Progress in Medicine.

REPORT ON PUBLIC HEALTH.

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CREMATION.

THE advocates of cremation, as a sanitary measure, find their principal opponents on the side of superstition and sentimentality. No one has as yet disproved the theoretical sanitary advantages to be derived from this method of disposing of dead bodies; but since Sir Henry Thompson advocated the revival of the custom, as a hygienic reform made necessary by the growing scarcity of ground for burials in and near large communities, many strong protests have been made, from the pulpit and in the popular press, against the adoption of a "barbarian" rite, and the surrender of the traditional Christian way of conducting funerals. The prejudice growing out of hereditary habit has thus far been the main obstacle to an extended experience in the new, yet oldest, method.

Meanwhile, those who favor cremation urge their arguments with new vigor, and illustrate them with new facts. One of the most recent contributions to the literature of the subject is by Mr. W. Eassie, the Secretary of the London Cremation Society (*British Medical Journal*, Aug. 1, 1874). Mr. Eassie points out the positive evils for which inhumation is answerable. He shows that the foetid air exhaled from the dead is fatal, if breathed in a concentrated state, and that even when dissipated and diluted by the wind, it lowers the vital powers of the community. He cites many cases where evil and even fatal results have attended exposure to the noxious exhalations of grave-yards. Grave-diggers and sextons have furnished many examples of slow or rapid blood-poisoning, as a consequence of their occupation. The danger of inhaling the atmosphere of churches under which vaults are used for interments is alluded to. The emanations from decomposing bodies will rise to the surface through eight or ten feet of gravel, the very soil preferred for burial purposes.

The danger of the infection of water supplies situated adjacent to burial grounds is insisted on by the writer, and is confirmed by many well-authenticated instances, which he quotes. The organic matters resulting from decay have been traced to cemeteries a very considerable distance away. Dr. Pietra Santa discovered an instance in which a number of springs, supplying water to a village, were contaminated by the percolation of putrefactive matters from a cemetery, situated at a distance, and states that, eventually, a general epidemic was produced, in consequence of the exposure.

These conditions, as well as the need which is constantly and increasingly felt, more especially in larger cities, for more room for cemetery purposes, make the matter of repudiating interment, and of substituting some other method, one of great consequence in its sanitary bearings. The writer shows that embalmment is impracticable and undesirable, that petrification is a failure, that sea-burial has no reasonable recommendation, and that cremation is all that is left to choose. Both in the ordinary necessities of civil life, and upon the

field, after battle, cremation fulfils all the demands of public health without the sanitary disadvantages attached to the burial of the dead.

An instructive paper in the *Gazette Médicale de Paris* for May 23, 1874 (translated in the *Chicago Medical Examiner*, Aug. 1, 1874), presents descriptions of the apparatus which has been tested for carrying cremation into practice. The writer says: "The technical result to be obtained is the resolution, as speedily as possible, of the organic substance of bodies, into the final and inoffensive products of combustion, and to avoid all intermediate reactions which offend the nostrils and injure health. The procedure should produce no disagreeable impressions on survivors, and should accord with that reverent respect due to the mortal remains of those who were dear to us in life." For the attainment of these ends, it has been found that no arrangement promises such a measure of success as that invented by Siemens. This apparatus consists of a series of chambers or regenerators, by means of which the air becomes super-heated, so that when it reaches the combustion-chamber, containing the body, it has attained a temperature which effects speedy and odorless consumption of the organic matters with which it comes in contact. The time requisite for the cremation of a human body by this process is one hour, and the expense is estimated at less than a dollar for each corpse. The writer describes other processes, which have been tested, as, for example, those of Polli, of Milan, and Gorini, of Lodi, but none of these fulfil all the requirements so well as does Siemens's regeneration system of calefaction.

A recent article in the *Abeille Médical*, of Belgium, charges cremation, as practised in India, among the Hindoos, with disseminating the cholera-poison, the gases which arise from funeral pyres being loaded with cholera-germs, and transported by the wind to distant territory. In contrast with this view is the statement of Mr. Long, for thirty years a resident of Calcutta (*British Medical Journal*, Aug. 1, 1874), who says "the Mahomedan burial-grounds there have long been a crying evil, and the nurses of cholera, fever and dysentery." The Moslems practise a shallow burial of their dead, and it is of frequent occurrence in the outlying cemeteries that the corpses are disinterred by jackalls. Mr. Long eulogizes the customs of the Hindoos, on the other hand, who, at the expense of a few shillings, burn the dead "out of their sight."

