crematory appliances at the service of the public, Lancaster stands, in point of time, at the head. Early in the year 1884, the sanitary objections resulting from earth-burial were brought to the attention of the inhabitants of the town, and the advantages that would be gained by a change of this method to that of incineration were placed before them. During the month of May, a meeting was called to consider the practical aspects of the question, and this resulted in the appointment of a committee to arrange and report upon a definite plan of organization and action. Upon the report of this committee, it was resolved to incorporate, under the name of the Lancaster Cremation and Funeral Reform Society, a joint-stock company with a capital of \$5000, divided into shares of the par value of ten dollars each, and having for its object "the promotion of sanitary progress, by substituting cremation for burial, and the encouragement of reform in funeral customs." Immediate steps were taken to procure suitable ground and erect a crematorium, upon which work was at once commenced and continued without interruption during the summer and autumn, until its completion in November, on the 25th day of which month it was dedicated to its

proper uses with fitting ceremonies and its first incineration.

The building is a specimen of what may be termed a modified Gothic style of architecture, having its walls constructed of brick supporting a roof composed of iron, and pierced with windows of the perpendicular form. It is situated at the southern end of the city, just outside the Woodward Hill Cemetery, and consists of one story, forty-eight feet long, and thirty-two feet wide, divided into four rooms, of which the auditorium or chapel occupies the front half, with a seating capacity for two hundred and fifty persons. Behind this the space is divided into three rooms, the middle one of which is occupied with the furnaces and retorts; and of those on each side of this, one is used as a waiting-room by friends who accompany the deceased, and the other for the preparation of the body for cremation, which is effected by means of the Davis incinerator.

The floor of the auditorium is laid in Portland cement, and it is furnished with chairs for the congregation or audience, and a table for the use of the person selected to conduct the ceremonies or service attending the cremation. The other portions of the building are floored with brick, and the waiting-room is supplied with chairs and lounges, together with toilet and such other accessories as shall promote the comfort or minister to the convenience of the waiting friends. The surrounding grounds are two acres in extent, and divided into two almost equal portions, one of which is level and the other hilly. On the level portion the crematorium has been

erected, and the other is intended by the society for the construction of a columbarium. These grounds have been laid out with taste, and are supplied with good roadways as well as secluded walks among trees and shrubbery.

LOS ANGELES, CALIFORNIA

THE crematorium at Los Angeles is situated in the Rosedale Cemetery, and is the property of the Cremation Society of Southern California. This society was incorporated in the year 1889, as a result of the combined efforts of several public-spirited citizens who had come to the conclusion that, for the health and well-being of the community, some way, other than burial in the earth, should be introduced for the disposition of their dead. Thus they combined, incorporated a cremation society, issued stock, bought land, and erected a crematorium, as said above, in the Rosedale Cemetery, on an extension of Washington Street called the National Boulevard, at the western extremity of the city.

The building which, with its apparatus, was erected by Mr. John L. Dye, the builder of Dr. Le Moyne's crematorium at Washington, Pennsylvania, consists of a chapel and an incinerating-room, access between which exists by means of a large sliding door. The cremating apparatus has been constructed so as to furnish the heat necessary to the disintegration of the body without contact with the flames produced in the combustion of the fuel. A temperature of about two thousand degrees, Fahrenheit, is said to be quickly produced, and to effect its purpose, on a body of

medium weight, in less than an hour. The furnace constructed at Washington was taken as the model; and, with the necessary improvements that have been introduced, it has been found fully adequate for carrying out the purpose of its designers, and given satisfaction to the society.

The first cremation here was conducted on the sixth day of June, 1887, and six others were carried out during the remainder of that year. For six years this was the only place on the Pacific shore where cremation could be effected, and its use was sought along almost the entire coast. Its numbers increased, however, after other appliances had been established in the State, until for each of the last three years of the century they have exceeded fifty.

MIDDLETOWN, CONNECTICUT

THIS building was erected in 1896 by the State of Connecticut in connection with its Hospital for the Insane. It contains, in the words of the Trustees' Report, "not simply a room for the service of the dead; but, in connection therewith, a laboratory for post-mortem examinations, which are sometimes essential to a certificate of death, and often desirable to complete the history of morbid processes. A cooling-room is also provided for the preservation of bodies while waiting for removal, and a furnace for cremation, where a cleanly and innocuous method of disintegration may be substituted for the crude method of earth-burial. The construction of this building, of Portland brown-stone and brick, with tile roof, is substantial, ornate, and, while in harmony

with its purpose, suggests externally the idea of a cosy old-fashioned lodge, standing, as it does, near a gateway. The interior is lined with cream-colored brick, ceiled only by the roof timbers, well lighted and ventilated; the laboratory has an open fire-place."

The cremation appliance here installed is the Davis American incinerator, and about three-quarters of a ton of coal is consumed in heating the furnace. Up to this time — the end of 1900 — no human body has been operated upon; but, from experiments made upon the carcasses of various animals, it is estimated that about two hours would be occupied in reducing to ashes a body of average size and weight. The deodorization and consumption of the gases set free in the process of disintegration is effected by means of an apparatus placed beneath the grate.

The incinerator is placed in the basement, and a very ingenious contrivance is employed to lower the body from the room above. This consists of an inclined plane formed by two tables, each of half the length of the distance travelled. One forms a part of the upper floor, and the other a table in the room below. The outer end of each is fixed with hinges, and from these points both are free to move on the centre line by means of a wire rope so attached to the inner ends of the tables that they counterbalance each other, and when the inner extremity of the upper one begins to descend, that of the lower begins to rise. This continues until the two ends meet and form the inclined plane down which the body is conveyed. When the weight is entirely upon the lower part of this plane, the two halves resume their

original position, and the lower one forms a table upon which the body rests in the incinerating-room until placed within the sarcophagus.

MILWAUKEE, WISCONSIN

THE history of the cremation movement in this city is very interesting. In some respects it is even peculiar, while in others it follows a course which will be found to coincide with the general experience of those who have, in all ages of the world, set themselves to the task of uprooting a deeply rooted prejudice, and effecting a change in a general and reverently cherished custom. The sanitary objections to the deposition of the human dead in the earth, there to undergo slow and gradual decomposition, and the advantages to be derived from the changing of this method to cremation were first brought to public notice here early in the year 1893. Soon afterwards a society was formed for the purpose of spreading these ideas, educating the public to their favorable reception, and providing the means whereby incineration might be brought into practical application. The soil, however, was not in a condition to receive with any promise of fructification the seed which was being sown, and the work of bringing to bear upon it the efforts of direct cultivation were given up. Here the enterprise took a direction, and experienced the results, which have been spoken of as peculiar. Finding the general mental attitude too strongly adverse to the new idea to warrant the expectation that it could be brought to a condition of receptivity within a reasonable time, the society had recourse to an

ecclesiastical organization which might well have been supposed to embrace in its fold the most conservative minds of the community. The rector, wardens, and vestry of St. Paul's Protestant Episcopal Church constituted the trustees of the Forest Home Cemetery, which is the principal depository for the dead of the city, and this was the body to whom the society applied to assist them in carrying out their work. After a lengthened and earnest consideration, in which the pros and cons of the whole question were ably presented and discussed, the idea was favorably acted upon by deciding to enter into an agreement with the cremation society that the trustees would undertake the construction of a crematorium within the cemetery grounds, provided the members of the said cremation society would give an undertaking to purchase two hundred certificates of incineration at a cost of \$25 each, as an evidence of the existence of a desire sufficiently extended to warrant the church in going to the expense of providing the facilities asked for. While this matter was being considered by the society, the secretary of the parish visited several of the crematoria in operation in various parts of the country, with the object of finding what might be regarded as the best system by which the objects of the society could be carried out, should the stipulated requirement be complied with. The demanded guarantee, however, could not be furnished, and the project was given up. In the spring of 1895 the matter was again brought to the notice of the vestry by the officers of the cremation society, who were desirous of knowing if the trustees were still

willing to enter into a similar agreement. Having received a favorable reply, they undertook a careful and systematic canvass of the members of the society, with the result that the requisite guarantee was furnished.

The crematorium was constructed as an addition to the cemetery chapel, with which it was made to communicate so that the same place could be used, when desired, for the conduct of religious service under the new conditions as under the old. The apparatus was furnished by the Engle Sanitary and Cremation Company, and the whole cost of the new erection was a little over \$13,700. In planning it, the trustees have wisely paid a scrupulous regard to the æsthetic features of construction. Everything in connection with it has been made attractive, and, as a result, the projectors have the satisfaction of knowing that they have made many converts to this method of disposing of the dead. Soon after its erection it was described in "Park and Cemetery" as "one of the latest and most complete examples of the crematorium and accessories for this method of disposing of our dead by incineration."

The cemetery chapel is a Gothic structure built of Lake Superior sandstone; and, although not erected with any idea that within its walls services would be conducted over bodies destined to disintegration by means of fire, is well deserving of space here for a few words of description. By the journal just now mentioned, it is well called a conservatory-chapel, for upon each of its sides it is supported by a conservatory. These botanic houses are separated from it by

means of windows; and, when these are raised, the three compartments are united; the whole area becomes one tabernacle, and the fragrance of tropical plants, among which are many choice palms, pervades the building. At the close of the service for the dead, thus conducted among the rarest and most beautiful specimens of vegetable life, the body is lowered, by means of a hydraulic lift, to the basement from which it is taken to its final resting place.

At the back of the chapel, and opening from it, is a receiving vault for temporary use. This contains twenty-one separate crypts, concealed by bronze and slate sides. Through each of these a current of air is continually circulating, and the walls of the vault itself are hollow, so that an even temperature is constantly maintained. The building is heated by steam, amply supplied with water, and provided with resources for gas and electric lighting.

The crematorium, consisting of three rooms and a hallway leading to them, has been constructed in the basement. The waiting-room and hallway are under the chapel, and the furnace and preparing-rooms under the conservatory, whose floor has been made perfectly water-tight.

The walls of the hall and the waiting and preparing rooms are of pencil-veined white Italian marble in slabs reaching from the ceiling to the floor, and carefully matched. The floors are laid in a simple pattern to harmonize with the classical ornamentation in the rooms, which is on the Corinthian order. The ceiling of the preparing-room is deeply panelled and handsomely ornamented. In the centre of alternate panels

are electric lamps that light the room, and are reflected on the marble walls.

On one side of the preparing-room is a handsome fire-place, and on the opposite walls are the two retort doors. One is the door of the retort in operation, and the other waits for a second retort, should an addition become necessary. The preparing-room is comparatively bare in its appointments, but the waiting-room is supplied with attractive furniture.

Every detail has been carefully worked out to insure both durability and attractiveness, and whatever comfort may be derived under such circumstances from inspiring surroundings.

The furnace itself embodies the latest improvements connected with the generation of the high temperatures required in incineration, as well as the preservation of a structure having to sustain such extremes. It is constructed of high class fire-brick, specially moulded, and laid so exactly that no destructive strain occurs from the alternate heating and cooling of the furnace. The plan provides air spaces and other expedients in the walls to prevent the radiation of heat to the exterior. To obviate all suggestions of active operation, both the oil for the burners, which is supplied under hydraulic pressure, and the compressed air to effect the spraying of the oil when burning, are piped underground from a considerable distance, where the operating devices are located.

The furnace consists of two chambers, one above the other. The upper one is the retort in which the bodies are incinerated, and the lower one the com-

bustion-chamber in which the gases from the retort are consumed. The burners in the retort, three in number, are arranged along one side near the top of the upper chamber, and the secondary burner is placed at one end of the combustion-chamber so that its flames shoot down the chamber and across the openings through which the gases from above are received.

The flues for carrying the gases from the retort are arranged along one side at the bottom of the wall and under the row of burners previously described, the design being to keep the gases swirling and prevent their too rapid escape into the combustion-chamber. In the lower chamber the same swirling is kept up to consume the gases as completely as possible. The draughts can be so regulated that incineration can be accomplished without a particle of smoke issuing from the chimney.

MONTREAL, CANADA

THE idea of establishing a crematorium in this city is not entirely new. Several years ago, at a meeting of the proprietors of Mount Royal Cemetery, a resolution authorizing such a proceeding was brought forward and debated. The general tenor of the discussion was favorable to the project, but the legal obstacles arising from the terms of the charter under which the cemetery company was working, caused the rejection of the proposition. Thus were matters left until early in the year 1898, when, by the will of a prominent citizen, Mr. John H. R. Molsom, who then died, the sum of \$10,000 was left to the cemetery for the establishment of a crematorium. The

legal objection again presented itself, and the cemetery company felt itself compelled to decline the bequest; but, at the suggestion of the devisor's widow, expressed a willingness to transfer the legacy to any competent corporate body that might be organized, and to permit its superintendent and secretary to act for it in their respective capacities. The matter remained in abeyance for about two years. It was the subject of frequent discussion at meetings of the cemetery directors, but no decisive action was taken until the year 1900, when Sir William Macdonald came forward with an offer that, if the cemetery company would assume the trust, he would furnish the additional funds necessary to the erection and equipment of the building, and would further endow it in such a manner that the general resources of the company should not be called upon for aid in its support. After due consideration, the cemetery company decided to accept this offer, and to take measures for securing such legislation as would enable it to carry on the desired operations.

Work was begun upon the new edifice in August, 1900, and is being pushed rapidly forward, in the hope that at the session of the Legislature of the Province which convenes in January, 1901, the necessary powers for cremating bodies will be granted to the cemetery company. The building, which will be fire-proof, is to be constructed of Montreal limestone, with doors of oak, and will be of the early English Gothic style of architecture. With the crematorium will be connected a conservatory with plate glass windows and lofty glass roof. Its situation is

within the cemetery and a little to the left of the gateway leading thereto. A large, imposing entrance porch leads one at once into the conservatory above-mentioned, which forms a hall of about eighty-two by forty-one feet, and will be used both as a waiting-room for the crematorium and as winter vaults. This conservatory leads to an ante-room from which access is had to the crematorium itself, which consists of two compartments, a hall in which friends of the deceased can assemble, and the incinerating-room. The glass roof of the conservatory is supported by ornamental iron trusses; its floor will be of marble of various colors laid in pattern, and it will be kept constantly supplied with plants, some of which will be specimens of equatorial growth. The crematorium-hall will be paved with colored marbles, in a rich and ornamental pattern. The walls, for a considerable height, will be lined with pavonazetto marble, while the windows will be filled with stained glass, and the roof arched and groined with ribs and bosses. The incinerating-room, to the height of six feet, will be lined with marble, and its floor will be laid in tiles.

It is intended to provide space for four incinerators, two of which are in course of construction, while the others will be added as the requirements of the service may demand. The whole building will be warmed with hot water, and the cost of the erection and fittings is estimated at about \$44,000. When complete, it will evidently be thoroughly equipped with the most modern appliances for carrying out its purpose, which will be done amidst surroundings approaching as near æsthetic perfection as can be. According to

present intention and probability, it will be ready for use early in the summer of 1901.¹

NEW YORK

THE first organized attempt to bring the subject of cremation to the notice of the public, with a view to the taking of measures for its practical introduction into the United States, was made in the city of New York, in the year 1874. There is not extant any documentary evidence upon which can be founded a narrative of what took place at that time, and I must, therefore, trust to memory for an account of what transpired. Prior to the year mentioned, there had been considerable private discussion of the subject among a few of the city's residents, who, from considerations both of sentiment and health, were impressed with its superiority to burial in the earth. Late in 1873 some of these affixed their signatures to a statement that, in their judgment, the prevailing method of dealing with the dead was fraught with danger to the living, and that the public welfare would be subserved by its discontinuance and the substitution of incineration as carried out by modern methods. This was followed with an undertaking to form themselves into a society for the purpose of giving practical effect to their declaration, and an engagement that each would do everything possible to promote the interests of such an association and aid

¹ Publication having been somewhat delayed, opportunity is afforded to say that the desired legislation has been obtained, and that work upon the building and its equipment is being rapidly pushed towards completion.

in the furtherance of its avowed objects. During the early months of the year 1874, occasional meetings were held at the residences of some of the signers of this paper, and the matter, in its various bearings, was more openly and freely debated. The numbers attending these meetings gradually increased until it was deemed advisable to discuss the subject in a larger and more public assembly. Accordingly, on the 24th day of April, 1874, a meeting for this purpose was held in the hall of the Young Men's Christian Association. At this meeting the medical, clerical, legal, and commercial interests of the city were represented, and the subject was regarded and examined from the various standpoints of these different avocations. Both the practical and theoretic aspects of the question were fully discussed; and, although a considerable amount of fervid opposition was developed, yet the prevailing expression of opinion was favorable to the suggested innovation. Additional names were appended to the aforementioned declaration, and it was formally resolved to take immediate measures for the formation of a joint-stock company, whereby might be raised the funds necessary to the erection and equipment of a crematorium in the neighborhood. Beyond this, very little was accomplished, for soon afterwards the business world was thrown into confusion by a financial disturbance which necessitated, for the time being, a relinquishment of the project, and it was not until seven years later that an endeavor was made to resuscitate it.

Early in the year 1881 a meeting of advocates and sympathizers was called, and the result was consid-

ered favorable for a repetition of the endeavor, with reasonable hope of success. It was decided to form two associations, one with the object of spreading abroad healthful information respecting the matter, and the other for providing the means of carrying the idea into practice. The first was called the New York Cremation Society, and the last was designated the United States Cremation Company, and these organizations taken together, may, by their co-operation in theoretic and practical endeavor, be called the *avant-coureur* of the modern cremation movement in America. The former has done valuable service in the carrying out of its objects, and it also rendered substantial aid to its sister company in providing for the application of its tenets. These objects, as stated in its articles of incorporation, 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 that of burial; and to advance the public good by affording facilities for carrying cremation into operation." The manner in which the last clause of this predication was proposed to be carried out was twofold. In the first place, by rendering to its twin sister all the aid in its power, so that no time might be lost in the establishment of a crematorium in the neighborhood. From the commencement of its career until the object was accomplished, this was held to be its foremost function, and the value of its endeavor will be seen when the affairs of the United States Cremation Company are set forth. The second means adopted for giving effect to this proposi-

tion, was the creation and maintenance of an Incineration Fund, out of which should be paid the expenses incurred by the incineration of bodies of its deceased members. This fund was provided for by limiting the current expenses of the society to one-half its receipts in the shape of fees or dues, and keeping the other moiety intact, except in so far as it should be drawn upon for the purpose mentioned. After all the payments made on this account during the nineteen years of the society's existence, there remained in this incineration fund at the close of the year 1900, the sum of \$1814.96. For several years no meetings have been held, except the necessary one each year for the election of officers, but in the way of disseminating literature respecting incineration it is still active.

