INCINERATION OR BURIAL.

A correspondent has taken the trouble to send us from a long distance (San Francisco), an article on the above topic which editors there had thought useless to publish. Independently of the quality of the production, we are inclined to think that Christendom, whether wisely or not, is so generally set against burning its dead as to justify the editorial conclusion. It can do no harm, however, to look at the question, and it may be instructive to glance at the conduct and experience of other races and times in relation to this interesting subject.

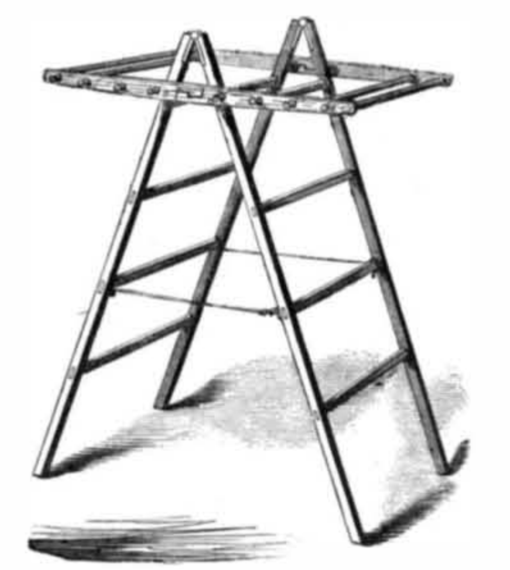
The utilitarian arguments for burning the dead are of great absolute force, especially in cities and populous regions. If ample room could be secured in perpetuity for all the generations of the living to rest at last forever undisturbed beneath the ground, one of the strongest of these arguments would be taken away. But this cannot be, at least in the ordinary manner, unless the whole term of mortal life on this small planet is destined to a restriction which has not been unequivocally revealed. It is true that we need not concern ourselves about exigencies which can only arise in the course of thousands of years, may never arise at all, or may be met by means now unimagined, long before they arise. But local necessities do arise which render the burial system extremely inconvenient, to say the least. It is impossible to locate burial grounds with an absolute certainty that it will never be imperatively necessary to invade and disturb them. No treatment of the dead could be more revolting to humane sensibility than the indecent scenes which have been enacted in this and many other cities when the interest of the living has prompted the removal of past generations of the dead from their once sacred resting places. Could they and those who loved them have had a voice in the matter, none can doubt that they would have preferred the funeral pyre or the calcining retort to the shovel and cart and the ghoul-like hands of the plunder-seeking laborer twice imbruted by a brutal task. Burning or anything that should prevent forever the recurrence of such desecration, would lend a grace to our civilization beyond what it can boast as yet.

In all old and densely populated countries, close and even cumulative burial has become an evil not only brutal and brutalizing in its necessary incidents, but pestilential in its effects. It might be just (though of no practical use) to urge greater liberality in the appropriation for the dead, but for the fact that in some countries every foot of land devoted to waste subtracts from the daily bread of the poor. It is not practically possible and not always even humane, to enforce a sufficient liberality in land to prevent close burial in such circumstances, while men are what they are. The consequence is that the ground sometimes becomes saturated with the products of decomposition and can absorb no more, but yields them to the atmosphere in pestilential gases. Long before this extreme result is reached, however, the rank soil becomes prolific of deadly exhalations, and communicates poison to subterranean water currents and thence to wells. The mortuary records of such localities give abundant evidence of the effect, and that with fearful emphasis in times of pestilence. The ancients felt wisely though they reasoned rudely that the burial of the dead among the abodes of the living was a pollution to be prohibited. It seems as if burial could hardly be maintained with propriety for dense populations without eventually far more liberal appropriations—the construction of subterranean cities of the dead, for example—unless, which is perhaps more likely, the progress of science shall reveal some cheap and effectual means for general embalming. Again, the practice of burial incurs the risk of burying alive; a source of greater suffering on the whole in anticipation than in consequence. A kindred dread possesses the mass of mankind in regard to "being put in the ground" after death. It is rather a degrading apprehension, and really counteracts to a large extent the conviction and the consolation of immortality. Possibly if the vote of mankind were taken in reference to the disposal of their own bodies, the decision of the majority might not be the same as if we should vote in the character of survivors; fondly clinging, as we do in that capacity, to the longest preservation of the mortal remains, even beyond our sight; just as old letters and other relics, which we feel that we can never bear to look at, we can as little bear to burn.

