

Burning of the Dead.

It will be remembered that, some two years ago, the public mind was horrified by an attempt that was made in one of our western cities, on the part of a husband, to burn the body of his deceased wife. After the excitement had in some degree passed away, the subject was discussed by some of our city journals in a very calm and instructive manner; and it has since received considerable attention from some English physicians. We are not prepared to advocate the burning of the dead, or to dispense with that time-honored system of burial which has obtained in all Christian communities since the days of Abraham; but we consider it a very proper subject for discussion, and could it be proved, in a sanitary point of view, to obviate a more serious evil, we could become reconciled to what is now chiefly regarded as an inhuman relic of a barbarous people. We, however, differ in opinion from those who undertake to show that disease is propagated from the exhalations of graveyards, in cases where they are properly cared for. So far as our own country is concerned, we believe not a single fact can be adduced in support of such an assertion, unless it result from the inhuman disposal of the remains of outcasts in what are known as "Potter's Fields," and which are oftentimes hustled about in premature resurrection by the Vandalism of unprincipled money-getters. The whole evil complained of in European cities, if not purely imaginary, arises from that system of intermural burial which is now nearly dispensed with in all civilized cities.

The *Evening Post*, of this city, notices that a book has lately been published in London, which seeks to show the advantages of the ancient method of burning the dead. The only objection its author, who is a "Member of the College of Surgeons," finds against burial is a sanitary one. He says that "it is proved beyond all doubt, that during the progress of that decomposition which a body undergoes when buried, the elements of which it is composed, before entering into other and purer states, forms certain putrid gases of so deadly a nature that their inhalation in a concentrated state has been known to cause instant death; while in a more diluted form, they are productive of the most serious injury to health. These dreadful effluvia vary much in their virulence, according to circumstances; and there is probably one particular stage of decomposition in which they attain their most fatal power."

Church-yards are, it is well-known, most pestiferous places. And we are assured that the gases emanating from the bodies when diluted, possesses the power of "producing various diseases, diminishing the average duration of life, lowering the tone of the general health, and thereby rendering thousands more liable to be attacked by fever, cholera, or other epidemics. It is not because they are often imperceptible to the sense of smell that they are harmless."

How are these evils to be averted? Thirty-five millions of human beings die every year—nearly four thousand every hour. By what means shall this great mass of decaying substance be so disposed as not to vitiate the air the living breathe, and the water the living drink? The remedy our author proposes is, as we have hinted, that of *burning*. To render the idea less revolting, he proposes a plan which seems to him without objection:—

"On a gentle eminence, surrounded by pleasant grounds, stands a convenient, well-ventilated chapel, with a high spire or steeple. At the entrance, where some of the mourners might prefer to take leave of the body, are chambers for their accommodation. Within the edifice are seats for those who follow the remains to the last; there is also an organ and a gallery for choristers. In the center of the chapel, embellished with appropriate emblems and devices, is erected a shrine of marble, somewhat like those which cover the ashes of the great and mighty in our old cathedrals, the openings being filled with pre-

pared glass. Within this—a sufficient space intervening—is an inner shrine, covered with bright, non-radiating metal, and within this again is a covered sarcophagus of tempered fire-clay, with one or more longitudinal slits near the top, extending its whole length. As soon as the body is deposited therein, sheets of flame at an immensely high temperature rush through the long apertures from end to end, and, acting as a combination of a modified oxy-hydrogen blow-pipe with the reverberatory furnace, utterly and completely consume and decompose the body in an incredibly short space of time; even the large quantity of water it contains is decomposed by the extreme heat, and its elements, instead of retarding, aid combustion, as is the case in fierce conflagrations. The gaseous products of combustion are conveyed away by flues, and means being adopted to consume anything like smoke, all that is observed from the outside is occasionally a quivering transparent ether floating away from the high steeple to mingle with the atmosphere."

Saleratus and Cream of Tartar in Bread.