As has been stated, the United States Cremation Company was organized at the same time as the New York Cremation Society. As soon as possible, a systematic plan was devised and set in motion for disposing of its stock. The community was found to be not very highly enthusiastic in its support of the adventure, and shares were not sought with any great degree of ardor. The process of raising money was slow, and it was not until more than a year had elapsed that conditions were such as to warrant the acquirement of land for the foundation of a building. When this had been accomplished, obstacles of another nature presented themselves. Owing to accidents and other drawbacks resulting from a necessary unfamiliarity with such work on the part of the managers of the enterprise, its apparatus was not in working order until the year 1885, when the first

cremation within its walls took place. This building and its appliances were kept in use until the year 1892; but, although the number of bodies cremated during that time was more than seven hundred, it cannot be said that the work performed or the structure in which that work was done, gave satisfaction to those by whose aid the crematorium had been established. It was therefore decided to make a radical change. While the building itself was repaired and retained, it was supplied with new retorts, and has since been used exclusively for the mechanical appliances employed. An entirely new and spacious edifice has been erected on the land in front, and joined to it in such a manner as to form, with it, one structure. The new erection is a very substantial building, with the walls of its first story composed of white marble, and above that of buff-colored brick with marble trimmings. It was finished in July, 1893, and was formally dedicated to the use of the public on the 22d day of that month. The main portion covers an area of one thousand four hundred and forty-four square feet, and is supported on each side by a semi-octagonal extension measuring twenty by ten feet. Beneath this is a basement, ten feet high, containing various rooms for use in the conduct of proceedings. The first story is connected with the second by means of a gallery-court in the floor of the latter. The whole is surmounted with a dome containing an artistic ceiling-light, and serves the double purpose of a columbarium with many Roman niches for cinerary urns, and a chapel for the celebration of such funeral rites as may be desired.

It is to the desire of providing for this duplex service that the building owes its peculiar design. The exterior is outlined in the manner of the Romanesque, while the material at command necessitated details in renaissance. The building, therefore, though showing old historic features of architecture, is in its entirety decidedly modern.

Three furnaces are in operation here, and there is room for the instalment of as many more, as the demands for the service of the crematorium increase. These appliances are constructed from designs by Prof. C. J. Eames, of New York, and use anthracite coal for fuel. Further information respecting them has been withheld by the president of the United States Cremation Company, under the plea that it is not "business-like to advertise for public curiosity" the results of an experience obtained at great cost. Happily this manifestation of a business-like spirit is a solitary one. In no other place, and in no other person has there been found, in the course of these investigations, any indication of a disposition to balance personal interest with the general welfare; and it is to be hoped that, in this matter, the pursuit of private material gain, as the cardinal motive for advancing what is conceived to be a public good, may be confined to its present narrow limits.

PASADENA, CALIFORNIA

IN Mountain View Cemetery a firm of Pasadena funeral conductors have erected, of English fire-proof brick and clay, a small building just large enough to contain an incinerating furnace and a preparing-

room. There is no need for a chapel or auditorium, for this the proprietors have in connection with their undertaking establishment within the city. They were induced to put up this small building in response to an increasing demand for some way of disposing of the bodies of the dead other than that of consigning them to the process of slow decomposition within the earth. The apparatus consists of one furnace and sarcophagus, and is heated by means of flues which surround the latter and raise its temperature to a sufficiently high degree without bringing the flames produced into contact with the subject whose disintegration is desired. An open, sheet-iron casket, lined with asbestos, is used as the vehicle by which the body is conveyed to the interior of the retort or sarcophagus. After being placed upon a movable iron table whose surface is level with the floor of the sarcophagus, it is wheeled to the entrance, and easily transmitted to the super-heated receptacle. Here it remains for a little more than two hours, at the end of which time everything volatile has departed and the calcined frame alone remains. The ashes may be removed on the following day, and disposed of in any manner that surviving friends may desire.

Although the apparatus here used is not up to the high standard of efficiency which has been reached by some of more recent construction, yet it does its work in a fairly efficient manner and to the satisfaction of its owners. After the retort is properly heated, there is no need for a further supply of fuel, and the escape of noxious gases is

prevented by means of a vent through which they are conducted to the heated flues, wherein they come into contact with the flames from the furnace and are consumed. The building was erected in 1895, being finished in the month of September, and by its aid four cremations had been conducted before the close of the year. This number had been increased, as will be seen in the tables, to 112 by the end of 1900.

PHILADELPHIA, PENNSYLVANIA

IN consequence of the peculiar conditions under which the city of Philadelphia obtains its supply of drinking water, the minds of the inhabitants were seriously moved by the early discussions of the various methods of burial and the possible noxious effects of consigning decomposing animal tissue to the earth. In the year 1884 a small number of ladies and gentlemen formed the idea of establishing a society whose aim should be "to advance the principles of cremation, to introduce this method of disposing of dead human bodies in our midst, and prepare the means for the members of the association to have their remains after death dissolved by cremation." The formation of this association, and the public ventilation of its objects soon caused the subject of incineration to receive general attention, and created a desire for a more effective form of union. In response to this impulse the National Cremation Association, as it was called, was disbanded and merged in a combination of narrower name and broader scope, which was formed in 1897 and styled "The Philadelphia

Cremation Society." This society was organized as a joint-stock company on the plan of a partnership. Its capital stock was placed at \$150,000, and was fully subscribed in three thousand shares at the par value of \$50 each. Owing to the absence of necessary legislative authority, it was not possible to secure a charter of incorporation, but notwithstanding this drawback, interest in the matter soon became so clearly aroused that it was determined to proceed without delay to carry out the objects for which the society had been established, and arrangements were made with the Cheltenham Hills Cemetery Company for the erection of a crematorium upon its property.

The site chosen is an elevation in the cemetery at Germantown, and is regarded as one of the finest that could be chosen for such a purpose. In the midst of a well-trimmed lawn, and surrounded by carefully kept graves, the building here erected is an ornament which can be viewed from a long distance on every side. It is also easy of access, being but a few minutes' drive from the Walnut Lane station of the Germantown and Chestnut Hill division of the Philadelphia and Reading railroad. In architecture, the building is Grecian, and its walls are constructed of brick, with Indiana sandstone trimmings. The main floor consists of a chapel and a vestibule, on each side of which is a room, the one used as the office of the society, and the other as a private waiting-room for the friends and relatives who may be present at the funeral. The chapel is about fifty feet long by forty wide, can seat over three hundred people, and is so constructed as to form at the same time a colum-

barium. In the walls within which it is contained, are introduced more than three hundred niches or latebræ for the reception of cinerary urns. When funeral services are held, the coffin containing the body is taken into the chapel and placed upon a catafalque surrounded by an ornamental brass railing; and, at the completion of the ceremony, this catafalque, with its burden, descends to the floor below, and black drapery is drawn slowly over the space which is thus left vacant.

The crematory apparatus is contained in the basement, and as soon as the catafalque from the chapel above has reached the receiving-room, the coffin is placed on a long carriage or table furnished with wheels constructed to run upon a track leading to the sarcophagus. To prevent ignition while being placed within the sarcophagus, the coffin is covered with a cloth saturated with an alum solution. In about three hours after this the work of disintegration has been completed, and the ashes are carefully preserved in a temporary receptacle until their ultimate destination has been determined.

The furnaces employed are a modification of the Davis American incinerator. Coke is used for fuel, and about one ton is consumed at each operation. As usual in cremations conducted according to this system, the sarcophagus or retort in which the body is placed, is closed against all access by the flames which arise from the burning fuel. It is, of course, impossible to reduce a body to ashes without the advent of flame, but the only flame within these retorts is that produced by the consuming body in a

super-heated receptacle into which oxygen is necessarily admitted.

The above is not the only crematorium in Philadelphia, nor indeed is it the first that was there established. Prior to the year 1886 a furnace for destroying the discarded material from the dissecting room of the department of medicine in the University of Pennsylvania was constructed in the basement of the building which contained the dissecting-room. This was a reverberating furnace, but was crudely constructed. It was not adapted to the purpose for which it was used, inasmuch as there was no provision for deodorizing the escaping gases. Thus it became a source of annoyance both to the University and to the residents of the neighborhood, and in 1886 its use was discontinued. In the following year a Davis incinerator was installed. This was used for two or three years, when it was found inadequate for the combustion of the large quantities of material brought to it. It was removed in 1894, and one of the Gregory type was constructed. This was used but once. Its consuming powers and capabilities were satisfactory, but through a faulty construction of the chimney the heated gases could not be carried off quickly enough. This caused a fire in the upper floor of the building, six stories above the room in which the furnace was placed. Since that time cremation has been discontinued in connection with the University. The osseous material from the dissecting-room is sent to the Wistar Institute of Anatomy, where it is cleansed and preserved, while for the disposition of the soft material a step or two of retro-

gression has been taken, and burial in the earth is again resorted to.

In 1890 the city council appropriated the sum of three thousand dollars to the erection of a crematory in the municipal burial-ground. To this was added a proviso "that the bodies shall be first interred five years."

The building, which was put up without delay, was designed with a sole regard to utility. It forms a covering for the cremating apparatus, and in the space not occupied by this, there is, perhaps, room for five or six persons to move about at one time. The use of this apparatus, which consists of a Davis American incinerator, is confined to bodies which have lain in Potter's Field for five years, or as long as there would seem to be a possibility of identification and removal by friends. It seems, doubtless, a little strange that, although it is but a short distance from the municipal hospital, it has not been used to cremate the bodies of any who have died therein of infectious or contagious diseases. Probably the wording of the creating ordinance has been found to render this impracticable.

PITTSBURGH, PENNSYLVANIA

PITTSBURGH has never had the advantage of a society working for the creation and development of a public sentiment in favor of a change in its method of disposing of the dead. Nevertheless, through the influence exerted by Mr. Hudson Samson, an undertaker of the city, it took its place among the first of American towns to furnish means for executing the

wishes of those who desired that after death their bodies might be disposed of in such a way that harm could not arise therefrom to their survivors. As early as the year 1886 we find a crematory in operation here, and fourteen bodies reduced to ashes through its agency. But the efforts of Mr. Samson antedate even this, for this was not the first crematorium that he had caused to be constructed. Had his original contrivance been fashioned upon proper principles, he would have been in the field as a practical cremationist the year before. In his primary endeavor, however, he was destined to meet with disappointment, for the furnace-builder to whom he entrusted the work of carrying out his purpose failed to grasp the essential elements of success in the apparatus which he designed. Through faulty construction, much of the heat engendered was allowed to escape unutilized, so that too much time was occupied in completing an incineration, and the room containing the apparatus became overheated.

The second attempt was more satisfactory. It resulted in the furnace which has ever since been in operation without requiring any alteration or repair except the renewal of a small wall between the combustion-chamber and the sarcophagus. It has furnished the heat by means of which has been encompassed the reduction of two hundred and fifteen bodies, among which may be counted those of some of the best known men and women of the land. It has its place in the basement of the undertaking establishment, and the fuel used is natural gas, conducted into a combustion-chamber on the same

level as the sarcophagus, and placed at the end opposite to that at which the body is introduced. For the supply of the gas, three pipes are used, one on a level with the body, one above it, and one beneath the floor of the retort, by which means is secured the synchronous application of heat to all parts of the subject in as nearly as possible equal degrees.

The building in which this crematory finds its place is a substantial brick structure of Gothic architecture, and contains above the basement a receiving vault, a laboratory, and a chapel capable of seating one hundred and fifty people. This room is furnished with a mosaic tiled floor, two large stained glass windows, and an organ, as well as whatever is necessary to the proper and convenient conduct of a funeral service. It is immediately above the room in which are found the doors of the sarcophagus, and to this the body is lowered by means of an elevator, which begins its gradual and almost imperceptible descent as soon as the funeral ceremonies have been completed.

In the summer of 1897 it was found that the high buildings which had, in the mean time, been erected in the immediate neighborhood were interfering with the draught, and this was remedied by adding about twenty-five feet to the height of the chimney. At the same time a second or auxiliary furnace was built at the end of a horizontal flue about sixty feet distant, and at the base of the vertical flue or chimney. This is heated by means of coke, and serves a double purpose. It increases the draught, and it effects the complete deodorization and consumption of any

deleterious gases that may be given off, these being conducted directly into this furnace, through the heat of which they must pass before finding an outlet into the air.

This crematorium is peculiar from the fact that it is heated by natural gas, and is situated in the heart of a busy city, without furnishing any ground of complaint to the surrounding inhabitants. Did any such cause exist, it could not be continued long without discovery and remonstrance, for the windows of the rooms occupied by the Board of Health are within fifty feet of the top of the chimney through which all emanations find their exit.

PORTLAND, OREGON

THE question of establishing a crematorium in Portland has been mooted on several occasions during the past three or four years, especially at meetings of the Medical Association. These discussions generally showed a preponderance of opinion in favor of the idea, but it was not until 1900 that any definite steps were taken for its realization. In February of that year the Portland Cremation Association was organized with a capital stock of \$25,000, divided into five hundred shares of fifty dollars each. The charter obtained empowers the company to act also as funeral undertakers, but it has no thought whatever of exercising this right. At the time of incorporation, it was estimated that the stock to be issued would fall short of the amount required for the building and its equipment by about ten thousand dollars. A novel plan was therefore resorted to for raising the extra sum

deemed necessary and leaving a small working capital in the treasury. It was decided to issue a thousand transferable certificates, at a price of thirty dollars each, payable in monthly instalments. Each of these will entitle the holder to the incineration of any properly designated body and to all the services connected therewith.

A beautiful spot on the east bank of the Willametta River, about two and a half miles from the centre of the city, has been chosen for the site of the crematorium. It forms a bluff with an area of about two and a half acres on the top. The slopes of the hill comprise perhaps five acres, which are to be ornamentally laid out, and to contain a columbarium.

Concerning the crematorium, the following from the "*Oregonian*" of April 1, 1900, gives an idea of what is planned: The main feature of the exterior is its quaint simplicity, relieved by a massive square tower at the right of the main entrance. The roof is low and pitched at obtuse angles. All the apartments are above ground and on one floor, with a double gallery, which is thirty-five feet wide and forty feet long, and has a seating capacity of three hundred. On each side of this chapel there is a loggia, opening off which are four rooms, twelve by fifteen feet, which are to be used as columbaria. These, when decorated with tropical plants, will produce a very pretty effect, and will greatly tend to dispel the gloom incident to funeral services. The organ and choir loft will be located in the gallery over the main entrance, and it is proposed to furnish music free for every cremation service, thereby according to the

poor the same services and conveniences enjoyed by the rich in the cremation of their dead.

At the farthest end of the chapel from the entrance on one side is the clergy- and waiting-room, with private entrance, grate, lavatory, and all modern conveniences. On the other side are located the retorts, two in number, side by side, and, in the centre, or chancel, will rest the bier, fitted with rollers. Upon this the casket will be placed, and from it, in plain view of all persons, run into the retort at the close of the funeral service. That part of the building usually devoted to the sanctuary in ecclesiastical architecture, is to be devoted to the receiving vault, and by double folding doors will connect directly with the retort-room, so that those who desire to postpone the incineration for a time can have their dead placed in the vault for a limited period.

The various rooms and passages designed for columbaria for the permanent keeping of the ashes are to be fitted up with fireproof cement niches or spaces, varying in size from single space to large family spaces,—sufficient to accommodate the ashes of several generations. Each of these rooms has outside windows, with iron space beneath, the whole of which can be had for use as memorial windows for those who wish to secure family space and erect some tribute to the memory of the dead.

The apparatus will be furnished by the Engle Sanitary and Cremation Company, and, with slight modification, will be similar to that in use at Boston, Cambridge, Chicago, and Milwaukee.

SAN FRANCISCO

SAN FRANCISCO CREMATION SOCIETY

THE first attempt to introduce cremation to the extreme west of the United States was made in the year 1876 by the inauguration of the San Francisco Cremation Company. This was done by a society of German free-thinkers, and met with an experience very common in endeavors of this nature. These pioneers found themselves in advance of the general thought of the time upon the subject in question, and for several years conducted an uphill struggle with the conservatism of the neighborhood and the period. After six years of well-maintained effort, the enterprise was virtually abandoned. The time had, however, not been wholly wasted; some potent seed had been sown, and was now beginning to germinate in the minds of their English-speaking fellow-citizens. In 1882 the First Cremation Society of San Francisco was organized, and in February of the following year was incorporated under the laws of the State. The object of this association was "to induce men to abandon the custom of burying the dead and to adopt in its place the principle of cremation." During the four years, or thereabouts, of its existence, it continued the academic work of the former society with so good an effect that in 1885 the two races resolved to unite and enlarge the scope of their activities. They formed a third society, giving it the original name of The San Francisco Cremation Company, and deciding that its affairs should be conducted wholly in the English language. For a time

matters proceeded somewhat more smoothly. In the month of September the association was incorporated and a piece of ground was purchased. Then progress was again retarded, as the necessary money for the erection of a building was not forthcoming, and the land had to be abandoned and sold. In spite of these discouraging impediments the society continued its efforts, and, thanks to this robust perseverance, the requisite funds were procured in 1892. In the following year an agreement was made with the Cypress Lawn Improvement Company, whereby the building of a crematorium was permitted within the boundaries of the cemetery which that company owned and controlled. The improvement company undertook to convey to the cremation company one acre of land, and to build the crematorium while the latter engaged to erect a columbarium.

The edifices were constructed, and on November 12, 1893, the first incineration was conducted. The contract thus made came to an end on the fifth day of May, 1897, up to which time 337 cremations had taken place. Since that time the crematorium has been leased by the improvement company from the cremation company at an annual rental of \$9000, and up to the close of the century 295 additional cremations were carried out within its walls.

The situation of the cemetery within which this building has been erected, is about ten miles from the city of San Francisco, on the border of San Mateo county, and is easy of access from the San Jose railroad. The crematorium is of Grecian architecture, the materials used in its construction are granite and

brick, and it consists of one story, beneath which is a basement, in which the incinerating appliances are placed. The general impression of the structure is one of massiveness and stability. It is almost square, and, except in the basement, is absolutely windowless as far as the roof, which consists of a glass dome through which is obtained, at nearly all hours of the day, an efficient flood of subdued light, and it is supplied throughout with electric lights. A flight of granite steps leads to the entrance, through which one passes into a chapel of about forty feet square, with walls finished in differing shades of brown, and a floor of tiles. During the service held herein, the body reposes in its coffin upon a catafalque raised considerably above the level of the floor. When the ceremonies are concluded, this is hidden by drapery which is automatically and noiselessly drawn around it. While thus concealed, the body is silently let down to the incinerating-room. The coffin is at once taken from the catafalque, which then returns to its place in the chapel, where the curtains are withdrawn and everything is found as it was before the body was placed upon it. By this time the coffin containing the body has been placed within the sarcophagus, which has been heated to about 1500 degrees Fahrenheit, and in which, after about two hours, nothing is left but the incombustible ashes.