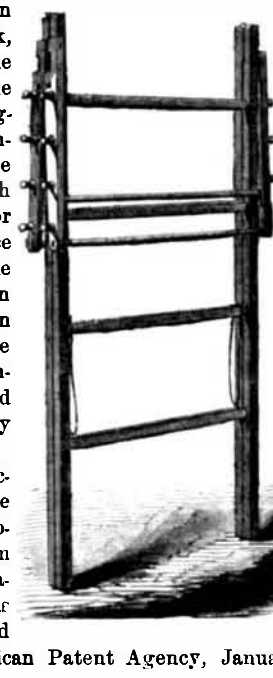
The general history of incineration and burial is highly suggestive, and not favorable, in weight of example, to the former. The ancient Egyptians carried "reverence for the dust of man" to a degree of scrupulous and expensive care which has never been emulated except by individuals. The Romans, originally the most virtuous and humane in their stern fashion of all the great heathen nations, preserved their dead generally by burial until the times of the emperors, when faith, honor and purity had become nearly extinct, and burning the dead became the general custom until the predominance of Christianity put an end to it and substituted burial, in Rome and in the fiercely barbarous parts of Europe where burning had prevailed, as in Britain, from remote ages. The Hebrews practiced burial, as every reader of the Books of Moses may remember, and this was the custom of Abraham and his contemporaries (Genesis xxiii., 6); hence, probably of the few former generations back to Noah, and also back of Noah and the deluge. The Greeks practiced burial and burning indifferently, according to individual preference or circumstances. It is unnecessary to add that all Christian communities have adhered tenaciously to burial, thus far. Indeed there seems to be a historical and instinctive if not rational connection between the preservation of the body and the hope of resurrection as well as the general moral vigor of races. The virtuous North American Indian always buried, and the civilized but dissolute Asiatic has generally burned. The same principles which produce a polite, skeptical and materialistic civilization seem to have operated to extinguish the imaginative and religious tenderness for the human body which makes us cling to burial and constantly improve and refine its incidents. We need but mention, finally, the serious addition which burning would make to the chances of impunity in crime, by destroying the only evidence in many cases before suspicion was aroused. On the whole, we are inclined to think that the true direction for improvement is that of more reverent and secure preservation rather than of summary destruction.

SEEMAN & CATROW'S FOLDING CLOTHES HORSE.

The form and construction of this clothes horse is plainly seen in the two engravings presented herewith. The two



supports are hinged at the top so as to be closed when not in use, the horizontal bars being pivoted to the uprights and closing against the sides. When in position for use the ends lock, as seen in the engraving. The horizontal bars on which the clothes are hung are so arranged with reference to one another that in no case will the fabrics overlap or interfere with the free circulation of air. For the amount of drying surface which this horse exposes to the air, the contrivance, when in use, takes up less room than many others intended for the same purpose. It can be instantly folded or expanded, and is durable, simple, and cheaply manufactured.



State, district, and manufacturer's rights are for sale, or the whole patent right can be obtained on reasonable terms from the patentees, Seeman & Catrow, Middletown, Ohio. This improvement was patented through the Scientific American Patent Agency, January 22, 1867.

[For the Scientific American.]

THE STEAM INDICATOR—ITS VALUE AND USE.