A long article on the above subject was copied from the Portsmouth (N. H.) *Journal* into the *New York Tribune* of the 1st instant. Its author subscribes himself A. Baker, and his object is to prove that the use of saleratus and cream of tartar in bread and pastry is the cause of the bad teeth so common in our country, and that it is also a fruitful source of disease and premature death. He quotes the statement of Dr. Alcott to prove that 300,000 die annually from the use of saleratus; and he states that in Portsmouth alone 50,198 pounds of saleratus and 15,100 pounds of cream of tartar are sold annually in a population of only 10,000 persons. From these statistics, it seems, that every inhabitant of that city consumes five pounds of saleratus and one and a half pounds of cream of tartar yearly. If these statistics are correct, (but we apprehend they are greatly exaggerated,) there must be a sour set of inhabitants in Portsmouth. Mr. Baker states that Europeans have much better teeth than Americans, and all because the former do not use saleratus in food. He also states that the early settlers of our country and their descendants had good teeth until about fifty years since when the use of saleratus commenced.

The object of Mr. Baker, we have no doubt, is a well meant desire to correct what he considers a national evil, but if he is not correct as to the cause of early decay in teeth, he will do injury rather than good, in thus directing attention to the wrong source of an evil. We are convinced that Dr. Alcott makes sweeping charges which cannot be substantiated against saleratus, in attributing so many premature deaths to its use. It is a well-known fact that there are many families in our country in which neither saleratus nor cream of tartar are employed, and who have no better teeth than others in which these substances are used. We are acquainted with cases of this kind ourselves. An immoderate use of saleratus and cream of tartar in bread must be injurious, as is the immoderate use of any substance in food, but as Mr. Baker asserts that the teeth of the Parisians are excellent, it is evident that he overshoots the mark in his onslaught on saleratus and cream of tartar by our people. When cream of tartar and saleratus are employed in bread-making, the tartaric acid of the cream of tartar unites with the potash of the saleratus, forming the neutral tartarate of potash, while carbonic acid gas is liberated, and raises or lightens the bread. Now, if the tartarate of potash is a poison in bread, as is asserted by Mr. Baker, and if it is the cause of the early decay of American teeth, why does it not produce the same effects upon the teeth of the people of France, when there is so much tartarate of potash in their wine. Our people eat, the French drink the tartarate, and what is the difference? If it is such an evil in America, it ought to be as great in France. All vine casks have a thick, hard crust adhering to

them; this is argil or tartarate of potash precipitated from the juice of the grape. The wine-drinking people of France consume far more tartarate of potash annually than the bread-eating people of Portsmouth. The small amount of saleratus used in bread-baking, we are confident, is not the cause of early decay in the teeth of our people. Some other cause must be hunted up.

Sulphurous Acid.

The application of this acid to manufactures has been much impeded by the difficulty which the preparation of its solution presents on a large scale; for the production of sulphurous acid, as given in books, is always dangerous, especially when its solution has to be prepared in large quantities. This difficulty I have overcome by a process which I here give to the public, and which enables me to prepare thousands of gallons per day of a saturated solution. The process consists in burning sulphur in a small furnace, and conducting the acid gas through earthenware tubes, surrounded with water, so as to cool them. It is then made to ascend through a wooden column, forty feet high, and about four feet wide, filled with pumice-stone, which has been previously washed with muriatic acid, and then with water. Whilst the acid ascends through the porous pumice-stone, it meets a certain and known quantity of water descending, which dissolves the acid. By opening, more or less, a valve at the top of the column, a more or less rapid current is established. With a little care, a saturated solution runs out constantly from the bottom of the column into a confined reservoir, in which it is stored for use until required.

I was led to contrive the above process from a wish to use sulphurous acid in sugar-refining, convinced that it would be far superior to the sulphate of lime (which was so strongly recommended a few years ago by M. Dumas and M. Melseus), because, that by its volatility, it would not remain in the syrups or molasses, and give them, as the sulphate does, a disagreeable taste, in consequence of the lime of the sulphate remaining in the syrup as acetate or lactate. These anticipations were not only realized, but I also found that sulphurous acid possesses two advantages for the sugar refiner: First, that it stops the fermentation of his hot liquors as they come out of the filters; and secondly, when properly applied, it tends to prevent the re-coloration of the liquors during their concentration in the vacuum pan. In practice I found that very successful results were obtained by adding two gallons of a saturated solution of sulphurous acid to every one hundred gallons of decolorized liquor, as it left the charcoal, and was collected in tanks, until pumped up or run into the vacuum pan.—*Professor F. Grace Calvert.*

The Duration of Man's Life.—A New Idea.

