

Scientific.

WATER SUPPLY AND SEWAGE.

"Bad drainage means Typhus," "Bad water means Cholera."

The importance of an abundant supply of good water and a thorough system of sewage, is only beginning to be appreciated by those who have made the subject a study, but the public generally are far from understanding that these two are essentials to the well-being of every city or considerable town; however healthy the location or great the natural advantages. There are very few cities of towns in this country which can boast of being thoroughly furnished in these two particulars. Some are well supplied with water which is indifferent in quality, some want both quantity and quality. Others have no sewers, or but a few of them, and those constructed without any system or reference to future extension. There are large towns and even cities of some consequence wholly wanting in these essentials.

The projecting and execution of works for water supply and sewage are too often under the charge of persons entirely without experience in such matters. Frequently the town surveyor is selected, who, after visiting several cities and examining their works, considers himself competent to devise a system which is often unnecessarily expensive and seldom fully satisfactory.

The supply of water should be from sources beyond the contaminating influences of city, town, factory or mine drainage, thus requiring the abandoning of large rivers flowing through densely populated and highly cultivated districts, and obtaining the supply from comparatively small drainage areas which may be readily protected. The practice of taking foul water and purifying it by subsidence or filtration should not be resorted to, unless there is no other available source. The water cannot be rendered pure by this treatment, as it only rids it of the matter held in mechanical suspension. But when the subsiding reservoirs are not of sufficient depth, or if they are not kept filled, or if the filter beds are not carefully maintained, they are allowed to become foul; these processes not only fail to accomplish the proposed end, but also materially injure the water in warm weather.

It is doubtful if after water has flowed for a hundred miles or more, receiving the sewage of a number of cities and towns; the washing of thousands of acres of richly manured land; the drainage of many mines; the refuse of numerous factories, gas works, chemical works, oil refineries, gas works, etc., etc., there are any means by which it can ever again be rendered desirable for drinking or culinary purposes, without being distilled by nature's great purifying process, evaporation. The water supplied should be naturally pure, at least as near as possible. That procured from wells, although presenting a bright, pellucid and inviting appearance, may still contain very objectionable matter. Water taken from wells in towns is rarely of a desirable quality, as it is generally contaminated by infiltration from the surface, cess pools, etc., and even springs are often injured by these causes.

An abundant supply is necessary as a means of carrying off refuse matter from houses, stables, etc.; for flushing gutters and sewers, and for protection against fires. This latter item alone will generally pay the interest of the cost of introducing a water supply in the saving of insurance on property protected from that destructive element, which is constantly leveling such heavy contributions upon the inhabitants of all cities.

But the effect of an abundant supply of good water upon the health and longevity of the inhabitants of towns, is a consideration that will warrant the expenditure of any reasonable amount in procuring it. When the cholera visited London, in 1853-4, the deaths in districts supplied with impure water were 180 in 10,000, while in the districts furnished with better water they were but 37 in 10,000.

The pernicious effects of maintaining decaying animal and vegetable matter in the vicinity of, and sometimes in, our dwellings, (the fruitful promoters of epidemic and endemic diseases ever after so many terrible warnings), are thoroughly demonstrated by the researches of the British Government.

Large and wealthy towns and some cities of considerable importance are to-day to be found with no systematic means of disposing of the accumulations of offal of all kinds, but are dependent upon gutters, sometimes carrying for miles the drainage of kitchens, stables, breweries, tanneries, etc., etc., through closely built streets; with no means of flushing them but the uncertain rains, which in seasons when most needed, are least frequent.

Exhalations from such open drains, numerous cess pools and a soil reeking with the accumulated offal of generations are the most fertile promoters of diseases, which enfeeble and destroy our race. How the inhabitants of some cities, where they are obliged to use impure water, and breathe vitiated air, escape annihilation, appears almost a miracle.

There is scarcely a town plot that would not be benefited by the construction in some parts of it of sewers, were it for no other purpose than the drainage of the soil immediately in contact with the houses.

The beneficial results of a good water supply and proper sewage are shown by carefully prepared statistics of the health of twelve towns in England, containing from 8000 to 70,000 inhabitants, in which comparisons of the health and death-rates before and after the construction of the works are made. Among the most marked of these instances are:

Cardiff with a population of 43,000, where before the water and sewage improvements were made, there were 33.2 deaths in a thousand, but since their completion, there are 23.6 deaths in a thousand. The reduction of Typhus fever cases was 40 per cent., and of phthisis cases 17 per cent.

In Croydon, a town of 30,000 inhabitants, the death rate was reduced from 28.7 in a thousand, to 18.6; the typhoid fever cases decreased 63 per cent., and the phthisis cases 17 per cent.

Salisbury with a population of 9000, had its death rate reduced from 27.5 in a thousand to 21.9 in a thousand; the typhoid fever cases decreased 75 per cent., and consumption and kindred diseases, 49 per cent. If it were only to prevent the suffering incident upon diseases, no corporation should hesitate to construct such works, even if it involved the town in burdensome debt. But when the saving of life is considered, there appears to be no excuse for neglecting proper sanitary measures.