Since we have had an instrument that is reliable for all speeds and conditions of the steam engine the indicator is becoming popular and its use is being called to the aid of the constructing engineer, the users of steam engines, and particularly to landlords letting power and their tenants. Owing to the imperfection of instruments formerly used, especially for engines that made more than twenty revolutions per minute, much doubt was justly felt with regard to the indicator being a correct measure of a steam engine or of its condition. Fortunately this difficulty is removed by the invention of a new instrument. Engines can now be correctly indicated under any attainable speed. To show the accuracy and uniformity of its action, I will, as an example, give the following: I applied a pair of indicators (one at each end of the cylinder) to an engine 20·5 by 48 inches, making fifty revolutions per minute, variable cut-off by the governor, valves badly set, one end doing three fourths of the work. I took six pairs of diagrams each day for three successive days, thirty-six diagrams in all, varying from twelve horse-power to seventy-five horse-power. I worked them all up separately. I then divided the average pressure per square inch on the piston by the horse-power indicator, and found the quotient four; showing that it required four pounds pressure for each horse-power. This result was uniform without a fraction on all the 36 diagrams. It would seem that this proves beyond a doubt that the two instruments were alike, uniform in their indications, and that it is practicable to measure the diagrams exactly.

Now, it has been questioned by some engineers that the indicator is a correct measurer of the steam engine! Let the above statement be analyzed and I think no reasonable doubt can be entertained for a moment of its uniformity; this conceded the next question is, is it mechanically correct? I answer that there is the same facility to make it correct as there is any weighing apparatus, and equal ability to test it.

The greatest opponents the indicator has are those whose secrets it reveals. It has spoiled many a theory and revealed bad proportions and arrangements of valves, ports, etc. It shows strong and incontestible facts in favor of working steam expansively—hence the opponents of expansion have to condemn it or admit their error.

So long as it is uniform in its action it is reliable as a measure. I care not what you call the result; horse-power, indicated horse-power, or, if you please, indigrams, it is a measure of power exerted and shows the exact condition of the engine and the action of the steam inside.

Inasmuch as many engineers using the instrument have made working up of the diagrams a mystery, and with one exception—Chief-Engineer King, U. S. N.—in his "Notes on Steam"—the writers on the subject have mystified the mystery, I will in a future paper give rules, very simple rules, for using the indicator. F. W. BACON.

84 John street, New York.

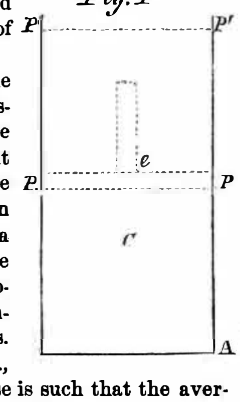
Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents.

The Unit of Heat—Mr. Morley's Fallacy.

MESSRS. EDITORS:—Permit me to say a few words in reply to Mr. Morley's article on "The Mechanical Equivalent of Heat," concluded on page 169. The writer of that article finds that the piston, *e*, in the figure may be raised one foot, from P to P′, by the application of an outside force which he computes at an average of 540 foot lbs., and as a corollary deduction thinks that 540 foot lbs. is all the work done in the case. He seems to have overlooked the fact that the inclosed air loses heat by expansion. This loss of heat (computed by the rule from Prof. Rankine, given in your issue of March 24, 1866), would be 121·4°. If the specific heat of air, with the pressure constant, is 0·24, the absolute specific heat, from the data given by Tyndall, is 0·17, and the quantity of water equal in absolute heat to the cubic foot of air is 1·29× 0·17=0·22 oz. But 0·22 oz. of water cooled 121·4° is equal to 1·67 lbs. cooled 1°, or the destruction of 1·67 units of heat.

Fig. 1



By Prof. Rankine's rule, also, if the pressure of the atmosphere on the piston be 2160 lbs, and the expansive force of the inclosed air equal to it when the piston is at P, the expansive force or upward pressure on the piston is reduced to 814 lbs., producing a partial vacuum of 1346 lbs., when the piston is raised to P′, without the application of heat. If the vacuum increased at the uniform rate of 1346 lbs. per foot, the average would be 673 lbs., but the variation of the rate of increase is such that the average is 856 lbs.; hence the work done by the application of outside force is 856 foot lbs. This leaves 1,304 foot lbs. to be accounted for by the destruction of 121·4° of the heat of the inclosed air.

