

TONER (J. M.)

JOHNSTOWN, Pa.

ITS

GROWTH ^{AND} SANITARY
NEEDS

Address delivered before the
Cambria Scientific Institute
March 26th, 1881

by

J. M. TONER, M.D.

presented by Dr. Toner.

CLIPPING FROM JOHNSTOWN
DAILY TRIBUNE of March 28 '81.

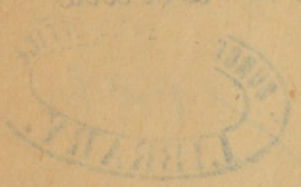


JOHNSTOWN, Pa.

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GROWTH & SANITARY
NEEDS

to be determined before the
Committee Scientific Institute
March 25 of 1881



J. M. TOWER, MD.

CLIPPING FROM JOHNSTOWN
DAILY TRIBUNE of March 25

1834 YEARS

1873

BROS.

AND RETAIL

A. RECKE'S

WHOLESALE AND RETAIL

Cracker, Cake, and Candy MANUFACTORY.

THE ABOVE IS A LIST OF THE ARTICLES WHICH ARE
RECEIVED

FINE AND COMMON CANDIES.

While we will sell at the lowest rate possible
we are now enabled to get a fine
kind of shortbread and prepared
and others which are constantly
on the way from the mill.

Fresh Bread and Cakes Daily.

No. 105 Washington Street, Jackson, Pa.

1873

The Tribune.

JOHNSTOWN, MONDAY, MAR. 28.

DR. TONER'S LECTURE.

LONG before the hour fixed for the commencement of Dr. Toner's lecture, in Library Hall, Saturday evening, every seat in the room was occupied, and a great many who were anxious to hear this eminent gentleman, upon a topic which promised to prove not only interesting but instructive, were compelled to content themselves by standing in the aisles, and in the vestibule entrance. The subject matter of his discourse was carefully prepared, and he read it all from manuscript, in a clear, distinct, and pleasing voice. At the conclusion of his entertaining lecture Mr. John Fulton asked the doctor a question touching sewage, which was promptly answered, and this was followed by queries from a number of medical gentlemen present, for the purpose of drawing him out more at length on his ideas of sanitary improvements, hygiene, etc. This addenda to the original programme proved interesting. The audience was at a late hour finally dismissed, well-pleased with the evening, which was pleasantly and profitably spent.

The Tribune.

JOHNSTOWN, MONDAY, MAR. 28, 1881.

JOHNSTOWN:

ITS

Growth and Sanitary Needs.

An Address delivered before the Cambria Scientific Institute, March 26, 1881.

By J. M. TONER, M. D.

Mr. President and Members of the Cambria Scientific Institute.

LADIES AND GENTLEMEN: It is with unfeigned pleasure I acknowledge the honor you have done me by the invitation to address your young Institute. In my first words to the citizens of Johnstown I must give expression to a realization of how different is this town now from what it was in my childhood *Note (1)*

when it was almost in a state of nature, without highways, and surrounded on all sides by primitive forests. *Note (2)*

My boyish recollection goes back to the construction and opening

Note (3) of the Western Canal and the building of the basin *Note (4)*

in Johnstown, and the location of the terminus and construction of the Allegheny Portage Railroad. *Note (5)*

The mountain village of 1831, then known both as Conemaugh and Johnstown, has put on the character of a city. The village of a few hundred has increased to many thousands. The change of everything in and about the place is, indeed, much greater than the majority of your residents are apt to suppose. Then all the surrounding hills were wooded, the only cultivated land in view from the town was embraced within the present Borough of Johnstown. *Note (6)*

Now the hills to their summits are covered with piles of clearings from the mines, cultivated fields and scattered dwellings, and the forests have disappeared, and man's work is visible everywhere.

The early public works of the State, which passed through and almost made the town, were completed within my recollection, served their day and have ceased to be used, and are now almost forgotten, or remembered only by name.

Note (7) A great highway with a double track of steel rails from the Atlantic cities, spreading like a net throughout the almost unlimited West, to the shores of the Pacific Ocean, has taken its place. Where once was the old Basin now are paved streets, with long rows of houses, and branch railroads and siding tracks. This reclamation of the Basin has added nearly one-twelfth to the building area of the old town.