The incineration-room has its floor, walls, and ceiling of white cement, and is entered through heavy oak doors. The furnace itself is built of white brick and lined with a fire-clay which was imported from Germany for this purpose. The apparatus used is an

improved application of the Schneider system, and a mixture of wood and coke is used as fuel.

In connection with this crematorium, yet in situation separate and distinct from it, is a columbarium, built of the same material, in the same general style of architecture, and quite as solid and substantial. It is about twenty-eight feet square and sixty-five feet high, with a domed roof supporting a cinerary urn. It is entered by means of an ornamental bronze door, and its floor is of tiles laid in pattern. Its walls are filled with concrete recesses for urns, arranged in tiers, with galleries in front reached by staircases constructed of stone. The number of these apertures is nine hundred, of which two hundred are occupied.

ODD FELLOWS' CEMETERY ASSOCIATION

When the crematorium in the Cypress Lawn Cemetery had been in operation for about two years, public sentiment had become favorable to the innovation to such a degree that the time was thought to have come when increased facilities could, with advantage, be furnished. Accordingly, a second building was erected, and a plant installed therein by the Odd Fellows' Cemetery Association, within the grounds of its necropolis in 1895, and the first cremation within its walls took place on the 25th day of June in that year.

This building contains a well-ventilated, light, and cheerful chapel which occupies one-half of the first floor and has a seating capacity of one hundred and forty. With the standing room, it is capable of

accommodating two hundred people without crowding. It is supplied with all the necessities for conducting a funeral service, including an organ and the services of an organist, which are granted free whenever desired.

Beneath the chapel is the ground floor, which is divided into four chambers: viz. the reception-room, the preparation-room, the incinerating-room, and the temporary urn-room.

The reception-room is a light and airy apartment, neatly and artistically decorated and furnished with whatever may be found conducive to the comfort and convenience of attending friends. Connected therewith by a spacious opening supplied with folding doors, is the preparation-room, to which the coffin is transferred for the removal of its metal trimmings and glass. This is the only preparing process undergone. The body is not touched. It remains as received, without being in any way handled or disturbed. In the fitting up of this room no wood is used. Its walls are constructed of cement with a surface of light glazed tiling; the ceiling is neatly tinted in subdued colors, and the floor is laid in cement over which India-rubber matting is placed. It is thoroughly antiseptic throughout and is supplied with everything necessary for frequent fumigation and cleansing.

Whenever a funeral service is held, the coffin or casket is placed upon a hydraulic lift and silently raised to the chapel above, where it remains until the conclusion of the ceremony, when it is noiselessly and slowly lowered for preparation as before

described. It is then taken to the incinerating-room, placed upon a steel nickel-plated carriage, and conveyed to the interior of the sarcophagus. Here the body of the carriage is slightly depressed by means of a simple mechanism, and the coffin deposited on the bed within. The vehicle, which is an invention of the association, and the only one of its kind, is then withdrawn and the door closed. For the use of friends or relatives who wish to witness this process, a gallery, occupying three sides of the room, has been constructed. This can be entered from the floor of the chapel, and is provided with seats for the accommodation of sixty persons.

The incinerating-room is supplied with two Schneider furnaces. The fuel used is coke, of which about half a ton is used to create the heat necessary for the introduction of the body, after which the hot blast alone is used, all the requisite carbon and hydrogen being supplied by the body itself. The sarcophagus or retort is constructed of fire-brick, and is heated by means of a stream of heated hydrocarbon mixed with air, which is sent directly from the gasometer into it. The temperature obtained is about 2500 degrees Fahrenheit, and under the resistless energy of this great heat disintegration at once begins, and all noxious emanations are deprived of their offensive powers before there is any possibility of their escape to the chimney.

During the year 1898 public sentiment in favor of cremation increased to such an extent that the officers of the association were compelled to build

a second furnace, which was completed in February, 1899, since which time cremation has steadily grown in favor, so much so that two furnaces have been found inadequate. In consequence of this, an addition to the building, with accommodation for three more furnaces, is in course of construction. Two of these added appliances will be on a line with the two now in use, and connected with them by large folding-doors; while the fifth, though under the same roof, will be entirely isolated.

The portion of the building containing this furnace will be separated from the rest by a heavy brick wall extending from the foundation to the roof. The walls and ceiling of the preparation and incinerating rooms will be covered with white glazed tile, and the floors with a thick layer of cement, in order to make them as nearly antiseptic as possible, as this apparatus will be used only for the remains of those who die of contagious diseases and bodies which shall have been disinterred.

There will also be a chapel here capable of seating one hundred and twenty persons, and entirely disconnected with the chapel in the other part of the building, thereby making it possible to have two services and five cremations at the same time. The discipline enforced here is exceptional and severe. When a body is brought into the building no employee is allowed to speak. All communications, from one room to another, are made by means of electric bells, and every message must be repeated by the person receiving it, to make sure that it has not been misunderstood. This simple method does away

with the confusion consequent upon people talking or whispering to each other when everything is so still, and it is found to work satisfactorily.

There is no limit to the number of persons permitted by the association to witness a cremation. The matter is left to the discretion of the attending friends, whose instructions to the men in charge are carried out.

At the distance of about six hundred and fifty feet from the crematorium, a columbarium has been erected. This building, according to the "*California Architect and Building News*," "is fundamentally designed in the form of a Grecian coupé cross, with the arms terminating in massive porches and connected by means of a pair of circular concentric walls. The rotunda formed by the inner of these walls is surmounted by a crowned dome carried upon a system of steel ribs, of which each is composed of two members spreading apart at the lower end, so as to rest upon the two walls, which together bear the whole weight of the superstructure. The arm of the cross at the northern side of the building forms the entrance, which leads into a spacious vestibule supplied with niches for urns, and thence into the rotunda. Each of the other arms forms a hollow quadrant, whose walls are also pierced with numerous niches, while the space between the main circular walls is likewise devoted to the reception of urns. Two galleries run around the whole of the rotunda, and here the walls are similarly utilized. Indeed it may be said that every available inch of space has been brought into use, so that the whole number of niches or apart-

ments for the reception of cinerary urns is nearly five thousand, and of considerable variety in size, style, and finish, to accommodate the means and suit the varied tastes of all; and the construction of the building is such that they are all easy of access, and so situated in separate apartments or rooms that one may nearly always be almost if not quite alone when visiting the remains of their loved ones.

“The whole construction is remarkable as an expression of a fearless and intelligent employment of concrete and cement throughout, on a scale unprecedented in the western world. It would have been difficult, if not impossible, with any other material to have so easily and safely honeycombed the walls with niches. The use of copper to encase the great piers of the rotunda is not only an agreeable relief from the surrounding whiteness, but a practical provision against possible injury to the angles. Also the mosaic floors have many practical advantages besides their expression of permanent richness.

“As to the design as a whole, it repays study. The first impression from the approach is that of simplicity and purity inherent in the Greek design, but any suggestion of paganism is obviated by the cruciform plan and the dome above, which indicates the centre of the cross and suggests a unity of purpose. On closer examination we find in every disposition and detail some enhancement of the general purpose; and it cannot be many years before the open niches in the vestibule and those in the piers of the rotunda shall be occupied.”

ST. LOUIS, MISSOURI

AMONG the earlier of the American cities to consider the subject of cremation and to construct appliances for putting it into practice must be classed St. Louis. In the year 1886 an informal association of advocates was composed, and for several months meetings were held in various places, and the matter discussed. This naturally led to some more precise action, and in July, 1887, the Missouri Crematory Association was organized and incorporated with a capital stock of \$10,000 which, in the following December, was increased to double that amount. As soon as sufficient money was in the treasury, a plot of land, five acres in extent, was purchased at the corner of Sublett Avenue and Arsenal Street, and upon this the erection of a crematorium was begun in August, 1887, and completed in the following May, upon the sixth day of which month the first incineration took place within it. In January, 1889, this building, through some fault in the construction of the furnaces, took fire and was almost totally destroyed. Without loss of time the work of rebuilding was commenced, and at the end of a few months a new fire-proof edifice, with a full crematory equipment, stood in the place of that which had been lost.

This crematorium is a square building, of ornate Doric design, and consists of a ground floor and a basement. The front entrance is approached by means of a broad flight of stone steps, and leads directly into the chapel, which occupies the whole

space upon the upper floor, being upwards of forty feet long, thirty-six wide, and twenty-six high. Its walls and ceiling are frescoed, its floor is of marble, and its light is obtained through stained glass windows. At the further end is a raised platform, and upon this stands a small organ.

Directly in front of this platform is a catafalque, raised about four feet above the surface of the floor, and covered with black drapery reaching to the ground. The coffin is thus hidden from view as soon as placed thereon, and the descent to the room below is neither seen nor heard by those in attendance at the funeral rites.

The basement is about ten feet high, and is divided into three compartments, the preparing-room, the retort-room, and the incinerating-room.

In the preparing-room the body is removed from the coffin and covered with an alum saturated sheet. It is then conveyed on a moving cradle to the sarcophagus, in which in about an hour and a half it is reduced to ashes.

Two furnaces are in use here, and both are of the Venini pattern. By a process of slow combustion and distillation, a gas is generated from wood, and this, with an admixture of air, is conducted to the retort or sarcophagus, in the form of a clear bright flame at a very high temperature. The apparatus is supplied with the means of consuming all smoke made, as well as the gases formed during the process of incineration, so that at no time can anything, either by sight or by smell, be detected issuing from the chimney.

In July, 1895, the association began the erection of another building, to be used as a receptacle for the ashes resulting from the work of its crematorium. In December of the same year, it was completed, and, with its Ionic architecture, forms a handsome complement to its Doric companion. This columbarium is constructed of yellow bricks, and is lighted by means of a skylight. It is a rectangular building, having at the back a deep, semicircular alcove, whose width occupies nearly half the wall. Except the space required for the entrance, the walls are throughout supplied with receptacles for urns. They are constructed with a marble wainscoting about five feet in height, divided about three feet from the floor into two horizontal sections, and these again are marked off vertically into compartments of about three feet in width. Within each of these compartments is contained a small vault, of which that below the horizontal line is necessarily larger than the one above. These are leased for a period of ninety-nine years; the larger yielding the sum of \$100 to \$150, and the smaller, \$45 to \$60.

Above these sections the walls are similarly divided. The vertical lines are continued, while the horizontal lines are closer together. The compartments here are covered with a surface of oxydized bronze, and, being smaller than those below, are rented for varying sums from twenty-five to forty dollars. The entire basement is finished and provided with japanned metal shelves, for the accommodation of single urns, for whose use the amount of ten dollars each is charged.

The association has also organized a society of contributory members, who can secure for themselves the right of cremation without further charge, by the payment of an initiation fee of five dollars, and an annual fee of two dollars for a period of ten years. The certificates issued to these members are transferable, and are available for incinerations in Cincinnati, Philadelphia, San Francisco, and Fort Wayne, thus saving the cost of transportation for the bodies of those who die in or near those places.

ST. PAUL, MINNESOTA

THE crematorium here is in the Forest Cemetery, the entrance to which is on Edgerton Street, within a short distance of the Mississippi-Street car line. There is also a station of the Wisconsin Central railroad near the cemetery gate. The building was erected in the year 1897, at the close of which two bodies had been cremated. The apparatus in use here is said to contain all the improvements up to that time known for conducting incinerations, for the carrying out of which about an hour and a half is required at each operation. Certainly the number of cremations appears to bear here as large a proportion to that of inhumations as anywhere; for, while in the year 1899, two hundred and seventy-four bodies were consigned to the earth of the cemetery, the number of incinerations was twenty-seven. It is doubtful if this ratio, very nearly one to ten, has been surpassed in any one year, even if it has been equalled, anywhere else on the continent.

SWINBURNE ISLAND

ON the twenty-third day of September in the year 1887, there arrived at the port of New York, the steamship *Alesia*, from Marseilles and Naples. During her passage, five Italian immigrants had died of cholera. After the landing of the remaining passengers, twenty-seven cases of cholera developed. Nineteen of the afflicted died in the Quarantine Hospital on Swinburne Island, and their bodies were buried in the quarantine burial-ground, at Seguine's Point, the southern extremity of Staten Island. On the thirteenth day of the following month, the *Britannia*, from the same ports, arrived in a very unsatisfactory condition, with 406 Italian steerage passengers, and a report of three deaths during the voyage. After landing and isolating these passengers, cholera made its appearance among them, and from this cause five died in the Quarantine Hospital. It is not surprising, therefore, that, as the quarantine commissioners say in their annual report for the year 1888, "at the close of 1887, there was a general feeling of apprehension pervading the community that the dreaded cholera would revisit our shores the following year."

So intense became this fear of a revisitation of cholera that it brought to a head among the inhabitants of the southern part of Staten Island a feeling, which had been growing for several years, against the interment there of the bodies of those who had died of contagious and infectious diseases in the Quarantine Hospital. In deference to this reasonable objec-

tion of the inhabitants to the contamination thus of their environment, the commissioners endeavored to find some other place where such interments could be made without injury or offence to any one.

Their efforts were in vain, and the health-officer of the port, in his report for the year, suggests for their consideration, "an application to the legislature for an appropriation to erect and equip a crematory on Swinburne Island, for the cremation of those who die of contagious or infectious diseases." He is aware that this proceeding will arouse considerable prejudice and opposition, nevertheless he makes the suggestion under the conviction that "such a disposition of the dead who die of that class of diseases is more consistent than any other with scientific and sanitary principles."

In accordance with this advice of their health-officer, the commissioners of quarantine applied to the legislature then in session for authority to enlarge Swinburne Island and erect thereon a crematory for the incineration of the bodies of those who die in the hospital there, and recommended an appropriation of \$20,000 for the purpose.

Upon the introduction of the resultant bill, the anticipated prejudice made itself heard and felt at once. So strong was the manifested opposition that, in order to insure the passage of the measure it had to be considerably amended, and a proviso was inserted that the quarantine commissioners "shall not incinerate the bodies of any persons dying as aforesaid, whose religious views, as communicated by them while living or by their friends within twenty-four

hours after their decease, are opposed to cremation." For the interment of these the commissioners were empowered to make use of such parts of Swinburne and Hoffman Islands as they might deem expedient. But, as this would necessitate work calling for an outlay of money considerably larger than the amount appropriated for it, the health-officer recommended the commissioners, instead of attempting to use the powers thus conferred upon them, to provide "a mortuary with capacity for thirty to fifty bodies, to be located adjacent to the crematory, with a ventilator shaft which will communicate with the flues of the crematory."

From the next annual report of the commissioners (1888) to the legislature we find that a contract was, during that year, entered into with Dr. M. L. Davis, of Lancaster, Pennsylvania, for the erection and equipment of a crematory building, which will "enable the Board to dispose of the bodies of those dying at Swinburne Island, in an eminently safe and satisfactory manner." To carry out the provisions of the act relating to the disposition of the exempted bodies, they recommended the adoption of the health-officer's suggestion as the only safe and proper proceeding from a sanitary standpoint. The bodies of those who die at the hospital, and which are not to be incinerated, would be placed in this vault or mortuary, "there to remain a specified time, in order to give their friends an opportunity to remove them." During the following year (1889) both the crematorium and the mortuary were completed, and by the end of the year four bodies had been cremated. The provi-

sion of the act regarding the removal of the dead from the quarantine burial-ground on Staten Island, and their disposition "in such a manner as will not endanger the public health," was complied with by having them disinterred and cremated in a temporary furnace which was constructed for the purpose and operated at Seguine's Point.

By reference to the table of yearly numbers it will be seen that there were not any incinerations here in 1891. The cause of this is very satisfactory. This crematory was constructed, as has been said, for operation upon the bodies of those only who had died in quarantine of infectious or contagious diseases. It is pleasing to find, from the health-officer's report for that year, that "of yellow fever there has not been a case admitted to the hospital or found on incoming vessels during the year. Indeed there has not been a patient admitted to the Swinburne Island Hospital since October, 1889." Under ordinary circumstances that cipher in the list would not unnaturally give rise to the thought of a possible slackening of interest in the manner of disposing of the dead, but with this explanation we can regard it with feelings of unmingled contentment and gratification.

In the following year there was a change. Malefic influences appear to have gained an ascendancy and a morbid invasion of our land was threatened. This was, however, happily frustrated by the machinery which we had set up upon the border. Quarantine was established upon the infected vessels as they arrived. Every suspected person was at once conducted to the interior of the hospital, and fifty-seven bodies were

reduced to ashes within the crematorium. This number, added to four others who died at other times in quarantine, made a total of sixty-one for the year. In 1892 the number is reduced to twenty-eight, and is followed by eight in 1893. Since then three is the average yearly number that have been cremated at Swinburne Island in any one year, thus showing that the work of this crematorium has proved its efficacy in preventing the spread of zymotic diseases.

TROY, NEW YORK

UPON the summit of a hill in Oakwood Cemetery, at Troy, New York, and visible at the capital city of the State, stands a group of buildings which constitute, perhaps, the most beautiful, and certainly the most costly, structure devoted to cremation in the United States. The cemetery and the edifice are both worthy of a somewhat minute description, and the following has therefore been taken from "The Troy Daily Times," of November 7, 1889.

"The cemetery stands at the summit of an abrupt line of hills overlooking the Hudson, and takes in a range of distant hills and mountains of nearly one hundred miles in extent. With the purchases of recent years there is a length of these same home-hills of a mile and a half, which the cemetery now covers.

"The grounds in recent years have been rendered interesting to horticulturists by the introduction of rare shrubs and plants, which, scattered over the extended territory, meet the eye at every turn and serve to educate the visitors in the advances made in the production of new hybrids, as well as newly-introduced

plants from all temperate parts of the globe. The umbrella-tree from Japan, the blue spruce from Colorado, and many other evergreens quite new and rare, deciduous trees and shrubs of curiously-cut foliage, with varied colors even during their period of growth, and herbaceous plants with a luxuriance of bloom that would keep pace with even the tropical regions, attract many people educated in such matters.

"The roads which have been laid out in the newer portion, of ample width, are macadamized, as well as the more-restricted thoroughfares in the older part, the presence of rock in abundance enabling the work to be done at a comparatively small cost. The large amount of pleasure-driving in the grounds attests the excellence of the roads.

"The edifice was raised by Mr. William S. Earl, a wealthy manufacturer of Troy, as a memorial to an only son whose body was reduced to ashes in Buffalo, and it stands on the edge of a cliff three hundred feet above the level of the beautiful Hudson. The view from the tower of the chapel is magnificent. Away to the south are the Catskills, and the intermediate stretch of country is diversified by hill and dale, with cities and villages dotting the landscape. To the north and west, the Mohawk is seen winding its way through a rich and fertile valley, the city of Cohoes with its manufacturing establishments and the falls of the Mohawk being in the foreground. The building towers above the trees, which, growing on a lower elevation, only partly conceal the lower half of the chapel upon approaching the cemetery. Its architecture and the far-stretching landscape har-

monize, and a fine picture is produced in which the chapel holds place as if it had been worked in at the creation of the whole.