But we have already seen that that destruction amounts to 1·67 units of heat. Dividing 1,304 by 1·67 gives 781 foot lbs., from the data taken in this case, as the equivalent of one unit of heat.

The second case supposed by Mr. Morley "to vary the proposition," only requires a corresponding computation on the same basis to bring the same result.

The difference of 9 foot lbs. between this result and the accepted equivalent may be ascribed to slight errors in the data used. For instance, Prof. Tyndall's estimate of the pressure of air of the given density, differs from that given by some other good authorities, by more than enough to account for the excess.

The accepted equivalent of heat may not be perfectly correct, I only contend that the method of calculation of Dr. Mayer as given by Tyndall, contains no radical error or defect.

O. A. BENTON.

Leedsville, N. Y., March 18, 1867.

[The above exposes pretty plainly the fallacy of Mr. Morley's reasoning to those who are familiar with the data used. To others the following suggestions will have more weight. No one can doubt that in Tyndall's illustration the air (2,160 lbs.) is lifted. What lifted it? Was the lifting force due solely to heat as Mayer assumes, or did the initial elastic force of the air contribute something? At the end of the raising, the air has the same elastic force or tension as at the beginning, and therefore none of it could have been used or consumed in doing the work. We consider Mayer's method of determining the mechanical equivalent of heat impregnable and one of the happiest thoughts of the nineteenth century.—We have received in addition to the above communications several others of similar purport and of equal merit; if our paper were large enough it would afford us pleasure to print all of them.—EDS.

Our Iron Clad Navy.

Allow me, Messrs. Editors, to briefly state my reasons for dissenting from some of the statements made by your correspondent, Y. Z., in No. 13, current volume. The bill of Mr. Grimes from which he anticipates so much benefit to our navy is, in my opinion, only an attempt to create an admiralty board, a creation which has not as yet been productive of such good results in England that we should crave its existence here. Your correspondent speaks of sixteen iron-clads, which "will not float and are entirely useless." I presume he refers to our draft monitors. Without intending to endorse or excuse the blunders committed by the Navy Department in constructing these vessels, it may be stated that fifteen out of the twenty have been increased in depth and the remainder altered to torpedo boats. They all float with sufficient buoyancy when fully equipped. He says that the *Dictator*, *Puritan*, *Roanoke* "are not safe for cruising at sea." Judging from my own experience with monitors I cannot but think this opinion absurd. In stating that the *Puritan* is of the same model of the *Dictator*, Y. Z., errs; the *Puritan* having some 800 tuns more displacement than her consort. It was decided to leave one turret off the *Puritan* so that the other could be made larger, in order to accommodate the 20 inch guns which have already been cast for her.

Your correspondent further says that "eight of the iron-clads were built after the model of the *Manhattan* of 844 tuns," and that "we have nine iron-clads of the *Canonicus* model of 1,034 tuns." Now as the *Manhattan* and the *Canonicus* are duplicates of the other, this statement is incorrect. Again he compares the *Monadnock* and the *Miantonomah*, having their seven inches of armor, with the *Kalamazoo*, etc., with fourteen inches of plating, and thinks "it is doubtful if they are equal to others."

It seems to me that the pointing out of these faults in his data is sufficient, without comment, to show that the conclusions of your correspondent ought not to be accepted as authority except with some reservations. In conclusion I would say that, with all their faults, our monitors stand now as superior to any war ships which float. In this I am sustained by the disinterested testimony and opinion of such a man as John Bourne, and the reports of those who have taken them into action. ENGINEER.

Boiler Explosions.

MESSRS. EDITORS:—I have been using steam for the past fifteen years and I have yet to see any thing confirmatory of the Colburn theory.

The causes of boiler explosions, apart from defect in material or manufacture, may be summed up as follows: Overheating, by which the boiler may be injured and the pressure of steam increased; irregular heating, by which one part is made very hot while another portion is comparatively cool, as when the water is allowed to get too low, thus destroying the equality of tension; or, the sudden cooling of a portion by cold water, thus contracting that portion while another part is expanded by heat.