Note (8) Marvelous as was the change from an isolated rural village to canal terminus, and then to a railroad town, still greater has been the change in the population, habits, and occupations of your people through the development of the mineral wealth stored in inexhaustible quantities in all the mountains which surround you. This metamorphosis, great and all-pervading as it is, has taken place almost entirely within the last thirty years. As late as 1850, although Johnstown had profited for years by its position and relation to the early system of public highways of the State, it was still an ordinary country town, the borough containing less than fourteen hundred souls. Now you enjoy the advantages of a population equal to a large city, with culture, wealth, and vast and profitable manufacturing interests firmly established, and which render all avocations remunerative.

Note (9) This change, I apprehend, is due, first, to the mineral wealth, and, next, to the establishment of the Cambria Iron Works and the enterprise and foresight which have characterized its management. This great manufacturing company, which began operations in 1853, has proved a benefactor not only to Johnstown and Cambria County but to all Western Pennsylvania.

Note (10) May they continue to prosper, and may Johnstown grow to be populous and rich, and remain a salubrious city, affording delightful homes and giving remunerative labor to multitudes for centuries to come.

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To labor is the normal condition of the vast majority of the human race. The possession of sufficient wealth to be above the necessity of daily employment is and ever must be an exceptional one. An occupation which brings intelligent and manly independence, when properly considered, is a boon of priceless value to the individual, to families, and to the State. Whenever and wherever these conditions exist you will find not only a prosperous, but a happy community. I fondly hope and believe that these blessings have in a great measure been vouchsafed to Johnstown and its sister villages, which I conceive are only separated by local names, and not in any material or antagonistic interests. *Note (11)*

This handsome building and convenient hall in which we are assembled, with its library and the tasteful and elegant appliances which are equally at the service of the residents of each and all the boroughs and villages, bear testimony to the unity of your interests as well as it does to the cultivated tastes and enlightened liberality of those who control public sentiment and direct the enterprises which insure the prosperity of your town. It is but a few weeks since you assembled in this room to witness the official transfer of this building (a most munificent free gift) to trustees for the benefit of the people of Johnstown and vicinity. It stands at once a monument to the intelligence and generosity of the directors of the Cambria Iron Company, and a perpetual beacon to encourage a higher education among your citizens. May you and those who come after you use the gift as the donors desire: to your advancement in knowledge, good government, and happiness.

I owe you an apology for so commonplace an introduction, and offer as an excuse my own feelings, which demand the declaration of my abiding affection for Johnstown as it was, and, if possible, my greater admiration for it as it is.

Although your progress, when viewed from a standpoint which embraces a half or a quarter of a century, is in either case very great, indeed your increase in population and wealth is almost unprecedented by an city in the State. The conditions which now surround you, I think, justify the sanguine hope of equal or greater achievements in the future. My invitation to address you suggested the selection of some theme which would treat of sanitary matters.

I shall therefore proceed to invite your attention to the consideration of a few questions of vital importance to the health and life of those who live in towns. And first in importance is cleanliness and purity of domicils and their surroundings.

Although the subject, as I feel called upon to treat it, is somewhat outside the range of subjects which enter into the usual discussions before an audience called together for literary entertainment; yet, as my desire to serve you is, if possible, greater than that of merely to please, I shall endeavor to comply with the request of the committee, and discharge my duty in a manner so as not to offend ears polite.

There are many matters which more or less affect the health, the comfort, and the convenience of families and of residents in general to which you have, as a corporation, as yet given but little attention. Some of these conditions are, as I have suggested, never pleasant to talk about, and particularly in public, but very essential to be attended to, and yet not such as to have excited frequent complaint on the part of your people or your borough officers, but to ignore them does not abolish their existence. I am assured that some of these have not escaped the attention of your physicians, and are beginning to be felt by many of your more observing and thoughtful citizens. Your town or towns have outgrown the straggling village; the aggregate population of your distinct but adjacent boroughs is, by the last census, over 21,000, and, whether you desire it or not, this condition of things forces upon you the character and responsibility of a city.