"The outer walls are of a pink tint of Westerly granite, and the style of the building is Romanesque. It has come to be recognized as the most prominent landmark of the neighborhood, being clearly visible from the trains approaching or leaving the city.

"The foundations, every inch of which rests on solid rock, are of a thickness to carry double walls with a space between. The length of the building from north to south is 136 feet, while the extreme width is seventy feet. The tower at the south is forty-five feet from the chapel, with which it is connected by a loggia of three massive granite arches, and is ninety feet high and eighteen feet square at the base. A balcony on the tower is seventy feet above the ground, and is reached by iron and marble stairs in the interior. The next highest point is the lantern at the north, and which is fifty-eight feet in height. The loggia is sixteen by eighteen feet. The nave of the chapel is forty by twenty-six feet, and the chancel is twenty-six by sixteen feet. The outlying rooms are all of ample dimensions and cheerful with abundant light.

"The chapel is a model of architectural and mechanical skill, and its furnishings are in good taste. The seats in the auditorium are unique in form and comfortable to the occupants. The furniture is all of quartered oak, elaborately carved. The ceiling throughout is of quartered oak, the open timberwork being intricate, with an appearance of great

space. The floor of the chapel is of Malden blue-stone, six inches thick, carried on iron girders. The five windows are of the famous Tiffany stained glass, and under the windows are the radiators for heating the structure by hot water. The radiators are protected and hidden by elaborately-wrought bronze screens.

"The chancel has a superb mosaic floor of elaborate pattern, which gives it the appearance of a large rug and comprises a score or more of marbles of different colors. The altar is of onyx, and behind it are three stained glass windows containing centrally a figure of Christ and adoring angels on either side. The stalls and reading-desk are of oak, beautifully carved, and with the stone frieze and columns, all elaborately carved, give the whole a rich appearance.

"At the left of the entrance to the chapel is a room with an open fire-place and windows, having a wide view, and which will serve as a waiting-room for those who shall bring their dead from abroad for interment in Oakwood."

A notable change has been recently made in the arrangement of these buildings. The retort-room has been converted into a reception-room, and the cremating apparatus has been removed to a new room erected on the north. This covers an area of twenty-four feet by twenty, and is joined to the former retort-room, whose two north windows have made way for the doors of the new retorts.

The reception-room, as reconstructed and fitted up, is certainly the equal, and possibly in respect to

artistic detail and elaborateness of execution, the superior of any church interior in the land. The walls are of Siena marble blocks, laid in twelve-inch courses, surmounted with a finely carved cornice of the same material, and supported by a forty-two inch wainscoting of pink African marble, with its base and capping of green Japanese marble. All the doors and windows are covered with elliptical arches of pink African marble, and in the angles are figures holding laurel leaves and flowers, executed in marble mosaic of delicate tints. These arches are borne upon seventeen columns, each five feet and nine inches high, and eleven inches in diameter. They are of green Belgian onyx, cut from a block purchased at great price in London, and it is regarded as doubtful if they could be duplicated. Their bases are carved in Japanese marble, also green, but of a shade different from that of the columns themselves. The caps are made of Siena marble, and carved in various designs. The door and window-jambs are of the same material as the arches.

The frames of the doors opening to the retorts are made of bronze and richly carved. The panels, with the exception of one in each door, are of the same material as the columns just now described. The excepted panel in each door is formed of stained glass, representing a cinerary urn surrounded with foliage, whose colors are brought out by light transmitted from the retort-room. The other doors are of English oak, and in the arch over those which connect this room with the chapel is a piece of marble mosaic representing two angels kneeling side by side and singing from the same scroll.

In the south wall is a stained glass window, eleven feet high and eight wide. The subject is Paul preaching at Athens, and it contains seven figures in addition to that of the apostle, who is represented as standing on the steps of the temple. The west wall contains a similar window of equal size. This pictures the Queen of Sheba before Solomon, who is surrounded by his courtiers and sits upon a raised throne of gold, approached by three steps. At the foot of the steps stands Sheba's queen, with numerous attendants bearing gifts for Israel's king. In the east wall is included a large arched panel with a marble mosaic representation of Rebecca at the Well. It is from a painting by Donald MacDonald, and the forms of Rebecca and Abraham's servant, as well as all the above-described figures in the windows, are life-size. Under each window is an ornamentally carved bronze grill, through which is received the air by which the room is warmed.

Twenty-three feet above the floor is a flat stained glass ceiling, seven feet and six inches broad by thirteen feet long, filled with a mass of delicately tinted foliage. This is supported by a series of vaulted mosaic panels of highly colored marbles, rising seven feet above the cornice, and displaying a number of life-size forms surrounded by Eastern birds and luxurious vegetation. At each angle is shown a bunch of holly with clusters of berries.

In the centre of the room stands, when not in use, a movable table, for conveying bodies to the doors of the retorts. It is made of English oak, and highly polished. At each end it is supported upon the

shoulders of a carved kneeling angel, holding a bunch of laurel. Between these, on each side, are three massive carved sustaining pillars. Leaving out the upper surface, this table is a mass of delicate carving, and it is a beautiful piece of work, well worthy of the attention it receives from all who enter the room. The only other furniture in the room comprises three chairs and three settees, also of English oak, and carved in a similarly elaborate manner.

The new room is sixteen feet high, twenty feet broad, and twenty-four feet long. As already stated, this is now the ustrinum or retort-room, and it has been made as nearly fire-proof as is possible. The floor is laid in blue stones, surrounded with a twelve-inch border of pink marble. The walls are faced with ivory colored tiles, beneath which is a drab tile wainscoting, three feet high, edged with a Grecian border in pale blue, and above which is a frieze, also of pale blue, and eighteen inches deep. There are seven windows in the room, each trimmed with Tennessee marble.

The retorts are made of steel with fire-brick linings, and are connected with a chimney sixty-three feet high, capable of operating both at the same time. The fuel used is kerosene oil, of which about twenty-five gallons are consumed at each cremation. The retort, at present, is not heated until the coffin containing the subject has been placed within it. As a consequence of this, it takes somewhat more than two hours to complete the incineration of a body of average size and weight.

The work upon these rooms has taken about two

years to accomplish. It has been carried on under the supervision of Mr. James Inglis, the crematory superintendent, and largely from designs supplied by him. The furnaces also are of his invention, and so satisfactory are found the results of his labors that he has been engaged to construct those which are to be used in Montreal.

WASHINGTON, DISTRICT OF COLUMBIA

IN the year 1895 Mr. J. William Lee, an undertaker of this city, saw that, although the effort to organize a cremation society had not been successful, there was yet a growing sympathy with this manner of dealing with the dead, as seemed to be shown by the number of bodies annually sent to Baltimore. He naturally reasoned that, if there were frequent transportations of forty miles to secure the services of a crematory, the number would increase if means were provided at home. He therefore decided to furnish the needful appliances in connection with his place of business. The only change required in the building was an addition at the back, of sufficient size to accommodate a furnace. This was made the following year, and in 1897 began the series of cremations which has been conducted there.

The office of the establishment is entered from the street, and through this one passes into a pretty little chapel capable of seating one hundred and thirty-two persons. It is a well-proportioned room, with a high, arched ceiling, stained glass windows on two sides, and fixed benches or chairs with handsome Gothic backs. In front of the chancel is a space where the bier can

remain during a funeral service, and near by is a door through which the body is afterwards taken for cremation. The furnace was constructed by a local engineer, and the fuel used is hard or anthracite coal. The bodies cremated here have not been numerous, but the annual numbers are sustained in such a manner as to show that there is no diminution of interest in this method of disposition, and to indicate that the proprietor of the crematorium formed a correct judgment when he decided to have it constructed upon his premises.

WASHINGTON, PENNSYLVANIA.

IN the course of our alphabetical advance we now arrive at the pioneer crematorium of the United States. It is true that towards the close of the eighteenth century South Carolina furnished two instances of the use of fire for the disintegration of the human frame. In both cases, however, the open pyre was employed, and each appears to have been the result of sentiment, and devoid of any thought upon the possibility of noxious consequences arising from burial in the earth. There was no idea, as in the Washington experiment, of educating the public to a reception of what was considered a better way of dedicating the bodies which have served us on the earth. The effort of Dr. Le Moyne was the first practical endeavor to uproot a system which was looked upon, from the hygienic standpoint, as fraught with danger to the living, and to supplant it with a method that should be free from sanitary objections. He must be regarded as the *doyen* of incinerarians in our land.

He may or he may not have been influenced by the public discussion of the subject which had been originated a short time previously in New York. This makes no difference. He built, at his home, in the year 1876, the first of the crematories that we possess; and, for a period of eight years, this little country town of Pennsylvania was the only place upon our continent where a human body could be disposed of in rapid combustion. In doing this he appears to have been influenced in the main by a desire of furnishing, through the incineration of his own body, an object lesson to his survivors, in the hope that this would engender thought upon the subject, and lead to an extended provision of facilities for thus disposing of the dead. Having made this provision for the disposal of his own body, when the proper time should come, he came to the conclusion that his apparatus should be used as an instrument of education while he was living. For this purpose he threw it open, almost as soon as finished, to the reception of other subjects, so that the community in which he dwelt might, at any rate, become practically familiarized with the reform which he advocated. It was, however, used on but two occasions, one for the body of the Baron de Palm on December 6, 1876, and the other for that of Mrs. Pitman, the wife of Mr. Ben Pitman of stenographic fame, on February 6, 1877. It was not brought into service again until October 16, 1879, when the mortal frame of its founder was confided to its care. This seemed to give somewhat of an impetus to the general interest, for during the next six years, thirty-six bodies were reduced to

ashes here; while in other parts of the country three crematoria were erected, and forty-nine bodies incinerated therein. These results were both encouraging and embarrassing to the trustees, who, finding that the applications were making too great a claim upon their time, and thinking that, in the face of the favorable sentiment that had been created, there was no further demand for this sacrifice, decided that they would restrict the use of their apparatus to the bodies of those who died within the confines of the county in which its founder had resided. In consequence of this, the crematorium has opened its doors for service but thrice since, and its career may be regarded as virtually closed.

The building is a plain rectangular structure of brick, with an iron roof; and, being nearly covered with vines, has a pretty and attractive appearance, especially in the summer. It is of one story with two divisions, of which one contains the cremating apparatus and the other is used as a receiving-room. The ground in which it is placed is a plot of about one hundred feet square, permanently set apart for the purpose to which it has been dedicated. The furnace here employed does not, of course, make any pretension of taking rank with some of those which have been devised since its adoption. It is, indeed, somewhat crude in construction, and the time required to effect its object is too long to permit of its design being extensively copied. But, whatever may be its shortcomings, when compared with those of a later creation, the work that it has done will always entitle it and its author to a high

place in the esteem of those who believe that the general good is subserved by the substitution of incineration for inhumation in our dealings with the dead.

WATERVILLE, NEW YORK

IN the year 1892, Colonel William Osborn, a member of the Cemetery Association in this village, appreciating the justice of endeavoring to meet the wishes of those who desire for the bodies of their departed friends some means of disposition other than that of immediate transference to the earth, obtained the consent of the association to the erecting of a crematorium in the cemetery. He personally supplied the means by which this could be effected; and, when the building was up, he presented it to the association. The first cremation therein took place on the 29th day of July, 1893.

The cemetery lies in the northwest corner of the village, which is about twenty miles south of Utica, and is reached by means of a branch of the Delaware, Lackawanna, and Western Railroad. It is situated upon an eminence, and almost in its centre stands the building to which our attention is now directed. This is a pretty little Gothic structure, covering an area of twenty by forty feet, and looking like a rustic church, with walls of Ashler stone supporting a roof of tiles at a height of about fifty feet. It is divided into four compartments, all upon one floor. The principal entrance is on the north and leads directly into a plain square room, occupying the whole width of the building and twenty feet of its

depth. This is used as a chapel, whose high Gothic roof and subdued light, received through stained glass windows, produce a very sacerdotal effect.

At the northern side of the west wall of this chapel is a door which leads to the preparing-room, and into this the body is conveyed as soon as the funeral rites are ended. The body is here removed from the coffin, folded in a saturated sheet, and taken back to the chapel, and thence, by means of a car constructed and kept for the purpose, it is placed within the sarcophagus or retort, whose entrance door is in the centre of the same west wall.

The Davis American incinerator is in use here, and the furnace is constructed of fire-brick in a variety of forms and sizes made especially for it. The sarcophagus is ten feet long, three wide, and two high, and around it run four flues so arranged that the heat from the furnace encircles it twice before finding a passage into the chimney. The outlet for gases, which are generated within the retort, leads these emanations directly into the furnace fire, where they become completely deodorized ere they find their circuitous route to the chimney through which they are conducted to the outside air. Coal is used as fuel, and about half a ton is consumed at each incineration.

EUROPE

It is difficult to ascribe a date to the introduction of cremation as a subject of discussion in Europe. It seems hardly worth while to go back to the time of Sir Thomas Browne, Matthew Hansa, and other ex-

ponents of the possible dangers arising from inhumation, for their writings, valuable as they were, appear to have made but little immediate impression upon the communities to which they were addressed. Nor would it be pertinent to lay stress upon the burning of the bodies of Shelley and Williams on the Tuscan shore in 1822, or that of the Maharajah of Kolhapur at Florence in 1869, as these were carried out upon the open pyre, and bore no resemblance whatever to the modern systems, devised for hygienic purposes.

Still we must go back nearly half a century to get at the beginning of the present agitation. From 1852 to 1870 the subject was written about, as well as discussed in health congresses, by several Italian advocates, notably Moleschott, Coletti, du Jardin, and Castiglioni. Experiments were also made, during this period, to test the validity of the process. The results of some of these may be found in the writings of Professors Polli and Gorini. In 1869 and 1870 Professor Brunetti also made some individual tests, and afterwards placed a model of his apparatus in the Vienna Exposition.

In addition to this the question was brought forward at the international congresses at Florence and Rome, and votes were passed in favor of legislation to permit and promote the practice. Upon this the Royal Institution of Lombardy passed a resolution asking the Italian Government to give effect to these votes. It was not long afterwards that the incineration of dead bodies in Italy was made legal by the introduction of a provision for that purpose into the Sanitary Code of the kingdom. Owing, however, to the opposition

of certain municipal authorities, whose assent was required by the law, it was not until 1876 that practical steps could be taken. In that year the Cremation Society of Milan began its operative career by reducing to ashes the body of the Chevalier Keller, which had been waiting two years for such action. In 1877 incineration as a substitute for inhumation was endorsed by a medical congress which met in that city, and two other societies, those of Lodi and Cremona, were formed. The latter, however, did not open its crematorium until 1883, when Rome and Brescia also entered the field. Three others, Padua, Udine, and Varese followed in 1884, and from that time the numbers rapidly increased, until to-day Italy has more societies and more crematoria in operation than any other country in Europe. Although this is the case, yet the number of bodies cremated there is slightly exceeded by that of Germany, and does not reach a third of that attained by the United States of America, with nearly as many crematoria.

In 1874 the recent Italian experiments were reported and commented upon by Sir Henry Thompson, in an article published in the London "Contemporary Review." This paper aroused a great deal of interest, and one of its consequences was the organization of the Cremation Society of England, which immediately took steps to ascertain if there were any legal obstacles to the practice of cremation in Great Britain. Eminent legal opinion was sought and this, when obtained, was such as to decide the society to proceed with its project. Plans were prepared for the erection and equipment of a building in the Great North-

ern Cemetery. The consent of the proprietors to this use of a portion of their cemetery was obtained, but ecclesiastical opposition compelled a relinquishment of the purpose. Some time was spent in searching for another spot, and eventually a piece of ground, of about an acre in extent, was purchased near the village of Woking, in the county of Surrey. The apparatus supplied was designed by Professor Gorini of Italy, and was erected under his personal supervision in 1879. In the beginning of that year the society entered into correspondence with the Government, to ascertain, if possible, whether any measures would be taken to hamper its work.

Several years were consumed in this matter without obtaining any satisfactory solution of the difficulty from the Home Secretary, so that in 1882 an application from a gentleman named Hanham for the cremation of two bodies had to be declined by the society. A private apparatus was thereupon constructed on Captain Hanham's estate, and these cremations were carried out, without evoking any legal or administrative notice of the proceeding. Within a year a like disposition was made of Captain Hanham's own body in the same place, and with a similar absence of official comment. About this time a definite legal decision upon the mooted question was obtained through the cremation of the body of a child in Wales. This was done by the child's father, in defiance of a coroner's edict, and led to the legal proceedings which resulted in the famous ruling by the presiding judge, Sir James Stephen, that cremation, when conducted in such a manner as not to create what is technically known as

a nuisance, is not illegal. Hereupon the society decided to bring its crematorium into service, and the first incineration therein took place on the 20th day of March, 1885, nearly six years after the installation of its appliances. In 1889 the edifice was completed by the erection of a chapel, and the number of cremations gradually increased each year until 1900, when there was a slight falling off compared with the previous year, though even then the number was greater than that of any year other than 1899. In the same neighborhood the Duke of Bedford has a private crematorium.

It has been felt, for some years, that a distance of twenty-five miles from London caused an expense which prevented the use of the crematorium by many who preferred this mode of sepulture. An endeavor to obviate this has been made by the incorporation of the London Cremation Company. This is an offshoot of the Cremation Society of England, and has been formed for the purpose of establishing a crematorium within an easy distance of central London. Land of about twelve acres in extent has been purchased, not far from Hyde Park, and it is the intention of the directors to erect thereon crematoria on the newest and most approved principles, as well as private and public columbaria. The cremation society is paying the expenses incidental to the organization of the company, and has invested to a considerable extent in its capital.

The influence diffused by this society has made itself felt in other cities of the kingdom. In the later years of the eighth decade of the century it was found

to have extended over a large part of England, and in the northern portion especially there were manifestations of the interest that has been aroused. Towards the end of 1888 a cremation society was started in Manchester and took measures for the realization of its objects. After taking the necessary steps for the preparation of the public mind, land was acquired, and the requisite buildings erected. The crematorium was completed and opened in October, 1892.