A boiler would not explode merely by suddenly injecting a large quantity of cool water into the steam space; it would merely lower the pressure. But if the water was thrown against the hot plates it might cause an explosion, not from the amount of steam instantly generated, but from a sudden contracting of the metal.

I have known a locomotive with steam blowing off—at east ninety pounds to the square inch—to break through a bridge and be instantly immersed in water ten feet deep, without injury to the boiler. I have seen an exposed boiler working at seventy-five pounds pressure suddenly flooded with rain to such an extent that the pressure was lowered twenty pounds in as many minutes, but no explosion occurred. In both these cases the contraction of the metal by cooling was uniform. In the case of the *Ceres*, when the water rushed in upon the boilers causing an explosion, I account for the catastrophe by supposing that only a portion of the heated iron was reached at once, and that contracted before the water had time to reach the other parts. When a boiler explodes upon the starting or stopping of the engine or from a sudden jar, the inference is that it was before strained to its utmost capacity.

Mr. Colburn's theory can be easily tested. Get up steam on a boiler to, say forty pounds, then suddenly open the safety valve. The simple result will be a lowering instead of an increase of the pressure. J. J. REINHART.

Lovgootee, Ind.

Treatment of Steel in Hardening.

MESSRS. EDITORS:—Your correspondent, "V," in your issue of Feb. 16th, makes some remarks on the working of steel which are no doubt mainly correct, but I would, before indicating the color for the proper temper of the tools he enumerates, go back to the condition of the steel before it is tempered. Assuming that the steel in the bar was of a character best adapted for the desired tool, the first important question is, how has it been hammered? and next, how hardened? Some smiths hammer their steel more thoroughly than others. That the quality of their tools may be the same as others which have received less hammering, the color in tempering must be of a darker shade, and those who heat their steel a few degrees hotter to harden must give a corresponding deeper shade of color in tempering. Steel hardened in pure soft water requires more heat than the same steel hardened in brine or some metallic solution, or in other words the greater the conductibility and density of the bath the quicker the heat is abstracted from the steel. A comparatively low heat very quickly absorbed will make steel as hard as a higher heat more slowly chilled, but if we give the steel the same heat for the different baths we have different degrees of hardness that can only be regulated by difference of color when tempered.

The same subject receives a criticism from "W. L. D.," in issue March 23d, in which he attributes difference in temper to difference of color which the same steel with the same heat would assume with a fine or coarse polished surface. This is true, but I think the treatment of the steel in hammering, the heat it receives in hardening, with the density and conductibility of the hardening bath, are the chief contingencies to be considered in obtaining the proper temper, and unless due attention is paid to all of them, a standard for the degrees of heat necessary for tempering tools for different purposes will be of no avail. If a piece of steel is properly hammered and hardened it admits of more variation in the shades of tempering colors than when less attention has been paid in hammering, and will still be a good tool. B. F. S.

Connecticut, March 22, 1867.

Breakage of Chimneys.

MESSRS EDITORS:—The great cause of lamp chimneys being so brittle and breaking so easy, is owing to the material they are made from. (There is shoddy in glass as well as in cloth.) Cheapness being the order of the day a great many manufacturers make chimneys from silicate of lime instead of silicate of lead. The glass made from the silicate of lime has about the following proportions—sand, 100; soda, 45; lime, 20 to 25; nitre, 7 to 10. Lime being a non-conductor of heat the chimney will not bear the expansion caused by the heat, and if by gradual heating the chimney does not break on the lamp, a few times heating makes it so brittle that it breaks with the least effort at cleaning it no matter how much care is used.

The silicate of lead has about the following proportions;—sand, 100; lead, 40 to 50; soda, 20 to 25; niter, 10 to 15. Lead being very ductile and a good conductor of heat, a chimney made from this formula will almost melt before it will crack with the heat. The uninitiated may tell the difference of the chimneys made by these different qualities of glass by ringing them, the vibration from the lead glass chimney has a sweet bell like sound while the lime glass has a short harsh sound. The difference of the cost in manufacture is only in material, about 15 cents per dozen.