Your citizens too are rapidly adopting the habits of an old, populous and wealthy community. The things which your people could once do, or neglect to do when a village, you can no longer permit, and reasonably expect to preserve your houses and their surroundings in a good sanitary condition. Communities adopt domestic and avocatory habits more or less peculiar to themselves, convenience or necessity being the chief factors in their inception, while the survival of them often depends upon traditionary usage or from want of fully appreciating the change which has taken place in their environments, or a suspicion arising that they may be either offensive or injurious.

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The mountainous situation of this town, with its pure water and freedom from malarial swamps, entitles it to rank as a good type of a salubrious locality. But it is a well-known fact that man, by his own works, not only changes the face of nature, but modifies climate and her normal hygiene. The aggregation of many people in a confined space for any purpose is abnormal and sets up artificial conditions which invariably deteriorate its salubrity, and unless timely precautions are taken to preserve health by wise sanitary regulations faithfully enforced, fatal maladies will ensue. Naturally you have a most healthful climate, and are so situated topographically that by timely foresight and at comparatively small cost, you can at all times preserve the best of sanitary surroundings.

Has it ever occurred to you that to maintain anywhere a town of considerable population in a healthy condition, requires a knowledge of what vitiates salubrity and a systematic and persistent effort to prevent and correct unwholesome conditions. If any person present were to ask himself whether there was anything about his own home and premises that was offensive or injurious to health, he would doubtless answer no. But many of you would have suspicions or impressions that offensive odors, and conditions very disagreeable if not amounting to actual nuisances deliterious to health, existed in other parts of the town. Would any of you be prepared to say that there are not many neglected places, stagnant pools, unclean outhouses, stables, pigpens, and slaughter-houses, in conditions dangerous to health, which your medical men have occasionally hinted at, if not publicly spoken of, as offensive and requiring attention. In answers and views obtained in this way there are several factors which prompt the replies.

First, the things around you are much as they have always been, and do not specially attract your attention; and, beside, it does not occur to many that things could be otherwise than they are. Next, it is unneighborly to be finding fault, and the difference between one house and another is rather that of degree than that of kind; and, finally, it is deemed an honorable trait not to make one's self officious to their neighbor by finding fault.

But who

among you all would claim that your town in its general sanitary condition is satisfactory and does not admit of improvement? Few or none of you would assert this. Your change from a village, with its segregated dwellings, outhouses, stables, etc., remote from the houses, and cultivated gardens and grass plots which had a tendency to purify the soil, to paved streets and blocks of houses built over ground saturated for half a century with domestic waste, is very great.

Have you thought of these matters? Unless you have had among you physicians or others devoted to sanitary science, and who are more alive to the importance of hygienic surroundings than many (I might with truth say most) cities, I venture you have almost entirely neglected the whole question of public health. Do you discredit the warnings of sanitarians that matters of this character must be attended to? I have too much respect for your intelligence to believe this. And yet I fear you will continue to neglect the sanitary condition of your town until you have been overtaken by some epidemic which will destroy many valuable lives, which might have been easily prevented. While I do not claim to be fully informed as to what sanitary regulations have been established for the preservation of the health of Johnstown and the adjacent boroughs, or what officers you have to depend on for the prevention or abatement of nuisances, I strongly suspect that ordinances of this character are few and seldom enforced. Is this because your citizens are more considerate and less inclined to commit or more prompt to correct unsanitary, or is it that, as a people, you are more forbearing and uncomplaining than people in other cities?

It is due the administration of the town to recognize the fact that the Burgess does, in special cases, direct the removal of nuisances, and to acknowledge the fact that of late years, but more particularly in Johnstown, scavenging is performed, to some extent, with an odorless pump. Still the fact remains that the subject is one which is left to the convenience and disposition of each individual householder. One person may view an overflowing and leaking cess-pool with indifference, while another would be sickened almost at the sight or even mention of such a condition.

A sanitary officer should inspect, and see that such work is not neglected, and that it is attended to properly. If left to individuals it will be dangerously postponed, and in the end make bad neighbors.