Our survey takes us now to North Britain, where we find the Sanitary Science Section of the Glasgow Philosophical Society taking into its consideration the current methods of caring for the dead. The result of these deliberations was the formation of the Scottish Burial Reform and Cremation Society in 1892. This society made arrangements with the Western Necropolis Company, whereby, for a stipulated annual sum as ground-rent, about half an acre of the cemetery land was made over for crematory purposes. The care of the building and ground, as well as the superintendence of the cremations, is in the hands of the cemetery company, which receives from the society a further small yearly sum for such services. The first cremation took place in November, 1895, and was the only one for that year. Next year the number was ten, and this was doubled in 1900.

About the time of the opening of the Glasgow crematorium, the subject underwent considerable public discussion in Liverpool, and the Liverpool Crematorium Company was formed. This company erected its building within the largest cemetery of the

locality, and opened it in September, 1896. The demand for its use has not quite met the expectations and hopes of its projectors, yet the number of times it has been employed, though undoubtedly small, seems to indicate a growth of favorable sentiment sufficient to be regarded as a justification of the experiment.

Perhaps the most noteworthy achievement of the kind in England is the establishment of a municipal crematorium at Hull in Yorkshire. The first definite step towards such an end was made in October, 1892, when a resolution was adopted by the Town Council authorizing its engineer to prepare plans for a crematorium, to be built as soon as the required authority should be received from the Local Government Board. Owing to the doubt which existed as to the right of municipalities to spend money in such a manner, it was decided to suspend operations until Parliament should grant the necessary powers. This was done in 1897. Plans were then prepared, and the foundation stone of the building laid in October, 1899, in the presence of a gathering which included clergymen of many denominations.

The crematorium is situated on land which was originally intended as a part of the Hedon Road Cemetery, through which entrance to it is obtained. The building and its surrounding grounds are under the care of the cemetery staff, and the cemetery chapel is available for religious services whenever desired. By the end of 1900 the building was completed, and it was arranged that the opening ceremony should be held on the second day of the new

century. Thus does the city council of Hull enjoy the distinction of being the first popularly elected corporate body in an Anglo-vocal community to establish a public crematorium and maintain a civic institution for the promotion of an innovation against whose practice, notwithstanding its tendency to promote the general welfare, there is still a considerably extended prejudice.

In Germany, too, the subject was early brought to public attention. In the year 1850 Dr. Jacob Grimm presented it to the consideration of the Royal Academy of Science in Berlin, and in 1855 and 1856 Drs. Trusen and Richter gave it fresh impulse by their writings. It was in this country, moreover, that the first cremation according to modern practice took place. In 1874 an apparatus of the Siemens design was constructed in Dresden, and the body of an English lady was reduced to ashes. After one other incineration in this crematorium the authorities of Saxony experienced a change of mind, and refused permission for any further repetition of the process. This seems, for the time being, to have induced a quietus among the Saxons, but in 1876 it was again brought to their notice at a congress held in the same city. Here it was announced that the government of the Duchy of Gotha had recognized the practice, and had sanctioned the erection and operation of a crematorium, which the municipal authorities of Gotha had expressed a willingness to maintain in that city. Within three years this building, together with a columbarium, was constructed and in use. The latter having been found inadequate for

the demands upon its space, a new hall for the reception of urns has been built; and this, in turn, is being rapidly filled.

For twelve years this city remained the only place in which incineration could be practised in Germany. In 1891 a fresh impetus was given to the movement, and a building was put up in Heidelberg. In the following year Hamburg followed the example, and in each of these places the numbers of bodies operated upon are rapidly approaching that of Gotha. Jena and Offenbach have since followed suit, the former in 1898, the latter in 1899, and in this more than a hundred bodies were cremated in 1900.

Although the number of crematoria in the country is small, the societies organized for the purpose of extending an acquaintance with the theory of cremation are numerous. Upwards of fifty of these are in existence outside the cities and towns possessing the practical appliances, and of these at least nine were created in 1900, thus showing that there is no abatement of interest in the question. This is especially manifest in Berlin, whose organization contains several hundred members, and is in possession of a fine large columbarium. Its efforts to establish a crematorium have, however, so far proved of no avail. It has made numerous attempts to bring about a change in the laws of Prussia, but a deaf ear has been turned to all petitions with this object in view. It is as certain as anything not absolutely sure can be, that as soon as the legal authority is obtained, the Berlin Cremation Society will see to

it that the city is supplied with as goodly and as thoroughly provisioned a crematorium as any in the Empire.

Passing now to the neighboring republic of France, it is found that here, as in England and elsewhere, many years of effort were required for the attainment of any practical results. The early Italian cases, which have been cited, were reported by Dr. de Pietra Santa in Paris at about the same time that Sir Henry Thompson made them known in London. After this a commission, appointed to look into the matter in connection with a projected cemetery, reported in favor of admitting cremation within the designated territory. Two years later its merits were set forth and its adoption recommended by a committee of the Council of Hygiene, and it was further considered with approval at a hygienic congress held in 1878. During the next two years it was debated in the city council, and reports in its favor were presented to the national government. In later years it was brought before the Chamber of Deputies, and apparently viewed with a friendly eye. With all this, added to the persistent work of a cremation society, which was organized in 1880, there was no sign of an approach to practical achievement until 1887, when a law was passed legalizing the proceeding. The municipality of Paris soon afterwards set about the erection of a large crematorium within the Cimetière de l'Est (Père la Chaise). This building has since been nearly surrounded with a series of columbaria, consisting of covered galleries with numerous receptacles for urns, and forming,

with it, a complete *spodopolis*. In the furnaces here constructed are consumed the unclaimed bodies of the city's dead, as well as the remains from the public hospitals and medical schools. At the present time, perhaps, these number nearly four thousand in the course of a year. In the accompanying table they have not been enumerated; in the first place because, when material from dissecting-rooms is taken into account, it is impossible to state numbers with accuracy, and in the next place because involuntary operations do not indicate, and do not promote, a popular interest in the subject. The incinerations which have resulted from freedom of choice are therefore the only ones of which notice has been taken. This remained the only place in France, where cremation could be effected, until 1899, when an apparatus was installed at Rouen.

In addition to those mentioned, there are two crematoria in Sweden, one in Denmark, and two in Switzerland, making forty-four for the whole of Europe, including one at Spolito in Italy and one at Hull in England, which had not been used at the close of the century. In these institutions 14,684 bodies had been cremated at the end of 1900. It will thus be seen that, during the time under consideration, sixty-nine crematoria were established in Europe and America, and that the number of bodies incinerated therein was 27,965; giving an average of about 244 for the sixty-seven operated in Europe, and of 531 for those in the United States.

LIST OF PUBLIC CREMATORIA

IN THE

UNITED STATES AND CANADA,

WITH THE NAMES AND ADDRESSES OF THE OFFICERS TO
WHOM INQUIRIES AND APPLICATIONS
SHOULD BE ADDRESSED.

- Baltimore, Maryland, Loudon Park Cemetery.
W. D. PRIMROSE, 323 North Charles Street.
- Boston, Massachusetts, Massachusetts Cremation Society.
JOHN HOMANS, 2d, M. D., 184 Marlborough Street.
- Buffalo, New York, Buffalo Cremation Company.
JAMES S. METCALF, 202 Pearl Street.
- Cambridge, Massachusetts, Mount Auburn Cemetery.
JAMES C. SCORGIE, Superintendent.
- Chicago, Illinois, Graceland Cemetery.
O. C. SIMONDS, Station X.
- Cincinnati, Ohio, Cincinnati Cremation Company.
A. T. ROEVER, N. W. Cor. Seventh & Central Avenue.
- Cleveland, Ohio, Cleveland Cremation Company.
G. A. EHRET, M. D., 89 Euclid Avenue.
- Davenport, Iowa, Davenport Cremation Society.
WILLIAM HAASE, Secretary and Treasurer.
- Detroit, Michigan, Michigan Cremation Association.
P. M. HICKEY, M.D., 22 Adams Avenue West.
- Fort Wayne, Indiana, Lindenwood Cemetery.
H. J. DOSWELL, Cor. Berry & Court Streets.
- Lancaster, Pa., L. Cremation and Fun'l Ref'm Society.
M. L. DAVIS, M. D., 114 North Prince Street.
- Los Angeles, Cremation Society of Southern California.
S. M. SINSABAUGH, 114 South Broadway.
- Milwaukee, Wisconsin, Forest Home Cemetery.
EDWARD FERGUSON, 66 Colby & Abbot Building.

- Montreal, Canada, Mount Royal Cemetery.
GEORGE DURNFORD, 76 Canada Life Building.
- New York City, N. Y., United States Cremation Company.
S. BERENDSOHN, 62 East Houston Street.
- Pasadena, California, Mountain View Cemetery.
REYNOLDS & VAN NUYS, 63 North Fair Oaks Avenue.
- Philadelphia, Pa., Philadelphia Cremation Society.
H. E. KEILIG, 242 Franklin Street.
- Pittsburgh, Pennsylvania, 433 Sixth Avenue.
H. SAMSON, proprietor and manager.
- Portland, Oregon, Portland Cremation Association.
FRANK B. GIBSON, 205 Stark Street.
- San Francisco, California, Cypress Lawn Cemetery.
W. W. MARVIN, 1504 Market Street.
- San Francisco, California, Odd Fellows' Cemetery.
GEORGE R. FLETCHER, Point Lobos Avenue.
- St. Louis, Missouri, Missouri Crematory Association.
O. J. WILHELMI, 406 Market Street.
- St. Paul, Minnesota, Forest Cemetery Association.
ANTHONY AMBROSINI, 1310 Edgerton Street.
- Troy, New York, Gardner Earl Crematorium.
JAMES INGLIS, Oakwood Cemetery.
- Washington, D. C., 332 Pennsylvania Avenue.
J. WILLIAM LEE, proprietor and manager.
- Washington, Pennsylvania, for Washington county only.
JULIUS LE MOYNE or V. HARDING.
- Waterville, New York, Waterville Cemetery Association.
ELLISON A. BISSELL, undertaker in charge.

TABLE OF ANNUAL CREMATIONS IN THE UNITED STATES

CREMATORIA.	1876 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	Totals
Baltimore, Md.							3	5	12	16	22	15	11	17	21	14	22	18	176
Boston, Mass.											1	87	88	135	160	167	230	188	1056
Buffalo, N. Y.			1	8			23	30	38	27	30	31	41	28	44	40	43	67	484
Cambridge, Mass.																		50	50
Chicago, Ill.							34	45	43	34	6	42	66	54	82	130	127	188	695
Cincinnati, Ohio					11	21			6		42	38	66	46	71	59	56	81	647
Davenport, Iowa					3	10	14	24	21	7	13	8	8	9	23	17	18	24	133
Detroit, Mich.										33	47	22	31	29	44	51	33	56	418
Fort Wayne, Ind.															5	1	3	4	13
Lancaster, Pa.		3	36	14	13	6	1	3	1	3	5	2	1	1	1	2	5	2	99
Los Angeles, Cal.					7	5	12	17	29	41	37	38	37	37	34	58	52	52	456
Milwaukee, Wis.														21	34	30	53	40	178
New York, N. Y.			9	77	67	83	106	160	187	186	232	243	296	330	331	466	528	602	3903
Pasadena, Cal.													4	14	13	24	31	26	112
Philadelphia, Pa.						14	28	31	51	62	68	74	88	85	78	114	106	119	918
Pittsburgh, Pa.				14	9	11	8	9	13	14	13	10	13	14	16	21	19	31	215
San Francisco, Cal. (2)											42	111	157	171	265	322	454	645	2167
St. Louis, Mo.						24	20	42	60	64	72	87	95	86	118	109	128	149	1054
St. Paul, Minn.															2	11	27	16	56
Swinburne I., N. Y.							4	3	0	61	22	3	1	1	3	2	7	4	111
Troy, N. Y.								4	10	14	15	12	10	18	14	13	20	16	146
Washington, D. C.															25	38	28	25	116
Washington, Pa.	25	13	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	41
Waterville, N. Y.											1	1	4	5	6	4	6	10	37
Totals	25	16	47	114	127	190	253	373	471	562	668	824	1017	1101	1390	1693	1996	2414	13,281

STATES WHICH CONTAIN TWO OR MORE APPLIANCES
CALIFORNIA

CREMATORIA.	1876 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	Totals
Los Angeles					7	5	12	17	29	41	37	38	37	37	34	58	52	52	456
Pasadena													4	14	13	24	31	26	112
San Francisco (C. L.) . . .											42	111	89	69	54	62	107	98	632
Do (O. F.)													68	102	211	260	347	547	1535
Totals					7	5	12	17	29	41	79	149	198	222	312	404	537	723	2735

MASSACHUSETTS

	1876 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	Totals
Boston											1	87	88	135	160	167	230	188	1056
Cambridge																		50	50
Totals											1	87	88	135	160	167	230	238	1106

NEW YORK

	1876 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	Totals
Buffalo			1	8	17	16	23	30	38	27	30	31	41	28	44	40	43	67	484
Fresh Pond			9	77	67	83	106	160	187	186	232	243	296	330	331	466	528	602	3903
Swinburne Island							4	3	0	61	22	3	1	1	3	2	7	4	111
Troy								4	10	14	15	12	10	18	14	13	20	16	146
Waterville											1	1	4	5	6	4	6	10	37
Totals			10	85	84	99	133	197	235	288	300	290	352	382	398	525	604	699	4681

PENNSYLVANIA

	1876 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	Totals
Lancaster			36	14	13	6	1	3	1	3	5	2	1	1	1	2	5	2	99
Philadelphia		3				14	28	31	51	62	68	74	88	85	78	114	106	119	918
Pittsburgh				14	9	11	8	9	13	14	13	10	13	14	16	21	19	31	215
Washington	25	13	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	41
Totals	25	16	37	29	22	31	37	43	65	79	86	86	102	100	95	137	130	153	1273

TABLE OF ANNUAL CREMATIONS IN EUROPE
ITALY

	CREMATORIA.										Totals
	1876 1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	
Alessandria							1	0	0	0	2
Asti				0	1	0	3	3	2	4	28
Bologna				1	0	4	0	2	10	3	155
Bra										12	2
Brescia		5	2	2	5	4	3	2	2	4	48
Como					5	2	2	3	1	1	28
Cremona					5	2	2	3	1	1	123
Florence		4	12	5	25	9	10	10	5	8	285
Leghorn				14	16	26	18	21	20	16	231
Lodi	22	2	2	8	13	20	10	20	26	9	50
Mantua				1	4	1	3	3	3	1	37
Milan	227			70	61	55	76	85	72	66	1544
Modena		44	61			1	1	2	1	4	24
Novara						2	1	3	2	4	30
Padua				1	2	2	7	5	1	3	70
Perugia			4	5	5	4	4	3	6	4	21
Pisa				8	3	1	3	2	8	1	70
Rome		15	29	43	32	33	52	90	74	75	882
San Remo							5	10	10	9	96
Sienna										0	6
Spezia							0	0	0	0	3
Turin				1	2	0	0	12	10	14	237
Udine						1	18	2	3	6	47
Varese			2	4	5	0	4	2	0	2	28
Venice			1	1	1	5	0	5	0	7	43
Verona							3	2	2	1	20
Totals	249	70	113	164	180	168	220	282	258	221	4110

DENMARK

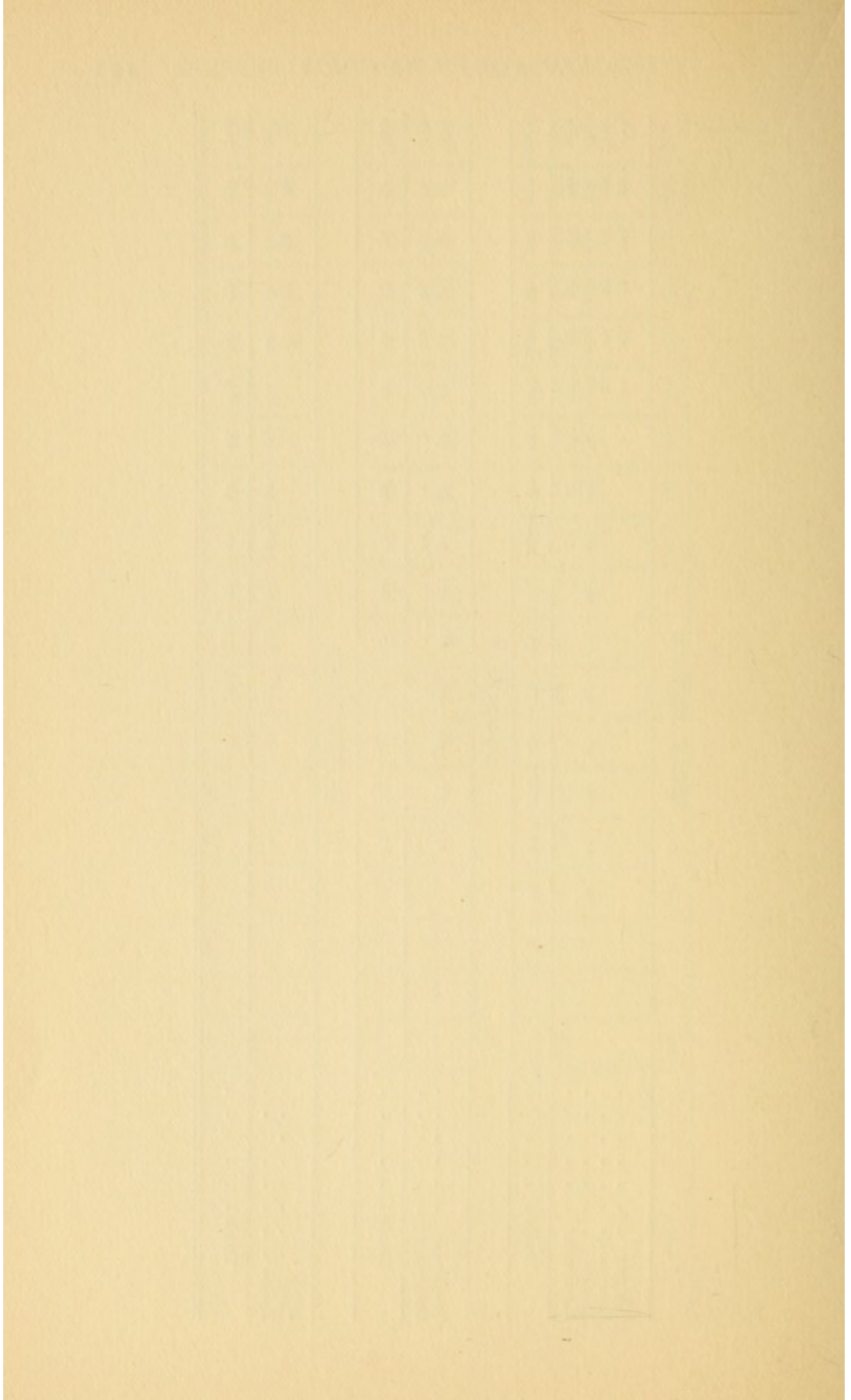
CREMATORIA.	1879 1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1885	1896	1897	1898	1899	1900	Totals
											4	15	18	21	14	18	28	28	146
Copenhagen																			

