under the influence of vaso-motor nerves. This observer, working under Fick's directions, measured the blood-tension in the right ventricle of dogs by means of a glass tube introduced through the jugular vein. The tension in the right ventricle during the systole is, of course, the maximum tension which can prevail in the pulmonary artery. The tension in the carotid artery was measured at the same time by a spring manometer. Section of the cervical cord was found to cause in the pulmonary circulation a considerable, and in the systemic circulation a much greater diminution of blood-tension. This shows that the normal tonicity of the pulmonary arteries is less than that which prevails in the systemic circulation. Irritation of the cord caused a rise of blood-tension in both the pulmonary and the systemic circulation, the rise in the former system of vessels being so great that it could not be regarded as a secondary effect of a contraction of the systemic arteries forcing the blood back upon the lungs, but indicating rather the existence of vaso-motor nerves in the pulmonary vessels themselves.

THE UTILIZATION OF SEWAGE.¹

Translated from La Santé Publique, November 1, 1874.

BY CHARLES F. FOLSOM, M. D.

IN 1869, from five to six thousand cubic metres of sewage were freely and gratuitously given away to farmers. The peninsula of Gennevilliers, a gravelly plain of four thousand acres bounded by a double bend of the Seine, hitherto barren and almost uncultivated, has been transformed by this means.

An increase in the tenantable value of the land followed at once, houses were built, and the village Grésillons sprang up, without the slightest trace of influences injurious to health having been observed in either summer or winter.

In spite of the delay caused by the war in carrying out this great sanitary work, powerful engines now supply eighty thousand cubic metres of sewage daily to the sandy plain. In order to facilitate the experiments, the city of Paris furnishes the sewage gratuitously to the land-owners and keeps a model-farm for instruction in its use. Those who get the sewage devote themselves to kitchen-gardening; and a dry, scorching waste has been changed into luxuriant fields. Early vegetables thrive better there than in other places, on account of the higher temperature of the water. In place of an annual expense per acre of six hundred and fifty francs for irrigation and seven hundred and

¹ Les Eaux de la Seine: Assainissement et Fertilisation par les Eaux d'égouts. P. GARNIER.

fifty francs for manure, the cost of sewage irrigation is almost nothing. Stone sewers and pipes underground distribute the fertilizing fluid, and a natural slope in the surface of the land will often serve for its more ready discharge. Trenches connected by a trough running at right angles to them conduct the sewage to any spot desired. This is accomplished by placing one end of the trough in communication with the main sewer by means of a wooden sluice-gate, which can be opened and shut at pleasure.

The yearly profit in farming has been increased from two hundred and fifty to two thousand francs per acre. Add the progressive increase in the value of the land, and it will be seen that it has been a real fortune to the lucky land-owners of Gennevilliers. The gain would be no less for Paris, if all its sewage and excrement were utilized in this way; that is, if its solid filth, estimated at one thousand six hundred and forty cubic metres a day, fell directly into sewers, as in London, Brussels, Vienna, and other capitals, thereby enriching the sewage. Collected in nearly two hundred thousand movable buckets and large cesspools, as in Paris, it forms just so many foci of ill health in all the houses, apart from the nuisance resulting from its removal and the processes of drying and pulverizing. Such a happy change in garden culture in the vicinity of Paris would not fail, through competition and accessibility to markets, to reduce the prices of fruits and vegetables, and so contribute to the public welfare. But these pecuniary considerations are only secondary in a matter of so great sanitary importance. Whatever is gained in salubrity represents a considerable material gain in diminishing disease, loss of time and labor, and death. It is, then, an indirect but unfailing means of increasing the public prosperity.

Unfortunately this is only an experiment. The greatest part of our sewage is still lost for fertilizing purposes, and still pollutes the waters of the Seine. It has been given to any who wanted it, and the considerable expenditure has not in any way been reimbursed to the city. The perviousness of the soil of Gennevilliers, which readily absorbs all the liquids spread over its surface, will necessarily be exhausted at some more or less remote time; and then it will be necessary to resort to deep drainage to prevent the emanations from constituting another source of pestilence, or still other measures must be adopted.

The thing to do, therefore, is to speedily convey our sewage by canals to all the light, sandy soils below Paris, to fertilize them and to purify the waters of the river. The feasibility of the plan has been proved, and it only remains to follow it up. All intelligent land-owners and farmers are already interested, as the increase in value of land which will ensue will be a source of great profit to them. The material will not fail; for, estimating that one hundred and twenty-five people are sufficient for one acre, the sewers of Paris alone, with its two million

inhabitants, would fertilize sixteen thousand acres. And, as it has been shown that instead of loss there is gain to the community in increase of crops, in getting rid of foul emanations, and in general comfort, there is no reason for hesitating, there is no danger to fear, there are only advantages to be gained.

This example of Paris should not be lost to the provincial cities. It is important in a sanitary point of view that their filth should be all collected and utilized, especially where there are extensive dry fields in their vicinity. Light, pervious, sandy soils are best suited for sewage irrigation. It is especially for the interest of manufacturing cities to use as a fertilizing agent the refuse, particularly that from privies, which is thrown into water-courses, polluting rivers and giving rise to epidemics. No town, manufactory, farm, or house can afford to be without its means of collecting and utilizing its sewage; and that negligence is inexcusable which allows such a nuisance to increase until an epidemic appears or the law compels interference. For money spent in sanitary works is returned a hundred fold in the welfare of the people.

PROCEEDINGS OF THE OBSTETRICAL SOCIETY OF BOSTON.

[REPORTED FOR THE JOURNAL.]

NOVEMBER 14, 1874.—DR. MINOT, the President, in the chair.

Glandular Hyperplasia of the Uterine Mucous Membrane.—DR. LYMAN reported the case of a patient, who, a year ago, began to flow very badly, and was supposed to have fibrous tumor of the uterus. Six weeks later, the hemorrhage recurred. There was a hard mass above the pelvic bones. The examination was moderate, the patient being much exhausted from loss of blood. She had ergot and was kept perfectly quiet. The flowing ceased; she went on well and gained strength. A week ago there was hemorrhage again. Dr. Lyman introduced a couple of tents, and the next morning passed in the placental forceps, but got nothing. There was general enlargement of the uterus from endometritis. With a curette, disorganized and disintegrated masses of hypertrophied mucous membrane were removed from the inner surface of the uterus. The hemorrhage ceased. The future chances of the patient are good, but she is liable to a recurrence of the disease.

DR. FITZ, who had examined the specimen, described it as a glandular hyperplasia. There was increased thickness and vascularity; the follicles were increased in depth and there was a proliferation of cells. This is a condition somewhat similar to adenoma of the mucous membrane of the rectum.

Cephalhæmatoma.—DR. FIFIELD remarked that he had always been in the habit, as had his father before him, of treating bloody tumors of the scalp with the lancet, and no harm had come from this mode. Some time ago he punct-