I learn that you have no board of health, and have no system of registration of births, marriages, and deaths. This being the case, you can have no reliable knowledge of the healthfulness of your several communities, or of the particular diseases of which your people die. Nor have you any regulations that will prevent the introduction and spread of infectious and contagious diseases, or that will procure the isolation of those suffering with such from the healthy portion of the community.

You cannot claim that this is a matter of indifference or is in accordance with the enlightenment of the age. Is it just to those who reside with you, and who have the right to expect from you an enlightened and reasonable protection? Is it creditable to your educated physicians and your enlightened civil magistrates?

A more just measure of humanity is being infused into our civilization. We have neither the right to injure our own health by misconduct, ignorance, or selfishness, nor to endanger the health and lives of others. We are living under the ethics of an enlightened humanity, and all are stewards of society and of each other.

We are approaching a time when the individual who can prevent a catastrophe and does not will be held responsible to public opinion and amenable to the provisions of law.

Who that should see a railroad train rushing to cross a chasm where a bridge had been destroyed, and fails to give warning of danger, could be held guiltless of the lives sacrificed from such neglect? Each member of the community owes it to every other member to do what lies in his power to prevent injury either to his person or property. Soil-pollution, not only in Johnstown but its sister villages, has been steadily going on ever since their first settlement. In all these places the pit, cess-pool, or vault privy has been generally in use, which, as you are well aware, is not at all calculable to prevent the fouling of surrounding soil or of the wells in their neighborhood. The practice in the past has been that when one of these vaults fills, another is opened by its side, and many of them, during rainy seasons, when percolation of deposits through the earth is arrested, are subject to be filled with water and to surface-overflow.

So I conceive it is no exaggeration to say that the soil of your town has been more or less polluted from this source, and from house waste, to a depth of several feet. "Cess pools and privy vaults," says Professor Chandler, of New York, who has given much attention to this subject, "give off daily a volume of gas to poison the air equal to its own volume." Damp soil is itself unhealthy, but it becomes absolutely dangerous when it is saturated from filthy drains or putrid water, to be perpetually giving off its poison. Indeed some of your soil is inclined, at all times, to be water-soaked, more particularly the upper end of the town, along the base of the hills, and as a sanitary measure it ought to be drained and dried by the laying of agricultural tiles. Dr. Bowditch, by his admirable studies, has established beyond all dispute the fact of the unhealthiness of damp soils. I estimate that even now, since the introduction of some water closets and a few box privies designed to be emptied, that 96 per cent. of all human and animal excreta of Johnstown enters this soil, and even a greater percentage in the adjacent villages. Although the day of trouble from this glaring unsanitary practice has been postponed, it is my duty to remind you that there is a limit beyond which this violation of the laws of hygiene, in a community as compact as yours, cannot go without deteriorating health and inducing fatal diseases.

It is estimated by the Health officers of New York City that for every death from a preventable disease there are in addition about twenty-eight well-defined cases of sickness from the same cause in the community. Think of this! Count the cost and sorrow of these premature deaths, and the thousands of shattered constitutions! However unpleasant it is to disturb your confidence in the assured healthfulness of your town, it is nevertheless the duty of those who make sanitary matters a study to point out these dangers. I learn from your physicians that you have already suffered, at times severely, from diphtheria and other diseases, the severity and prevalence of which in special localities may be attributed to the causes referred to. You are not wholly to blame for this; the more rapidly a town grows the greater the incompleteness of its sanitary provisions, and the more likely are they for a time to be neglected.

Yours is a prosperous and wealthy community, but public opinion will henceforth hold you culpable if you much longer neglect these matters. It is extremely hazardous for you to go on as you have been. You must, as one of the first reforms, adopt and enforce regulations that will prevent further soil contaminations, and maintain for the whole community better hygienic conditions. This means the abandonment of uncemented wells or privy pits and vaults, and to permit the construction only of such boxes and vaults as will prevent leakage, and which can be emptied and never be allowed to overflow. To establish these essential sanitary measures you must commission scavengers, and require them to use in the work the most approved odorless excavating machines. Man, with fixed habitations and living in considerable communities, must provide for the removal of the waste of life, or he will certainly die of poison from his own body.