Another point is in annealing; chimneys as a general rule are not annealed; under a powerful microscope the difference can be seen in the glass, the particles in the annealed glass lie close and compact, while the unannealed seem ready to diverge.

There is more economy in using lead glass annealed chimneys at 15 cents each, then there is in using lime glass chimneys at 5 cents each. Cheap and dear are truly relative terms in this case.

AN OLD SUBSCRIBER TO YOUR VALUABLE JOURNAL.

Philadelphia, March 16, 1867.

Where the Day Begins.

MESSRS. EDITORS:—The criticisms of your correspondents on your article relative to the length of the day are very amusing. But are you not in error in supposing that the "day line" has not been definitely fixed? I am not aware of any special legislation upon the subject, but its position is practically defined by the regulations relative to the computation of longitude. The longitude of Greenwich (or Washington, if that is the starting point), is 0, and the meridians are numbered thence both eastward and westward to 180—just half-way around the earth. This 180th meridian is the "day line." For, since the day commences at midnight, when it is Monday, 12 M., at Greenwich, and midnight at 180, it is Monday throughout all the earth. A moment later Tuesday has commenced at the 180th meridian, and follows midnight westward. It is Monday still at all places westward from the place of midnight to the day line, and Tuesday from that point to the place of midnight. When it is midnight at Greenwich, it is Tuesday over all that half of the world called the Eastern Hemisphere, and Monday over the American half. It is the common practice of navigators to add a day to their reckoning whenever they cross the 180th meridian going westward, and subtract a day whenever they cross in the opposite direction. This, it is readily seen, will always bring them out on the right day of the week, no matter how many times they cruise from one day into another. It is a little remarkable that this 180th meridian from Greenwich lies wholly in the ocean, crossing scarcely a league of habitable ground. Thus is realized the ancient poetic fancy that the day is born from out the sea. D.

[The zero of longitude was not fixed upon with any reference to the question of day line, and there is no necessary relation between the two, and the agreement is not general that the meridian of 180° shall be the day line. Moreover, there are in use four different reckonings of longitude. England and the United States adopt Greenwich as the starting point, Germany and eastern Europe, Ferro (one of the Canary Islands); France, Paris; Spain, Madrid. But the reckoning of the day is practically the same all over Europe and America. When all the nations agree on a common zero of longitude, the day line will probably be made to accord with it.—EDS.

Yellow Rain.

MESSRS. EDITORS:—It seems that the days of miracles have not yet passed. On the night of the 12th inst. we in this section had a copious fall of rain of about two and a half inches, and such vessels as were left standing out were found to contain water impregnated with a yellow substance such as is contained in the inclosed vial. We learn to-day from Bowling Green, fourteen miles distant, that it was the same there, and the inhabitants, believing it to be sulphur, are somewhat alarmed, not knowing but what it is the beginning of a preparation of that great fire in which sinners expect to find themselves ensconced in a coming day! Whatever it is, we are not chemists enough to make out. Clothes that were lying out were made yellow with the substance. It seems to be odorless—has the resemblance of farina contained in the anthers of plants. It may be a fertilizer—who knows? If so, who can tell how much is received from the atmosphere in finer undiscernible particles throughout the year? Being ignorant ourselves, we would like to hear from you, who are more knowing. H. L. EADES.

South Union, Ky., March 13, 1867.

[There are many instances on record of solid substances ordinarily abiding on the ground or in the sea, falling down with the rain. Thus there have been showers of fish, frogs, insects, vegetable matters like pollen, and sand. When we remember the force of tornadoes, whirlwinds, and waterspouts, and how the moderate wind transports musketoes, we have a sufficient clue to an explanation. These extraordinary rains have always been a terror to superstitious people; in the yellow rain they smell sulphur, and in the red rain blood. A friend informs us that he has frequently seen red snow on the mountains in Colorado, and he is satisfied that the color comes from an insect. We will make a microscopic examination of the specimen received, and may be able to determine what kind of vegetable or animal it is and where it came from. Mr. Eades has our thanks for his courtesy in sending it.—EDS.