FRANCE

Paris							49	121	134	159	189	216	187	200	210	231	243	297	2236
Rouen																	5	4	9
Totals							49	121	134	159	189	216	187	200	210	231	248	301	2245

GERMANY

Gotha	146	69	76	95	110	95	128	111	162	162	155	139	131	147	188	179	200	189	2482
Hamburg										2	45	48	44	70	81	98	111	147	646
Heidelberg									3	57	53	80	91	95	105	125	151	146	906
Jena																21	46	47	114
Offenbach																	3	110	113
Totals	146	69	76	95	110	95	128	111	165	221	253	267	266	312	374	423	511	639	4261



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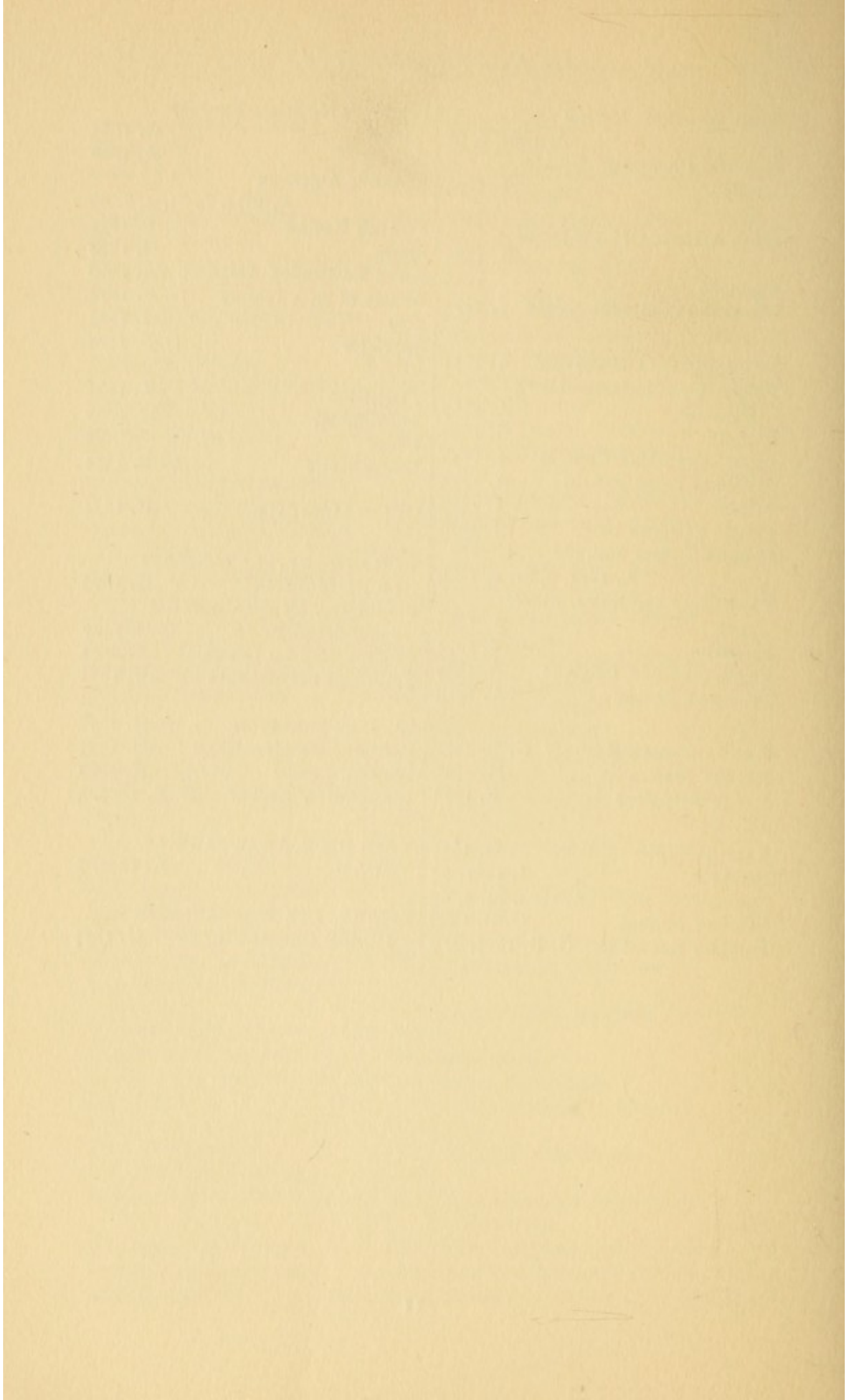
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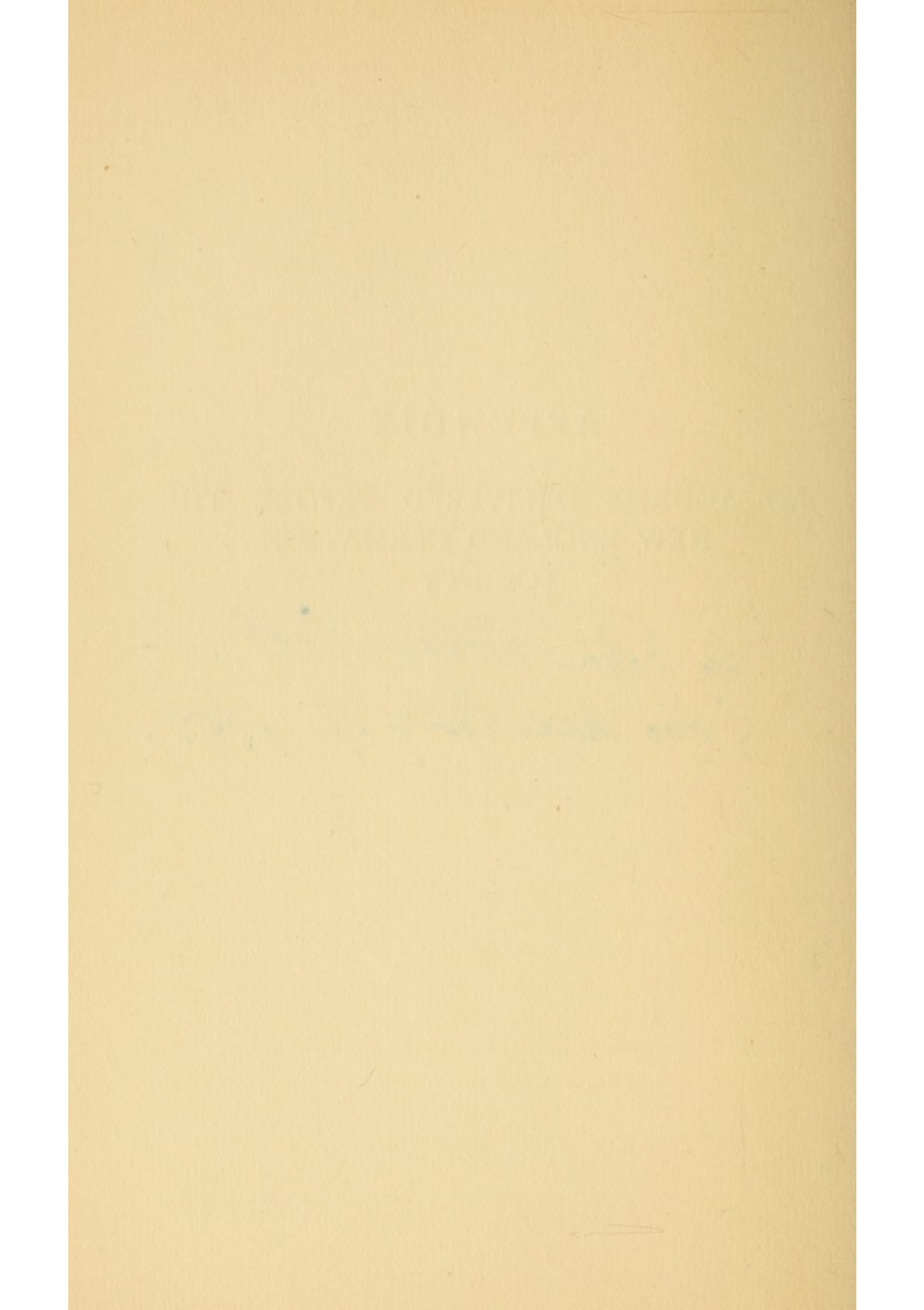
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APPENDIX

AN ADDRESS DELIVERED BEFORE THE
NEW ENGLAND CREMATION
SOCIETY

*by John Horner Cobb,
who died Feb'y 17. 1904.*



APPENDIX

AN ADDRESS DELIVERED BEFORE THE NEW ENGLAND CREMATION SOCIETY

APRIL 21, 1891

REPRINTED HERE BY REQUEST

THE manner in which the bodies of our dead shall be surrendered is certainly one of the most important subjects that can engage the attention of the living. Its discussion is by no means new, for we find Plato and Aristotle regarding it as demanding earnest and urgent consideration. Both of them, however, view it from the standpoint of reverence for the dead or of justice to the departed, and apparently without any thought of the effect upon survivors. So also Horace and Cicero, the latter of whom establishes three kinds of justice, and, singularly enough, places duty to mankind last in his series. First, he posits justice to the gods; this is followed by justice to departed souls; and third in rank we find justice to humanity. We will now endeavor to look at the series in an inverted order and arrive at some conclusion as to what justice to the living demands in our dealings with the dead.

The more one thinks about the subject, and considers the modern methods and appliances for effecting the disintegration of the body by means of heat, the more one wonders how it is that, in enlightened communities, burial in the earth continues to be a custom. Sanitary science has taught us truths so important as to the deleterious effects of placing our

dead in almost hermetically sealed coffins or caskets and then depositing them in the ground that, if we were not in daily contact with the blind conservatism of the human race, we should be surprised that this method was not long ago abandoned and supplanted by some other system, which would effect, quickly, and advantageously, that which goes on in the grave slowly, laboriously, and mischievously.

The number of ways which the ingenuity of man has devised for the disposal of the dead is far greater than would be imagined by one who had not given considerable time and thought to the subject. As Sir Thomas Browne quaintly observes in his "*Hydriotaphia*": "Many have taken voluminous pains to determine the state of the soul upon disunion, but men have been most fastidious in the singular contrivances of their corporal dissolution." We shall not now stop to consider these "singular contrivances," but will confine our attention to two methods which have been adopted by all civilized nations, — inhumation and incineration.

The problem that we have to solve may be formulated in this way: given a dead body, to resolve it into its elements decently, quickly, and without offence. This is stated very fully and clearly by Sir Henry Thompson, one of London's best known physicians, and the president of the Cremation Society of England. He says: —

The body must be resolved into —

(a.) Carbonic acid, water, and ammonia.

(b.) Mineral constituents, more or less oxydized, elements of the earth's structure: lime, phosphorus, iron, sulphur, magnesia, &c.

The first group, gaseous in form, goes into the atmosphere.

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

This is a subject which is perhaps not the most pleasant that could be chosen for an hour's discourse, but it is a problem which is becoming, day by day, more pressing, and one which we, notwithstanding the vast areas of unoccupied territory which we enjoy, cannot afford to ignore or neglect. Let us bear in mind that, whether we attempt to solve it by means of inhumation or of incineration—in other words, by slow or by quick burning—the process is the same and the result is the same, so far as the body itself is concerned. The only difference that exists is in the length of time occupied in the encompassment of that result.

So also would process and result be the same if the body were left upon the surface of the ground, in the limbs of trees, or in the room in which the death took place, as is done among some savage tribes unto this day. But if we were to advocate any such practice, the hue and cry that would be raised against it would be great indeed. And in justice would this opposition be aroused. The lives of all who dwelled in the vicinities which contained these exposed decomposing bodies would be jeopardized by their poisonous exhalations.

But almost every noxious emanation that would arise from a corpse in either of these instances, will be disengaged from an encoffined body which is deposited a few feet beneath the surface of the ground and there left to proceed leisurely on its way of gradual putrefaction. So disastrous have become the effects of burial in populous countries that one can scarcely take up a guide-book to any European city without finding a warning against the indiscretion of drinking the water of its wells.

In almost all the nations of Europe it has been found necessary to regulate, by legislative enactment, the distances from graveyards at which wells may be sunk.

The extent of this sphere varies in different parts, and in some countries — notably in Italy, France, and Austria — it is utterly inadequate to accomplish the purpose sought. In Italy, for example, the prohibited distance is but about 300 feet. Beyond the area with this small radius wells may be sunk at pleasure. In France and Austria the protective limit is about double that of Italy. Even this has been found inadequate, and at a hygienic council, convened in Brussels in 1852, it was held that 1,200 feet was the smallest distance that could be regarded as protective. A further consideration of the subject led many physicians to regard this also as insufficient, and in Prussia was consequently passed a general act prohibiting the laying out of a cemetery within 2,500 feet of any dwelling. The Pomeranian town of Stralsund, in alarm at the ravages of some epidemics, doubled even this distance, and determined that a circle with its circumference not nearer, at any point, than 5,000 feet to the boundary line of a graveyard should intervene between the latter and the dwellings of the living.

That the protective distance in Italy was much too small was very soon made manifest by events in the villages of Bollita and Rotondella, whose water supplies originated at the top of a hill upon which were placed the graveyards of the locality. The wells were considerably beyond the condemned limit, yet we are told by de Pietra Santa, in his *Hygienic Annals*, that the water became so highly contaminated from these repositories of the dead that a severe epidemic was the result.

Again, the cemetery of Milan is situated upon a hill and is over five hundred feet from the city; yet, in water drawn from wells within the municipality, Professors Parvesi and Rotondi state that they have found undoubted traces of organic matter. So, according to

the *British Medical Journal*, when the plague visited Barbary in 1873, the people of Marah, who obtained their supply of water from wells in proximity to a burial ground, were attacked, while the residents of another portion of the town, where water from another source was used, were left unmolested by the disease.

In the *Gazette Medicale de Paris* of May 23, 1874, Prof. Reclam calls attention to a report of the faculty of medicine of Saxe, in which Prof. Reinhardt states that "nine larger and several smaller animals which had fallen victims to the cattle-plague, were interred near Dresden at a depth of ten to twelve feet. Next year it was found that the water from a well, situate 100 feet from the pit in which they were buried had a foetid odor and contained butyrate of lime. At a distance of twenty feet it had the disgusting taste of butyric acid, and an analysis showed that each quart of the water contained about thirty grains of this substance."

Many other instances could be adduced showing the injurious effects produced by drinking water procured from the neighborhood of graveyards. During the Peninsular War, for example, the encampments of troops had frequently to be changed on account of sickness occasioned by the use of wells near the repositories of the dead. In France many wells have had to be closed, because of a perceptible impregnation of the water; and in some parts of England it has been found necessary to discontinue, from time to time, the use of wells near churchyards.

During its occupation by the Prussians in 1870, according again to Pietra Santa, the city of Chalons-sur-Marne was visited by an outbreak of typhus. In order to arrest the disease a portion of the cemetery was set apart for the reception of the victims who died, and no such bodies were permitted to be interred

in any other portion. In the designated section they were huddled together in large numbers and were covered with quicklime. A period of wet weather followed, and it was not many weeks before the water of the wells in the neighborhood began to show signs of contamination. The chemist Robinet made an analysis and found undoubted traces of matter both from the bodies and from the lime.

To bring the matter nearer home, a report of the New York Board of Health, in 1806, recommended the removal of all graveyards from the city and the conversion of all existing burial grounds into public parks. In 1822 it was urged by some physicians of the city that the law, which had remained a dead letter for 16 years, should be put in force. Among these condemned graveyards was the Potter's Field, which was cited as the originator, in 1814, of an outbreak of diarrhoea and typhus which attacked the troops which were stationed in its vicinity. This Potter's Field is now known as Washington square; and, even at the present day, it is said that the atmosphere is affected by the gases which rise from the ground, and that, on this account, it is next to impossible to preserve the health of children that are brought up in the lower stories of the houses which surround it.

The object of placing a dead body beneath, rather than upon, the surface of the ground, is that the earth may absorb and neutralize the products of gradual decomposition. This result is very imperfectly accomplished. The volatile forms escape into the air in the form of noxious gases; and this, it would seem, almost without regard to the depth at which the body may have been interred. Those which cannot thus escape find their way into the springs and water-courses of the vicinity. Thus the inhabitants of the locality are compelled to breathe and drink that which

has been contaminated with these poisonous emanations.

As says Sir Henry Thompson, "no dead body is ever buried within the earth without polluting the soil, the water, and the air around and above it." To this statement Sir T. Spencer Wells adds his testimony in a paper read before the British Medical Association, wherein he asserts that "decomposing human remains so pollute earth, air, and water as to diminish the general health and average duration of life."

These statements were made, partly as conclusions arrived at from personal examination, and partly as an inference which must be drawn from the report of a special investigation by the General Board of Health of London, in which the commissioners say: "We may safely rest the sanitary part of the case on the single fact that the placing of the dead body in a grave and covering it with a few feet of earth does not prevent the gases generated by decomposition, together with putrescent matter which they hold in suspension, from permeating the surrounding soil, and escaping into the air above and the water beneath."

In commenting upon this report, Dr. Lyon Playfair says that he has examined several churchyards and burial grounds for the purpose of ascertaining whether the layer of earth above the bodies is sufficient to absorb the putrid gases evolved. "The slightest inspection," he says, "shows that they are not thoroughly absorbed by the soil lying above the bodies. I know several churchyards from which the most foetid smells are evolved, and gases with similar odors are emitted from sewers passing in the vicinity of churchyards, although they may be thirty feet from them."

Enough has been said to show that, in the neighborhood of churchyards and burial grounds, both the air and the water are polluted. Now, singular as it may

appear, this very contamination has the effect of making the water more attractive as a beverage. Pure water is dull and insipid even to the palates of those who are pronounced water-drinkers. We all like the sparkle and the life which are lost when water is distilled. This life and sparkle are always found as characteristics of water derived from wells and springs whose sources are in the vicinity of graveyards, and such water is, therefore, generally the reverse of unpalatable. But this sparkling brilliancy, which is found so pleasing and refreshing, is chiefly due to the large amount of nitrates contained within the water; and these are the results of decomposition. Upon this question the London *Lancet*, which is, perhaps, the highest medical authority that we have, speaks with no uncertain sound when it says: "It is a well-ascertained fact that the surest carrier and the most deadly fruitful nidus of zymotic contagion is this very brilliant, enticing water, charged with the nitrates which result from decomposition."