DISPOSAL OF NIGHT SOIL.

Until it is made compulsory upon urban house-holders to discharge all the sewage of their houses into properly-constructed drains, and thence into sewers, vaults will continue to vex the patience of sanitary authorities, and to contaminate the atmosphere of whole neighborhoods. Not the least important problem in the supervision of the excrementitious products of thickly-settled communities is how to remove the contents of vaults with decency, and with the least offence. The traditional night-cart, with its appendages of open tubs and buckets, is vanishing only too slowly before the more improved methods, adapted from the French system of odorless excavating. It is to be hoped that, before long, the old-fashioned way will be entirely supplanted.

The dry-earth system promised excellent results at the outset, but

it has found practical obstacles in the care and vigilance rendered necessary to prevent the development of nuisance in connection with it. Latterly, however, a new impetus has been given to this principle of deodorizing by what is known as the "Dalmuir System" of utilizing night-soil. This method was described at length in a paper read by Prof. T. Sterry Hunt before the American Association for the Advancement of Science at its meeting in August, of this year. The method was devised by Mr. Stanford, an English chemist. Charcoal, obtained from the charring of sea-weed, or of ordinary street-sweepings, is used as the deodorant, only one-fourth of this agent being needed as compared with dry earth. The odorless and partially dried mixture of charcoal and excrement is removed, from time to time, from the houses where it collects, and is subjected to a red heat in close vessels, like gas-retorts. The products of this process are water, ammonia, acetic acid, tar, gas and charcoal, the latter being augmented in bulk as compared with the original quantity. This dry charcoal may either be used again to deodorize, or may be utilized as manure, the accession of phosphates to it giving it much value for this purpose. Acetate of lime and sulphate of ammonia, also, are products of the distillation, and are in demand as fertilizers. It is noteworthy that the experiment, carried on at Dalmuir during the last three or four years, has been a source of profit to the company which manages the process, and of health to the community which supplies the materials.

COMMON CARRIERS AS THE PORTERS OF DISEASE.

Assistant Surgeon Ely M'Clellan, U. S. A., writes, in the *American Practitioner* for August and September, concerning the transportation of contagious diseases on the lines of railroad and steamboat travel. The writer shows how the trains of passenger-cars may carry infection from place to place, and serve as a ready medium for the dissemination of epidemics. The plush covering of the seats offers an asylum to contagion in its meshes, while the mis-named *salon* at the end of each car affords facilities for the distribution and transportation of disease. The commode in this latter apartment is so constructed that the dejections of passengers fall directly on the ground, whence, in certain favorable situations, they may contaminate water-sources by surface drainage. Moreover, the water-supply of the cars themselves is strangely misplaced in most cases; the reservoir or water-cooler is half within the saloon above mentioned, and exposed to the unwholesome exhalations of the apartment.

Again, the writer severely criticizes the arrangements in the sleeping cars, and points out the fact that the means provided to secure the comfort of travellers may become the source of disease to them. Besides the defective ventilation of the cars, and the scanty allowance of air-space to each sleeper, danger to health arises from the facility with which persons sick from contagious diseases may secure passage in sleeping berths.

Some remedies are indicated for the improvement of this condition of things on railroad cars. The reservoir of drinking-water should be at the unoccupied end of the car; the urinals and commode should be so constructed, as regards material and plan, that frequent disinfection and cleansing may be practised; the bedding of all Pullman cars should be placed in a temperature of 250° at the end of each trip on

which it is used; the heavy, woollen curtains should be dispensed with, and lounges should be substituted for beds, so that disrobing, partial or entire, should be discouraged among passengers.

The writer alludes to other ways in which common carriers may transport contagion through clothing and other baggage conveyed from point to point.

Steamboats may also become the agents for the diffusion of cholera, smallpox, and other diseases in a manner analogous to that above described. The deck passengers on the western river-steamers have inadequate closet-accommodations, as well as scanty travelling conveniences; they pay for nothing but their passage, and at night lie exposed on the baggage of more favored cabin passengers. The contagious disease may remain latent and incubating during the passage, or it may break out on the route and the patient may readily infect the merchandise or baggage on which he rests.

ARSENICAL POISONING BY WALL-PAPERS.

Renewed attention to this subject has been called by Dr. George Johnson, who has given an instructive and extended view of this source of disease in a lecture, published in the *Sanitary Record* for July 4 and 11, 1874. The writer cites a number of cases of poisoning, in which the symptoms were defined, and the exposure unequivocal. The inhalation of the arsenical dust (arsenite or aceto-arsenite of copper) mechanically separated from the paper on which it is laid as a pigment is considered the most probable source of the affection; the theory of chemical decomposition and the evolution of arseniuretted hydrogen or other noxious gases is not accepted.