Terrific Explosion of a Spoonfull of Water.

MESSRS. EDITORS:—I see in your issue of the 23d inst., under the head, "Answers to Correspondents," some remarks on the explosive force of water when freezing. Some forty years ago, near Granville, Licking Co., Ohio, a heavy forge anvil, of some 1,000 lbs. or more, was damaged by a slight crack in one side some three inches deep, and an opening so slight as scarcely to admit the thinnest knife blade. It was tumbled out, and one terrible winter night, when filled with water, which could not have exceeded one table-spoonfull, the frost rent that mighty mass of iron in twain, with an explosion like a seventy-four pounder. In this case, wherein was the cause equal to the effect? B. F. E.

Dayton, Ohio, March 20th.

Science Familiarly Illustrated.

Adipocere.

A few days since Mr. E. Northrup a very worthy farmer of Newtown, Conn., brought us a very fine specimen of adipocere which had been taken from a peat bog. Several pounds of the curious substance had been collected by himself and neighbors, and hopes were raised that the bog might prove a veritable mine of soap and candles. To most of the villagers the substance was a great mystery, as to its nature and origin; but the theory prevailed that it was a mineral substance allied to petroleum and that it must be considered as a trustworthy "show" of oil.

It is probably the case that the word adipocere and the thing to which it is applied are unknown to most of our readers and we proceed to make the whole matter as plain as possible.

The word adipocere (derived from two Greek words which signify respectively wax and fat) indicates something of the nature of the substance, for the substance looks and acts very much like wax and fat. Most people who see a very good specimen for the first time, would be very sure that it contains each of these ingredients.

Adipocere was first distinctly noticed and described about a century ago in France. Since then it has been found and is known to be constantly produced in all parts of the world, excepting perhaps the polar regions. In 1787 there occurred an opportunity of collecting a very large quantity, and the most eminent chemists made a careful examination of it and determined its nature and some of the conditions under which it is formed. At this time, on account of the increase and encroachment of the living population of Paris, it became necessary to dig up and carry away the contents of some of the ancient cemeteries. It had been the custom to bury poor people in pits, thirty feet deep and twenty feet square. Into these pits the bodies placed in cheap boxes were packed as closely as possible without any intervening earth to within a foot of the top: this last foot was soil and the whole of the covering of mother earth which protected the remains of 1200 to 1500 human beings; for that was the number of bodies actually placed in each of these pits.

The first pit that was examined by the chemists Fourcroy and Thouset, had been filled and closed up fifteen years before. On opening some of the coffins, for the wood was quite sound, only tinged of a yellow color, the bodies were found within, shrunk so as to leave a considerable vacant space in the upper part of the coffin, and flattened as if they had been subjected to a strong compression; the linen which covered them adhered firmly, and upon being removed, presented to view only irregular masses of a soft, ductile, grayish white matter, apparently intermediate between fat and wax; the bones were enveloped in this and were found to be very brittle. The bones and the hair were the only parts of the body which were not very much changed. All else, the brain, the heart, the contents of the abdomen, muscles, nerves etc., had disappeared, and in their place was that peculiar, soft, ductile, grayish white substance which the chemists then agreed to call adipocere. The bodies were so much diminished in size and weight, and they had such a consistence, that the grave diggers found it most convenient in carrying on their work to roll them up from head to heels and thus get each one in a compact form for handling.

Adipocere partakes of the nature of wax and fat and may be used in the arts as substitutes for these. In fact it is said that large quantities of the adipocere dug out of the pits of Paris, were used in making soap and candles. To such base uses may we come at last. Great Cæsar dead and turned to waxy fat might make us soap and light and help to grease our hubs.

But all dead bodies do not turn to adipocere. To the experienced Paris grave diggers, it was not a new substance, and they had observed that it was found only in the pits, and consequently it was the fate of poor folks only. Adipocere has