Just within the gates of Cypress Hills cemetery on Long Island, N. Y., is a well, supplied with sparkling nitrogenized water from the graves above. In the valleys of Evergreens and Calvary are other such wells, and the reservoir from which the city of Brooklyn is supplied with water is situated about midway between the Evergreens and Cypress Hills cemeteries. When these burial places become crowded, as will inevitably soon be the case, this reservoir must receive vast quantities of noxious emanations from the graves.

Then take the city of Philadelphia, the source of whose water supply is in the neighborhood of several large cemeteries. The evil effects of drinking this water had a forcible manifestation during the year of the centennial celebration. At that time the city

was crowded with visitors, and among these there broke out a disease which soon became known by the name of the "Centennial Diarrhœa." The ailment was at first attributed to the effect produced upon the nervous system by an excess of sight-seeing. This was not satisfactory, however, to those who reflected that the same causes had not been followed by similar effects in other localities. A fuller investigation was instituted, and as a result of the deeper insight thus obtained, most physicians who bestowed study upon the subject came to the conclusion that the epidemic was caused by drinking the city water.

But not only is this cool, refreshing, sparkling water enticing to the palate, there is even danger of its very noxious qualities being mistaken for health-giving and restoring properties. The *British Medical Journal* tells us that in Paris was discovered a well whose water was "entirely derived from the rain which fell in the cemeteries and from the liquids of decomposition." The water from this spring had acquired the peculiar sulphur-like taste which is always concomitant with decaying organic matter.

At the time of the report an enterprising vendor, who had become the proprietor of the spring, was advertising the aqueous product as mineral water, and as such, it was being purchased and drunk by large numbers of people. With all due respect to our friends the prohibitionists, I must say, in decided terms, that I believe our present system of burying and entombing the dead to cause more elements of disease to lurk in the water that we drink than the most exhaustive analysis can discover in the alcoholic liquids which those who are sensible among us refrain from touching.

Of course the evils arising from burial will vary in intensity according to the character of the soil in which

the interment takes place; but we may assume, with one of the most prominent physicians who have written upon the subject, that "under the most favorable circumstances hurtful emanations must perforce arise out of burial grounds, there being no more natural escape for the gases of decomposition than by levitation." There is practically no limit to the power of escape which these gases possess. They have been detected rising to the surface through eight or ten feet of superincumbent earth; and it is impossible to prevent their escape in a foul condition, unless by some artificial means they are purified in their passage to the air.

Then above and beyond these specific noxious gases we have to consider the abnormal quantity of carbonic acid set free, which is of itself assiduous in lowering the vitality of those who breathe it. Works on hygiene are replete with examples of the deleterious effects of inhaling an atmosphere laden with this gas. M. de Sauvage relates the account of a porter's falling into a vault at a funeral which was taking place at Montpellier. After a time he was followed by two others, each of whom descended to ascertain the fate of his predecessor. As there was still no sign from any of them, a fourth prepared to go down with a rope around his body. When about half way to the bottom he signalled to be drawn up, and, upon his arrival at the surface, it was found necessary to draw blood before he could be restored to full consciousness. When the other bodies were recovered, life was found to be extinct. M. de Sauvage subsequently made some experiments with animals and lighted torches. The animals died at the depth of a few feet; and the lights, almost before they were well below the surface of the ground, went out as though dipped in water. Having afterwards drawn some of the vapor from the vault, he found it considerably heavier than air. Birds and ani-

imals were instantly suffocated with it, and the flames of candles extinguished when inserted in the vessel containing it.

This gas is the more insidious in its work because it gives off but very little odor. Undertakers have, on several occasions, stated that they have been overcome with faintness and nausea when they have not been able to detect any warning smell.

As extreme examples of the fatal effects of breathing this gas, will be remembered the case of the ship "Londonderry" and the Black Hole of Calcutta. In the former instance 150 passengers were, during a storm, shut up in a cabin 18 feet long, 11 feet wide, and 7 feet high. In a comparatively brief space of time nearly the half of them had died, several in convulsions, accompanied with bleeding at the eyes and ears. More disastrous still was the effect produced in the guard-room of Fort William, Calcutta, — commonly known as "the Black Hole" — into which 146 men of the British garrison were forced at the point of the bayonet. This dungeon was but 18 feet square and had only two small windows, which were barricaded so that little air could pass through them. The heat outside was tropical, and it can be easily imagined what must have been the temperature in that stifling closet, so crowded that there was not room to sit down. No wonder that those who had stood shoulder to shoulder in the thick of battle, now crushed one another to death in their frantic efforts to get near those little windows. All night long were the merciless doors of that mephitic prison kept locked; and in the morning, when they were opened, the tale of horror was told by the finding of all but twenty-three of the sufferers dead.

The diseases prevalent among those who dwell in proximity to graveyards are notably diarrhœa, dysen-

tery, fevers, and diseases of the throat. The records of the French Academy bear testimony to the fact that the putrid emanations from some of the cemeteries of France have caused serious ravages of the throat and lungs, of which complaints numbers of the surrounding inhabitants fall victims every year. Mr. Edwin Chadwick, one of the commissioners of the British General Board of Health, states, on the authority of an English army officer, that, when his regiment was quartered in barracks which overlooked a Liverpool churchyard, he and his men were constantly suffering from dysentery, and we have already seen the effect upon the soldiers quartered near the Potter's Field in New York.

But I cannot now stop to multiply instances. We must pass on to notice a source of danger which is apt to be overlooked; and that is the possibility of spreading disease through the agency of terricolæ or earthworms, and other living organisms. By the investigations of Pasteur it has been clearly shown that splenic fever, which is generated by a specific germ emanating from decomposing organic substance is originated through the instrumentality of these worms. The propagating germs he has found in the mould of graveyards, and also in the intestines of worms that he has subjected to examination. He also found them in the mould of a certain field in Switzerland, in which a cow had been buried two years before. Another animal, being inoculated with them, took the disease and died. The same germs were also discovered by him in the plants of neighboring gardens, and the great chemist suggests the possibility that, in cemeteries, the germs of various diseases may be carried to the surface of the soil by these worms.

Darwin has also examined the subject with reference to the possibility of the transmission of disease

by these living agencies. In his report "On the Formation of Mould," before the Geological Society of London, he shows that, in some old pasture land, every particle of the superficial layer of earth, overlying different kinds of subsoil, has passed through the intestines of these terricolæ. In the case of one field that he examined he found that, in the course of fifteen years, more than three inches of this worm-mould had been formed, and in another that, in eighty years, these creatures had deposited their mould to an average depth of thirteen inches.

Professor Koch, having made observations in the same direction, maintains that, almost without regard to the depth at which a body may be interred, the spores are liable to ascend to the surface and infect those who come within the reach of their influence. So likewise with respect to the malarial fevers which run riot in Rome and the surrounding country. In the atmosphere of the marshes about the city, Klebs and Thomasi Crudeli claim to have discovered bacteria identical with those found in the blood of patients suffering from the disease.

Before leaving this branch of the subject, brief reference must be made to one more element of danger which we shall have to face so long as we continue to consign our dead to the earth. Recorded instances of disease produced by the premature re-opening of graves are numerous, so that we cannot possibly plead ignorance of the probable — nay, of the almost inevitable — consequences of the act.

The late M. Navier, a physician and a member of the Royal Academy of Sciences of Paris, has left a carefully written dissertation showing the dangerous results which, in many given instances, have followed the opening of graves before the bodies therein contained were quite dissolved. He mentions different

ways in which the virus may enter living organisms — such as with the food that is eaten or the air that is inhaled, and even through the pores of the skin — and he mentions several instances, chiefly from sextons' reports, showing the length of time that must, under ordinary circumstances, elapse before complete disintegration can be accomplished.

As a specific illustration of disease so engendered, Professor Bianchi tells us how the plague was, on one occasion, propagated in Modena through the making of an excavation in some ground in which, some three hundred years before, the victims of a previous visitation of the same dread malady had been buried. We have it also recorded that at the death of a poor woman in a Scotch hospital, the gravedigger agreed with some students to put a mark upon the grave, so that they could afterwards obtain the body for anatomical purposes. This mark was removed and put on another grave, and from this the body was conveyed for the use of the embryonic surgeons. When the coffin was opened, the report says that "a vapor-like flame of brimstone came forth, and suffocated them in an instant. Two women also, going past the room, fell down dead, and it was said that eleven persons thus perished from the baneful effluvia."

In his work "On the Causes of some Epidemics," Mr. Cooper cites, among other cases, that of Eyam, in Derbyshire, England, where an immediate outbreak of the plague was occasioned by the digging up of the burial places of former victims; and we are further told by Mr. Eassie that in 1843, when a parish church in Gloucestershire was rebuilding, some of the superfluous soil of the burial ground was sold for manure and deposited in many of the neighboring gardens, with the result that the town was nearly decimated. M. Pariset, a special investigator of the

French government, also traces the outbreak of the plague in Egypt, in 1823, to the opening of a disused burial ground about twelve or fourteen miles from Cairo. And it has been stated that the latest outbreak of yellow fever in South America was owing to a disturbance of the graves of those who had previously died of the same distemper.

All these evils we might possibly make up our minds to endure, if we had the satisfaction of knowing that the hallowed spots in which we have deposited the bodies of those whom we had revered and loved in life would be their final resting places. But even this consolation is denied us. The history of every great city's growth tells us that, though, in the first instance, the rights of the living are sacrificed to the accommodation of the dead, yet, in the end, the dead must make way for the living, for whose dwellings or business edifices space must be appropriated. Trade and commerce are forces more potent than sentiment of the sublimest order, and these tyrants say at length: "This site the dead have had quite long enough. We now demand it for ourselves. Clear out the present occupants and make room for our requirements."

The work is thus inaugurated. That which remains of the bodies so carefully and tearfully laid away in graves and vaults constructed for their reception is taken out with the picks and shovels of rough and hardened laborers as devoid of sentiment as are the tools they handle. Amid profanity and, in many cases, gross obscenity, they are loaded promiscuously into carts and carried off to another locality, where they are tossed, in indiscriminate heaps, into huge caverns dug out to receive them, and there they extend the area infected by their poisonous exhalations. And here they remain so long only as this location too is not demanded by the living. When that time comes, as it

almost inevitably does, they are again disturbed and carried forth, until, at length, it is impossible to say where they may be found.

Let us now turn to view another picture. Let us put aside the cold, dark, cheerless grave with its sickening corruption, from which the imagination revoltingly recoils, and transfer our thoughts, for a few moments, to the dissolution of the body in rosy light and genial warmth.

In the discussion of this subject a great advance has been made within the past few years. To-day the advocates of cremation do not need to make apology for the course that they pursue. The theory has gained a victory, but there still remains a widely diffused prejudice against the practice. And yet in this man endeavors to do that only which he tries to accomplish in almost every good work that he undertakes. He but seeks the best method of doing nature's work in her own way; but more satisfactorily and more quickly than she can do it unassisted by his ingenuity and skill. He only aims at the encompassment of the rapid reduction of the body, by means of a heat which purifies every emanation and, in a few minutes, leaves but a handful of pure, white, and absolutely harmless ashes, which, if the survivors choose, can be preserved where they may be visited at any moment, without a possibility of danger to the health of those who thus express their reverence and love.

The ceremony which accompanies the incineration of a body need not at all be changed from that which is now conducted at a burial. Our churchyards and cemeteries may, without fear of any evil effects, be used as the repositories of the ashes, or the churches themselves could be provided with receptacles for these remains. They could indeed be deposited in the vaults with which many churches are now provided, or we

could do as the Greeks and Romans did at one period of their history, and make our dwelling-houses the repositories of the funeral urns.

I must not be understood as advocating any of these methods of preservation. I merely say that any one of them, or all of them, could be pursued without entailing evil results upon the living. Personally I am not in favor of any preservation of the ashes. These should, in my opinion, be returned to nature as quickly as possible, just as is of necessity the case with the volatile elements of the physical structure. In order to perform her work in an effectual manner, nature requires that *all* her forces be utilized. If she be deprived of any portion of that which is hers she must be, to a greater or less extent, crippled in her operations, and the inevitable corollary to that is that we, as parts of the great integrity, must be crippled too. As Euclid has presented us with the mathematical axiom: "The whole is equal to the sum of all its parts," so may we propound, as a social axiom, that an injury or a benefit to the whole is equal to the sum of the injuries or benefits to all the parts. In other words, no injury or benefit can be sustained by the whole without each and every part having to bear its proportional share of such injury or benefit.

Some persons tell us seriously that, whatever objections may be brought against burial, they cannot accept cremation as a substitute because it is of heathen origin. Outside of Judaism, I find it difficult to discover anything that, prior to the advent of Christianity, was not of heathen origin. It might as well be said to-day that the photograph and the phonograph are of Christian origin; that steam and electricity, as sources of heat and light and power, are Christian discoveries; or that twelve and fourteen story buildings, which are a menace to the limbs and lives of all who dwell in

them, and which obstruct our neighbor's enjoyment of the light and air that they require, are Christian institutions, because these things originate, perchance, in Christian lands.

As says the Rev. Mr. Long, of Zurich, religion has no title to mix itself up with the question. It has nothing whatever to do with the subject, which is from first to last one of health. I cannot but assent to the proposition of Mr. Eassie, that the burning of the dead was of purely sanitary origin. But even if it could be shown to be connected with the heathen religion, I see no valid reason why that should be urged as an objection by the Christian world. We do not object to go to our heathen ancestry for instruction in the arts and sciences; we have taken what was good in their religious rites and incorporated them in our own forms of public worship; we have appropriated their temples and converted them to shrines of Christian prayer and praise; and we have even laid hands upon the statues and images of their deities, which, under the new names which have been given them by the Christian church, we admire, and, in some instances, reverence and adore.

It is true that the Christians, in the days of their persecution, abolished the custom of burning their dead; and, without now inquiring into their reasons for so doing, I see no cause for regret that such was the case. Before the advent of Christianity cremation was always performed upon the open pyre, and this, to the survivors, constituted a peril worse than burial in the earth. It was well, therefore, that the latter took its place, and upon the same principle, it would be well that this, in its turn, should be replaced by incineration in its modern form, which removes *all* possibility of danger in its operation.

Again, we are told that the burning of the dead is

unscriptural and that it militates against the doctrine of the resurrection. It certainly is not forbidden in either the Old or the New Testament; and some commentators of undoubted repute, such as Pusey, Bauer, and others, think that in certain passages of the Bible they find evidence that, in former times, the Jews practised both forms of sepulture. The notion respecting the resurrection was, on one occasion, brushed aside by the Earl of Shaftesbury with the abrupt and pointed question: "What, in such a case, would become of the blessed martyrs?" And this would seem to be sufficient reply to the doubt. Those who believe in the literal rising again of the body, cannot think that the power of the Almighty to collect the scattered elements is limited by the circumstances and conditions under which disintegration has taken place.

The late bishop of Manchester admits that his sentiments are somewhat shocked by the idea of cremation; yet, at the consecration of a new cemetery, he made use of these significant words: "Here is another hundred acres of land withdrawn from the food-producing area of the country. I feel convinced that before long we shall have to face the problem, 'how to bury the dead out of our sight,' more practically and more seriously than we have hitherto done. In the same sense in which 'the Sabbath was made for man and not man for the Sabbath,' I hold that the earth was made, not for the dead, but for the living. No intelligent faith can suppose that any Christian doctrine is affected by the manner in which, or the time in which, this mortal body of ours crumbles into dust and sees corruption."

A reply is not needed to the allegation that our modern methods of incineration are barbarous and indecent, for there is not one unprejudiced person, knowing anything about the matter, who will urge this in remonstrance. The only animadversion that remains

to be noticed — and this I regard as the only serious criticism that has ever been presented — is that, by destroying the traces of poisons whose presence might be disclosed in an exhumed body, it encourages crime and stands in the way of its detection. This must of course be guarded against by the most stringent measures. But if there were no means of counter-acting this liability to the concealment of evidence, the fact remains that, of the number of deaths that occur annually throughout the world, the proportion of those which give rise to the smallest apprehension of foul play is so small as to be practically infinitesimal. Even under such circumstances, “the greatest good to the greatest number” should be regarded. The amount of harm that is the inevitable result of the present system of burial is, as Sir Henry Thompson well puts it, “infinitely greater than the evil of secret poisoning is, or could be even if the practice of the crime were very considerably to increase.”

But it is an indisputable truth that, as the practice of cremation extends, so does the probability of undetected poisoning diminish. The examinations and certificates which are demanded, before a body can be committed to the incinerator, render it almost impossible for such a crime to escape discovery. It is even uncertain whether science may not yet come to our aid in such a way as to compel the very gases themselves, as they pass from the body, to tell their own tale, and thus furnish undoubted and undoubtable testimony to the absence or presence of poison in the system.

There is one danger certainly which cremation will undoubtedly eradicate, and that is the liability to premature interment. I imagine that many of the cases in which the opening of a coffin has revealed a displacement of the body have been caused by the natural

force of the gases which have been generated in the process of decomposition. Still there are well authenticated instances of death not having actually occurred when the body was committed to the grave.

The uncertainty of the signs of death is well established by those who have written upon this subject. Under some circumstances the indications seem incapable of determination, except by the practised physician, and even the skill of these has been known to be at fault. As der Herr Dr. Zimmermann says, "coldness, heaviness of the body, a leaden livid color, with a discoloration of the visage, are all uncertain signs." He observed them all, on one occasion, upon the body of a criminal who had fainted when the time of his execution had arrived. "He was shaken," says the account, "dragged about and turned in the same manner as dead bodies, without the least sign of resistance, and yet at the end of twenty-four hours he was recalled to life by means of a volatile alkali." Many will call to mind the restoration, by Empedocles, of a woman who had lain for a long time in a trance which was supposed to be death; and the accomplishment, by Asclepiades, of a similar act of resuscitation upon one of his friends who had been prepared for the funeral pyre.

Then we have the case of Cardinal Espinola, prime minister to Philip II., of Spain. He actually put out his hand to stay the knife with which he was about to be opened in order to be embalmed; too late, however, to avoid the thrust which destroyed the life that had for some time been regarded as already extinct. And, showing how even the most skilful eye may be deceived, it is recorded of Vesalius, the father of anatomy, that, when he was called upon to make an examination of the supposed dead body of a Spanish noble,

there were found, at the first incision of the knife, almost certain indications of life. Notwithstanding his eminence and undoubted integrity he was denounced to the inquisition as a murderer, and was only saved from punishment by the interposition of the king.

Whether, after a body has been fastened down in a coffin and then placed in the ground, there be a possibility of a return to consciousness, even for an instant of time, although life was not extinct when the entombment took place, is open to doubt. There would seem to be absolute certainty, however, that no such terrible realization of horror would be possible were that body consigned to the enormous heat of a crematory furnace. But all properly constructed buildings for incineration will be supplied with such appliances as will render revivification inevitable if there be a spark of life remaining, and thus the contingency of the horrible climax will be eradicated.