A work has recently been published by M. Flourens, the celebrated French physiologist, in which he asserts that the natural length of a man's life is five times as long as the period of growth, and assuming that the latter is twenty years, concludes that the destined pilgrimage of man on earth is one hundred years.

From his own observations, and facts derived from the observations of Buffon, and from natural history, he believes that the proportionate length of life in animals to their periods of growth is established, and now claims to have discovered the peculiar physical change in the system of both animals and men which indicates the completion of growth. "It consists," says M. Flourens, "in the union of the bones to the epiphyses. As long as the bones are not united to their epiphyses, the animal grows. In man the same effect takes place at twenty, and consequently the duration of man's life is five times twenty. It is now fifteen years since I commenced researches into the physiological law of the duration of life, both in man and in some of our domestic animals, and I have arrived at the result that the normal duration of man's life

is one century. Yes, a century's life is what Providence meant to give us."

M. Flourens brings some striking and interesting facts forward, to prove the truth of this theory as applied to domestic animals, and claims that it has an exemplification in the relative duration of growth and life in the camel, horse, ox, dog, and other domestic animals. In dividing the several periods of man's life, M. Flourens prolongs the duration of infancy up to ten years, because it is from nine to ten that second dentition terminates; adolescence up to twenty, because it is at that age the development of the bones ceases; of youth, up to the age of forty, because it is only at that age that the increase of the body in bulk terminates. "After forty," he says, "the body does not grow, properly speaking; the augmentation of its volume which then takes place is not a veritable organic development, but a simple accumulation of fat. After the growth, or, more exactly speaking, the development in length and bulk has terminated, man enters into what may be termed the period of invigoration—that is, when all his parts become more complete and firm, and the whole organism more perfect. This period lasts to sixty-five or seventy years, and then begins old age, which lasts for thirty years."

Although we cannot entirely agree with the theory of M. Flourens, that with corrected manners, passions, and habits, the life of man can be prolonged to the lengthened period he mentions, we yet think that with the good conduct he recommends, moderate labor, study, and a systematic course of living, it may not only be extended, but its evening may be sustained in beauty and vigor until night has entirely set in.

What shall we do About Prizes?

Within the past four years we have distributed the sum of \$3,700, in prizes for the largest lists of subscribers furnished according to certain prescribed limits. Previous to entering upon this system of awarding prizes, we depended principally on tried friends and canvassing agents to keep the circulation of the *SCIENTIFIC AMERICAN* upon a steadily increasing basis. We have never been disappointed in our friends, but we were cheated, and the public were swindled, by a few unprincipled agents who took money for our paper and never remitted it to us. To save ourselves from suspicion, and the public from being wronged we renounced the system and resorted to one of offering prizes, which has been thus far most satisfactory. Within the next six weeks we must arrange our plans for the new volume which will begin on Sept. 11. We are anxious that the circulation of the *SCIENTIFIC AMERICAN* should be largely increased, and we wish to secure this object in the best and most unexceptionable manner. We are now engaged in maturing some plan for the campaign, and we present this brief statement for the purpose of eliciting an expression of opinion from our subscribers. We would like to receive an immediate response in writing from all those who propose to enter the field of competition, in case we should offer prizes upon about the same scale of last year, ranging in sums from \$20 to \$300. If these responses are promptly made and are of an encouraging nature, we shall announce within a few weeks a list so that all may begin the competition in good time to commence the next volume. The yearly subscription on all clubs above 20 names will be only \$1 40.

MISTS.—The formation of mists never takes place if the temperature of the water be lower than that of the atmosphere; but when the cold air above the land mixes with the warmer air above the water, mist or fog will be the result, which will be so much the greater in quantity as the land surrounding the water is higher and deeper. It is by the deposition of water from the atmosphere, through the operation of this law, that the mountains and plains in hot climates are covered with verdure and fertility.