Original Communications.

Abstract of a paper on the disposal of sewage matter, read before the Sanitary Association of Montreal, June 6th, 1874. By RICHARD A. KENNEDY, M.D.C.M., Professor of Anatomy, University of Bishop's College.

The problem before us has been forced upon the attention of every civilized community during the present century, and to mention the various plans which have been tried would occupy too much time. The waste products of a community must be removed before decomposition sets in, else the results will be injury to public health, and the generation of a weakly and deteriorated population. This latter statement is amply proved by the accumulated experience of scientific men. As an example we find that London, during the 17th century, was visited by the plagues. The last, which is styled the great, occurred in 1665, and so great was the infection that 7,165 died in one week, and no less than 68,526 died in the city and its suburbs during the year. An idea may be formed of this immense mortality by considering the comparatively small amount of population which then existed. Foreign visitors of the time describe the condition of the houses and streets as being in a state of intolerable filth, and there is no reason to doubt, that if London had not been purified by the great fire which occurred in 1666, history would have recorded many subsequent invasions. Again, it is well proved that cholera and kindred epidemic diseases have their origin in filth and uncleanliness. Cholera has always spread from the east; the favoring influence of a hot climate and the unsanitary conditions of densely populated districts, have more than once caused masses of putrefactive material to generate this poison which has devastated mankind.

Adventurous travellers describe the surroundings of Mecca as a vast offal ground, abounding in scenes of filth and disease, so that large numbers of pilgrims never return; they see Mecca and die. From such nests does disease spread, and disseminating itself through atmospheric influences finds in civilised communities the soil well prepared for its propagation. We know better, but our supineness and inaction favor its visitation. Impure water, lowness of building sites, and emanations arising from the decomposition of animal refuse are the local causes, now determined without doubt to have a more or less constant connection with the development and propagation of cholera and other diseases. Dr. Greenhow observes, that "an atmostphere impregnated with the products of *fermenting excrement* is at once the most obvious and most constant concomitant of cholera." Such exhalations were often found where least expected, explaining the fact that pestilence sometimes passing over slums invades the dwellings of the rich. "It was found that persons appeared to suffer in proportion to the contamination of the air they breathed with the '*privy odor*,' and that immunity from this appeared to secure immunity from cholera." Other observers also confirm these statements. Observation also proves that our system of sewerage favors the spread of typhoid fever. 1st. By the passage of sewage matter into water afterwards made use of for drinking purposes (e. g., we are now getting the benefit of the sewage of the City of Ottawa.) 2ndly. By the issue of impregnated gases from defective sewers and water closets, which are the receptacle of the discharges from the sick. These observations will also apply to typhus, a fever made memorable by the epidemic which occurred in this city some years ago, and which will not be forgotten so long as the monument of its victims remain in sight of travellers passing Point St. Charles. Dysentery, diarrhœa and many other affections are also due to these conditions of uncleanliness. These diseases have been mentioned because it has been fully shown that to "inefficient modes of removing the excreta of men and animals was due the great prevalence of disease in the middle ages." In villages and farm houses these evils are nearly unknown, because sewage matter is returned almost at once to the soil and rendered inocuous. It is only in large communities that the matter becomes of vital importance, and requires special modes of dealing with it. Taking the average amount of solid material excreted by each person, and reckoning our population at 120,000, there is a daily deposit in our cesspools and drains of 10 tons of feacal matter, being upwards of 4,000 tons annually. In this calculation fluid excreta is not included, this latter would probably amount to 30,000 gallons a day.

Two-thirds of all this material must find its way into our drains, there to decompose, to give off noxious and fetid gasses, and if it does not generate the poison of fevers or other disorders, it becomes a predisposing cause of them. There can be no doubt that the large amount of excreta which is locked up in our midst by the cold of winter, is so disintegrated by freezing as rapidly to decompose when summer comes, giving rise by its deleterious emanations to the frightful mortality amongst our infant population.