As a final consideration, it will be well to bear in mind that the cost of incinerating a body is quite small — and, as the system becomes more extensively employed, will be much smaller — when compared with that of placing a body in the earth. Economy is thus subserved by this change of method; for, although persons can go to any expense they please in conducting a body to the crematorium, yet one who is poor will be enabled to dispose decently of one's dead without hypothecating one's income and peace of mind for years to come in satisfying exorbitant demands levied upon one's urgent necessity and abnormally vivified sentiment, which, at so solemn a time, recoils from a wrangle about the dollar and the cent.

After all that has been said and, possibly, after all that can be said upon this subject, it remains a fact that, to the minds of some, the idea of reducing the

human body to ashes by means of fire will still be obnoxious. All the arguments and facts which may be presented to show the baneful effects of inhumation may be admitted or, at least, not controverted. It may even be accorded that, in remote periods of time and in far distant lands, cremation may be well enough — nay, even a necessity. But when the question is brought so near home as to embrace the possibility of subjecting one's own body or, what is a much surer and more exacting test, that of the dearly beloved friend, to the operation of fire, there is at once a shrinking and recoiling from the thought. And it must be accepted as a fact that, in most instances, this repugnance arises from reverence for the departed and an affectionate regard for their memory. The sentiment may be accounted a mistaken one; it is, nevertheless, entitled to the utmost respect.

Burial in the earth is a method of disposition with which all have been familiar from the period of their thoughts' inception. The processes carried on within the grave are therefore likely to escape observance. If reflection upon the subject does cause this humiliating procedure, with all its painful and revolting accessories, to come before the mind, it has to be instantly put aside. Immediately, however, that a new method is proposed these features are what first engage the attention. And how different is the result when we dwell upon the body's disintegration by means of heat. One who has witnessed the operation writes about it with an approbation so earnest that the reader of his words would think him an ardent partisan of the cause. Yet he is a Christian clergyman who sacrificed his feelings to the sacredness which attaches to the request of a dying friend. Against his inclination he accompanied the body to the Washington crematorium; and,

after describing what he there saw, he says: "As we turned away from the incinerator where we had left the body of our friend, it was pleasant to think of him still resting in its rosy light, surrounded by what seemed to us as floods of purity. It was grateful, too, to feel that whatever might remain after a few brief hours of purifying work would be, as he would wish it, clean and white, and, like his own pure self, without offence to thought or memory. The earthly parts which might be driven off by heat, and in that sense made spiritual, would have their home with sunlight in the upper air; and, altogether, every thought and feeling which the scene evoked, so far from being painful, as I feared they would be, were engaging and winsome — if one may use such words of such a scene. After all that I have seen, I must say that my feelings are completely changed, and that the process of incineration is so much more attractive than anything which I had ever conceived, that I would as much rather see the body of my dearest friend cremated than buried as can possibly be imagined."

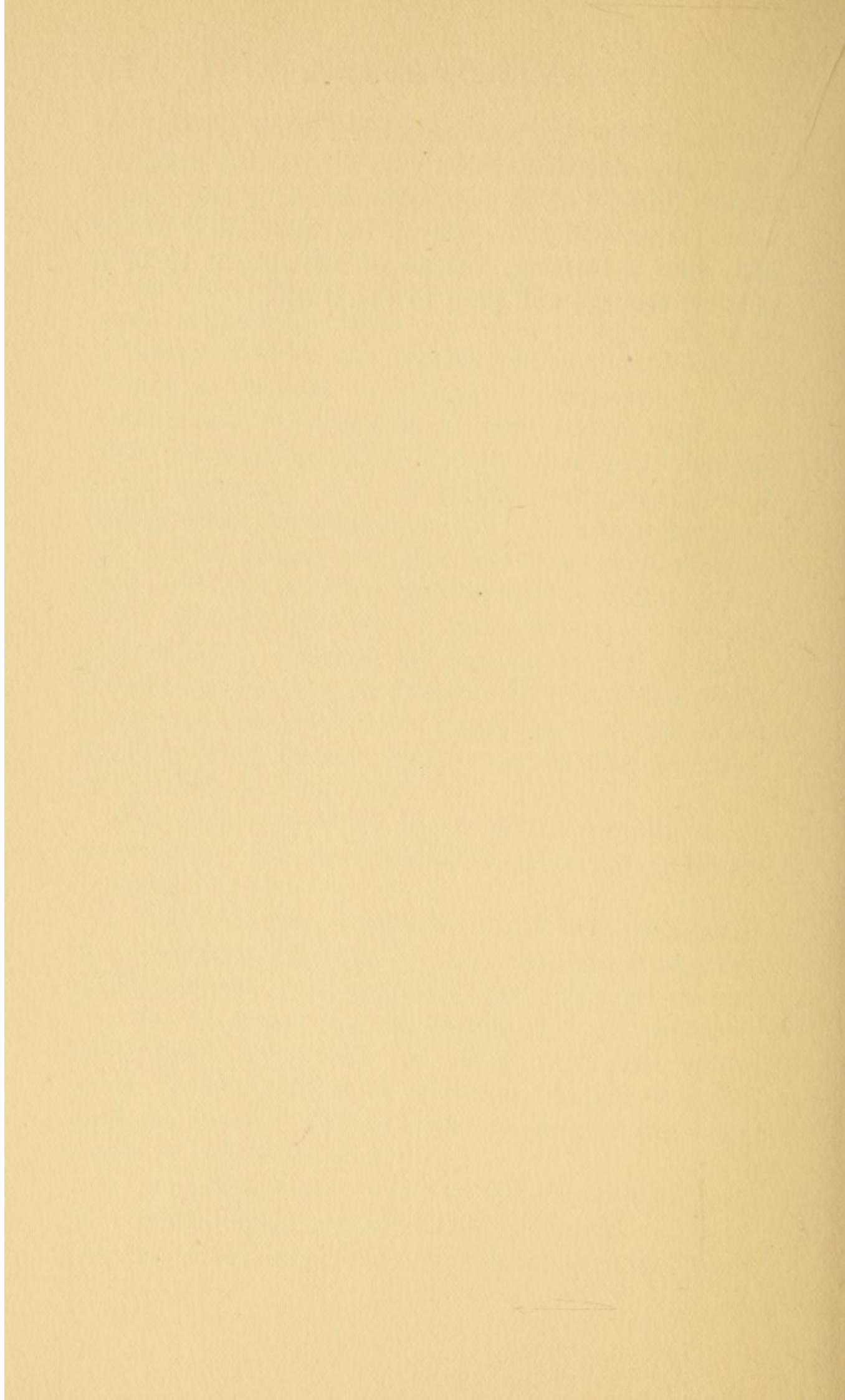
With these words we must, for the present, leave the subject; and, in reviewing it, let us ask ourselves a question or two: —

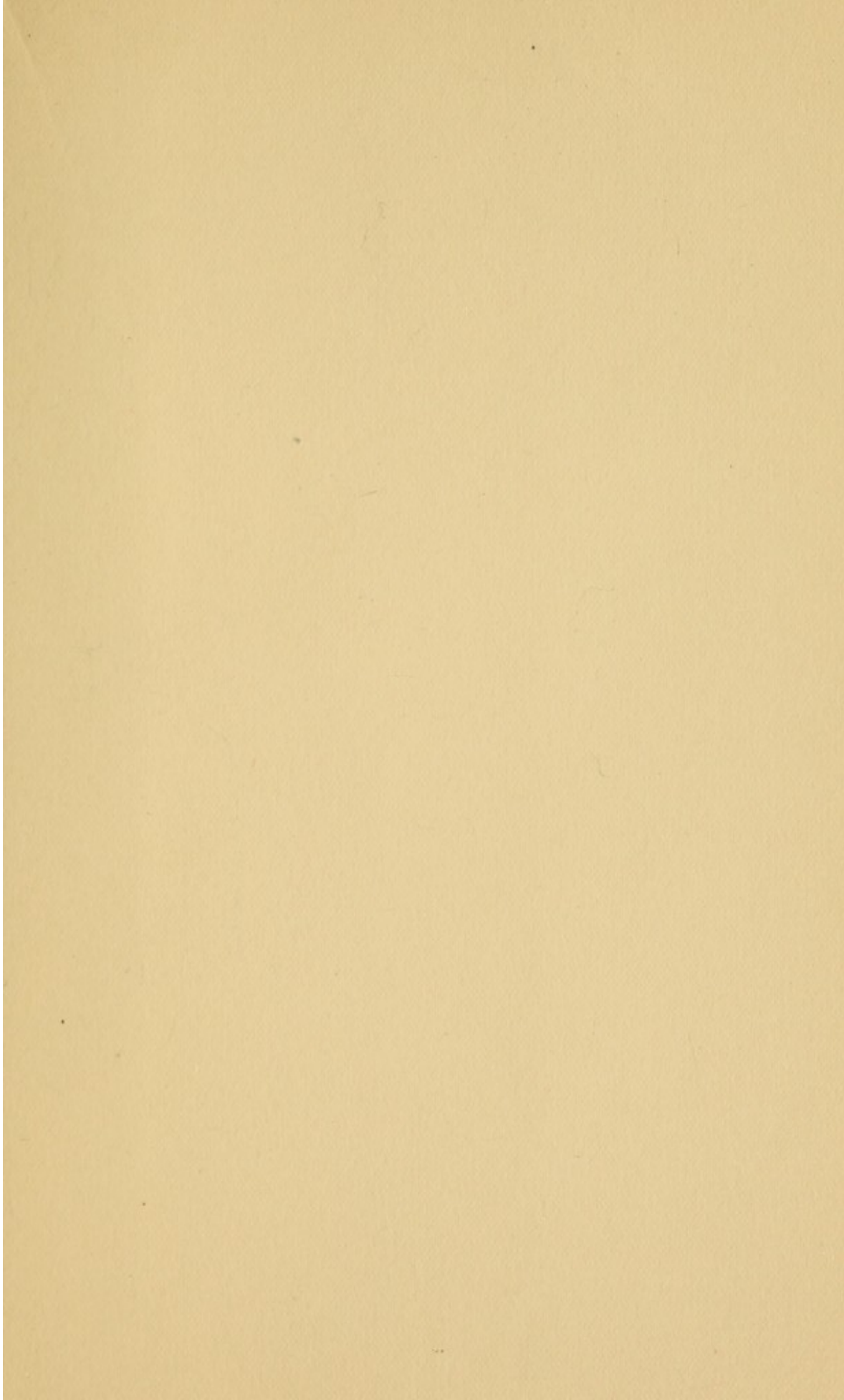
1. Are we willing that, after death, our bodies shall be so disposed of, that, in their decomposition, they shall constitute an element of danger to our survivors?

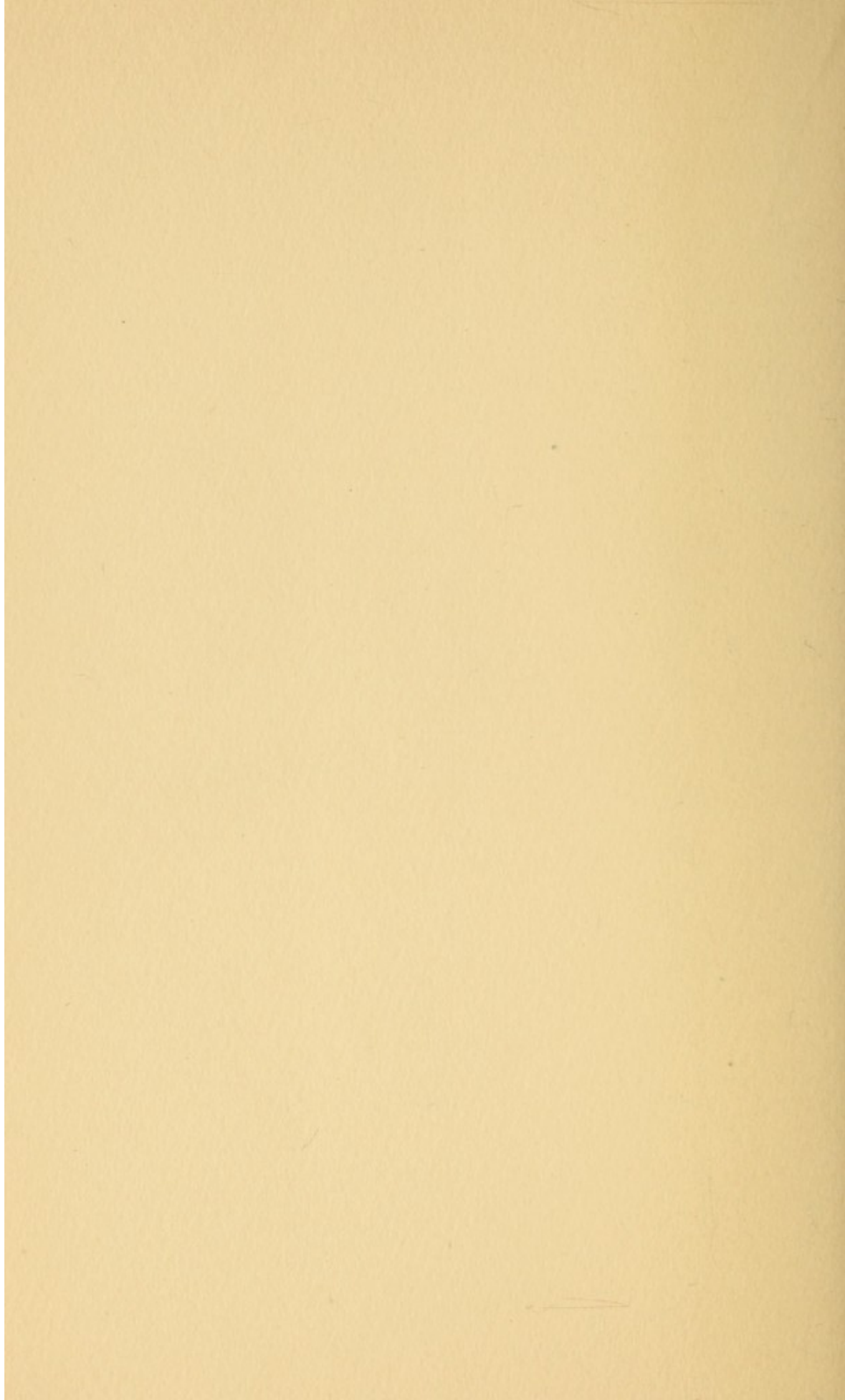
2. Do we desire that the bodies of those whom we loved and revered on earth, and on whose works for the welfare of others we delight to dwell, shall, as soon as life has departed, become the originators of evil to mankind?

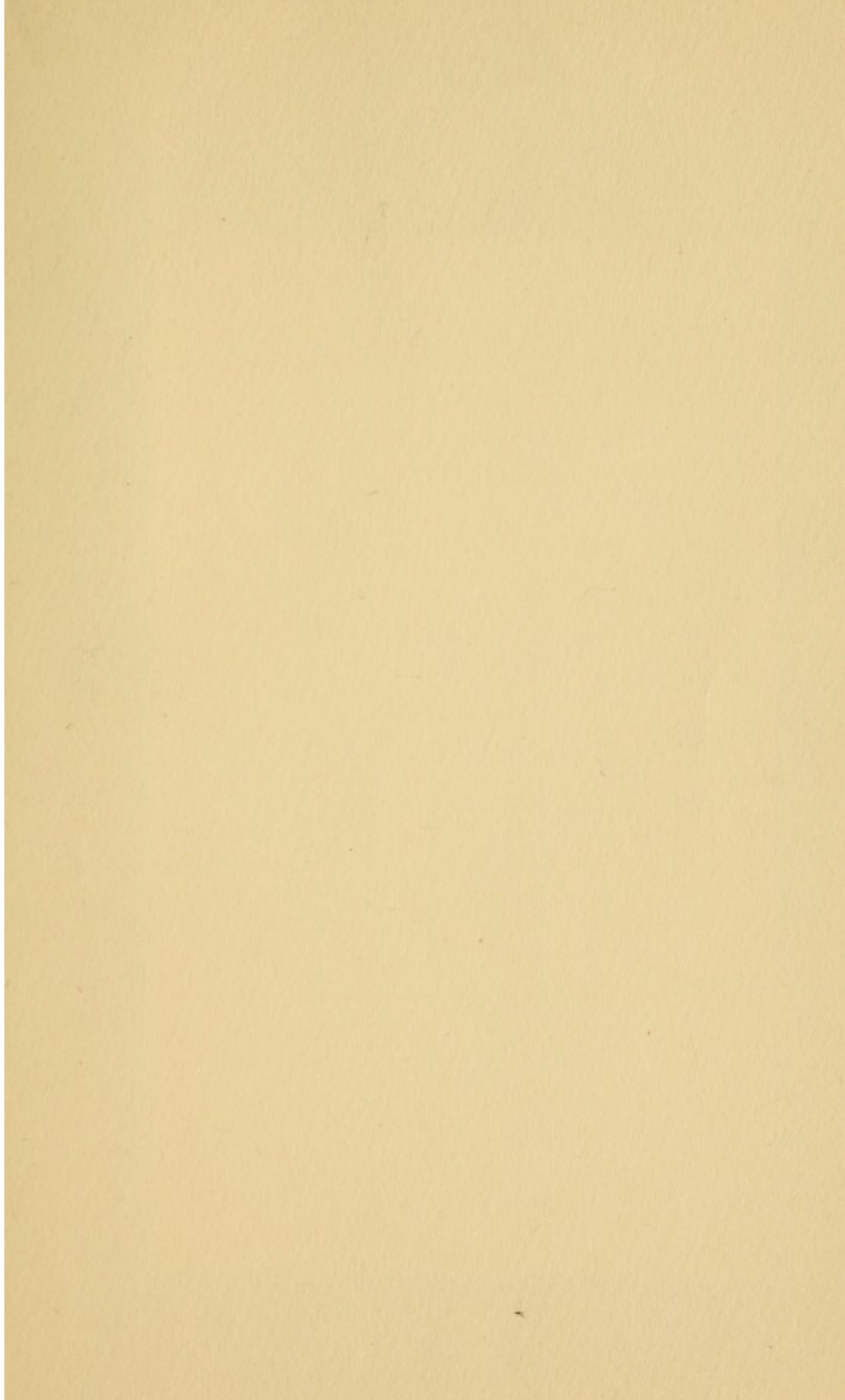
If we can answer "yes" to these questions, then let us continue our present methods of burial. If, however, we do not desire these things, let us unite for the

purpose of carrying into operation a better system ; one that will enable us to think with satisfaction upon the last act, instead of, as now, with shrinking and repugnance ; that will convert even the dissolution of the body into a blessing, instead of allowing it to be a possible scourge and peril to the world.









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