The writer replies to objections that exposure to arsenical wall-paper is not uniformly followed by bad effects, by the statement that all cases do not come to the light, that many cases fail of detection, or are diagnosed erroneously, and that very much depends on the idiosyncrasy or susceptibility of those exposed. A comparison is instituted between "hay-fever" or autumnal catarrh, and this variety of arsenical poisoning; just as most persons tolerate the pollen, or the parasite, which excites the former, so, also, the majority of people bear the presence of a small amount of arsenical dust in the air without developing the symptoms of chronic poisoning. Perhaps it would be better for the public safety, and would more speedily rid the market of the dangerous material, if there were a more general susceptibility. The writer very properly calls attention to the fact that the arsenical greens assume the most deceptive shades when combined with other colors, and that the poisonous substance may be found not only in the bright green papers, but in the pale green, gray, and even blue or brown hangings.

Hamberg has conducted a series of experiments on the air of a room hung with arsenical paper (Schweinfürdt green) and has come to the conclusion that the poison exists in the air, not as dust, but as a gas, probably arseniuretted hydrogen (*Nordiskt Mediciniskt Arkiv*, vi., 1874; *Medical Record*, Oct. 1, 1874). His apparatus was as follows:—

a. A U-shaped tube for the reception of the dust. b. Three similar tubes, filled with cotton, to completely separate the solid particles of arsenic from the air. c. Two bulb apparatuses, containing a solution of nitrate of silver, to collect any arsenic present as gas in the air.

d. Two gasometers, of fourteen litres capacity, alternately filled with water, to supply an aerial current.

The air was drawn through this apparatus, during a full month. In the course of the experiment, the solution of nitrate of silver gradually deposited a black precipitate, from which the characteristic arsenical ring was obtained by the Berzelius-Marsh apparatus.

CONTAMINATION OF AERATED WATERS.

A new source of lead-poisoning is pointed out by a contributor to the *British Medical Journal* of Feb. 14, 1874. He suspected the presence of lead in the potassa water which is sold in the ordinary syphon bottles so well known in this country for the dispensing of soda-water and the aerated mineral waters. He believed that the lead was derived from the metallic cap through which the water is discharged when used, and accordingly he placed a number of bottles of the suspected fluid in the hands of an expert chemist, who found lead in all the samples. Six syphon bottles of potash water, one of soda and one of seltzer were examined. In two instances, zinc was found with the lead. There was quite enough lead found in either one of the specimens to undermine health if the water were taken continuously.

Confirmatory evidence of this source of lead-poisoning is furnished by Mr. Wilson, who relates an actual case under his observation (*British Medical Journal*, Aug. 29, 1874). The symptoms of lead-disease were pronounced, but the source of the poison was not apparent at first. The water-supply of the house was tested and acquitted. At length, it occurred to the attendant that soda-water had been prescribed to be taken freely; and it was found that the patient had been taking the water to the extent of six or seven bottles daily, and that previously to her illness she had used it freely as a beverage. On analysis, the soda-water betrayed the presence of lead unequivocally, a gallon of the liquid giving nine tenths of a grain of the metal. Dr. Wallace, the chemist who analyzed the water, says, in his report, that a person taking forty ounces of the soda water daily "would thus be swallowing about a quarter of a grain of lead—a quantity far more than enough to give rise in a week or two to symptoms of lead-poisoning. Ordinary drinking water is considered dangerous if it contains one tenth of a grain of lead per gallon."

Those who prefer to imbibe their soda-water from syphon bottles in private, will be interested not only in the foregoing exposure of the risk they run, but also in another, and scarcely less important, fact concerning the same beverage. It has been ascertained by Dr. Lankester (*London Medical Record*, Sept. 2, 1874) that much of the soda-water of commerce is open to suspicion because of the presence of organic impurities. He tested six samples of the bottled water bought at druggists' and found a "considerable quantity of organic matter," with the residue of carbonate of soda. None of the samples proved to be what they pretended with reference to the amount of soda in solution.

RATE OF MORTALITY IN FOUNDLING HOSPITALS.—"In Foundling Hospitals, at least one child in every two dies, while in that of Irkutsk, the rate of mortality during a period of two years amounted, according to Cochrane, to 100 per cent., not a single child being found there over one year old."—*Ziemssen's Handbuch*.