It has been shown that such works actually pay a large return in preventing loss of time by sickness, loss of the productive industry of those sent to an untimely grave, and a saving in the expenses incident upon sickness and death. The Croydon Water Works cost £120,000; Sewers, public baths, abattoirs, and other sanitary works £75,000, a total cost of £195,000. The Engineer of these works shows that, in the thirteen years the works have been in operation, they have saved the lives of 2,439 persons, prevented 60,975 cases of sickness, and from calculations based upon these data, that they have already saved 1.25 per cent. of their cost; (that is, their cost and 25 per cent. over).

How much of that which is most precious to us—life and health—is thus wasted by our own carelessness and municipal parsimony! Who would not be willingly taxed, heavily if necessary, to add from four to six years to his life, and much more to his enjoyment of health; yet this may be done in almost any town in this country, by the introduction of an abundant supply of good water and the constructing of proper sanitary works; and these works generally cost so little that the taxation incident upon them, is scarcely felt. A water supply from public works can generally be furnished at a less cost, than the interest upon the cost of, and the repairs to, a well and pump, or the value of time consumed in carrying water from a spring.

The saving in expense of getting rid of offal by means of sewers and a water supply will generally pay for constructing the necessary works. P. M.

CLIMAX. PAUL'S CLIMAX SALVE, for Burns, Scalds, Scrofula, Salt Rheum, Sores, Rupture, Rheumatism, Sprains, Chills, Stings, Bruises, Cuts, Swellings, &c., whether upon man or beast, is the most wonderful article ever produced. Other good articles advertised; this cured Bilious inflammation, induces pain, and heals without a scar. It is worth its weight in gold to any family, and should always be on hand. It is warranted to do what it says every time.

Moffatt's Life Pills and Phoenix Bitters. were first used in private practice in 1825. They were introduced to the public in 1835, since which time their reputation has extended, until they have a sale in excess of all other Cathartic and Purifying Medicines. There is hardly a family among civilized nations who does not possess a box of Moffatt's Life Pills, and a bottle of Phoenix Bitters. There is no personal evidence of their beneficial effects; this cured Bilious inflammation, induces pain, and heals without a scar. It is worth its weight in gold to any family, and should always be on hand. It is warranted to do what it says every time.

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A Permanent Tonic. Every one at times feels the necessity of something to tone up the system depressed by mental or bodily exhaustion. At such times let you have recourse to the use of this medicinal stimulant, which restores the debilitated system by a natural and safe process.

PERUVIAN SYRUP. A Protected Solution of the Protoxide of Iron, which vitallizes and enriches the blood by supplying it with its Life Element. Incurable Anemia, Chlorosis, and other diseases, are cured by its use. It is not followed by corresponding reaction, but is permanent in its effects, and builds up a new system.

GRACE'S CELEBRATED SALVE. We are constantly hearing favorable reports from those who have tried this remedy. Any Anthony, who of Mark Anthony, of east city, and living at No. 6 Lombard Street, afflicted with a tumor on the finger, was recently induced to make a trial of the Salve. Almost instantly she experienced relief from the pain, which had been almost insupportable. Every other remedy but this proved unavailing. Those who have tried it once are satisfied of its efficacy, and nothing will induce them to be without a supply.

HOOFLAND'S GERMAN BITTERS, AND HOOFLAND'S GERMAN TONIC. The Great Remedies for all Diseases of the LIVER, STOMACH, OR DIGESTIVE ORGANS.

HOOFLAND'S GERMAN BITTERS. Is composed of the pure juices (or, as they are medicinally termed, Extracts) of the most highly concentrated, and entirely free from alcohol, and is the best medicine of any kind.

HOOFLAND'S GERMAN TONIC. They are both equally good, and contain the same medicinal virtues, the choice between the two being a mere matter of taste, the Tonic being the most palatable.

Those who have no objection to the combination of the Bitters, as stated, will use HOOFLAND'S GERMAN TONIC. They are both equally good, and contain the same medicinal virtues, the choice between the two being a mere matter of taste, the Tonic being the most palatable.

HOOFLAND'S GERMAN BITTERS. The sufferer from these diseases should exercise the greatest caution in the selection of a remedy for his case, purchasing only that which is guaranteed to be pure, and is skillfully compounded, and is established for itself a reputation for the cure of these diseases.

HOOFLAND'S GERMAN TONIC, PREPARED BY DR. C. M. JACKSON, PHILADELPHIA, PA. Twenty-two years since they were first introduced into this country from Germany, during which time they have undoubtedly performed more cures, and benefited suffering humanity to an extent than any other remedies known to the public.

DEBILITY, Resulting from any Cause whatever; PROSTRATION OF THE SYSTEM, induced by Severe Labor, Hardships, Exposures, Fevers, &c.

PERSONS ADVANCED IN LIFE. And feeling the hand of time weighing heavily upon them, with all its attendant ills, will find in the use of this BITTERS, or the TONIC, an elixir that will instill new life into their veins, restore in a measure their vigor and ardor to more youthful days, build up their shattered frames, and give health and happiness to their remaining years.

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Hon. James Thompson, Judge of the Supreme Court of Pennsylvania, writes: "I consider 'Hoofland's German Bitters' the best medicine in use in cases of attacks of Indigestion or Dyspepsia. I can certify this from my experience of it."

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CHARLES M. EVANS, Proprietor, Formerly C. M. JACKSON & Co. HOOFLAND'S GERMAN BITTERS, per bottle, \$1 00; half dozen, \$5 00; Hoofland's German Tonic, put up in quart bottles, \$1 50 per bottle, or a half dozen for \$7 50.

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