Since the introduction of the odorless excavator and the free use of deodorizers this branch of sanitary work can be done without offense and in daylight, which greatly lessens the expense. To destroy or neutralize an odor does not of necessity destroy at the same time the poisons which accompany the odor, and it has been observed that the most dangerous poisons are often accompanied by but feeble odors.

That you have not been entirely unmindful of the health and comfort of the people of Johnstown is evinced by the introduction of an abundant supply of pure water from unpolluted mountain streams. Whether this originated as a commercial enterprise or as a sanitary reform, it was nevertheless a timely and important measure to the health of your people. The water from your wells throughout the thickly-settled parts of Johnstown, considering the condition of your soil, could not remain pure. But having introduced water you must speedily establish sewage or else your condition will be made worse by the increase of soil pollution from kitchen and closet waste. This waste cannot be disposed of safely by surface draining and be kept free from offense. As was foreseen, a number of your citizens promptly on the completion of the Water Works supplied their dwellings with the modern improvements, and it is to be presumed that water closets will eventually be put in most of your houses wherever the water supply reaches.

The progress you have already made in modern improvements permits no lagging or turning back, you are now forced to consider and must adopt some comprehensive system of sewerage. I have a good general knowledge of the old borough and the topography of the outlying communities, which are all confined to narrow areas and built chiefly upon the bottom lands along Stonycreek and the Conemaugh, both above and below the city of Johnstown. For sanitary purposes these several communities will and must be considered together, and it is to be regretted that they do not all form one municipality. No one of these can be unhealthy and the others remain without sickness. Nor can one be in an unsanitary condition and not affect unfavorably the health of its neighbors. Your various works and factories with the increasing population forced you to supply pure water, and now the other important sanitary precautions and reform, indicated are, I conceive, as great a necessity.

The enormous demand for the use of water by the railroads, the factories, and the mills at the Cambria Works, leave Stonycreek and the Conemaugh as they pass Johnstown, in summer, reduced to mere rivulets. These streams are, therefore, during the summer, in danger of becoming foul from sewerage poured into them from or even above Johnstown, and may in a few years become offensive and dangerous, unless this matter of pollution is watched and properly regulated. Thus far but little sewerage has been thrown into the streams which the spring freshets have flushed and carried off before any nuisance was created. This fouling is however an ever-increasing factor while the steady flow of water in the streams is yearly diminishing. The fall for drainage purposes from the head of the old Basin and from the old Feeder Dam, on Stonycreek, to the point or junction of that creek with the Conemaugh, is in the neighborhood of twenty feet, which is ample to secure good and complete drainage. Assuming that the distance is a mile from the head of the sewer to its outlet at the point, and the fall twenty feet, this would give one inch to every twenty-two lineal feet of sewer, and would create a current that would traverse the whole length and discharge its contents at the lower end within two hours. A sewer with even much less grade, one which would discharge water from its head to its outlet in six hours, is not likely, if well constructed, to be troubled with either lodgments or dangerous gases.

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But improvements of this order should be determined upon and adopted after a careful examination of the whole subject, and the work ought to be done under the advice of a sanitary engineer, who has made a study of the ground and weighed all the factors entering into the problem to be accomplished. My own opinion is that all the sewers for Johnstown and the borough of Conemaugh, and eventually those of Sharpsburg and Hornerstown, ought to center in one before they reach the lower end of Johnstown, and be discharged into the stream at the point through an iron pipe protected by masonry, and carried out into the middle of the stream.

The sewerage of all that part of Johnstown which used to be known as Kernville, should in like manner be carried down on the south side of Stonycreek and be discharged into the stream near the railroad bridge.

You are still free to choose either of the two prominent systems of sewerage. They are popularly known as the large-barrel sewers, large enough to admit storm water along with house drainage, and the small tile sewer, that will exclude storm water, leaving it to be carried off on the surface or by a separate sewer. The one confines its services to the liquid waste from houses and water-closets, stables and factories, etc. This system admits of much smaller pipes and greatly cheapens the introduction of sewage. As this does not admit of rain water, it requires to have established at the head of each sewer and of each branch a flush tank, under the ground, but above the level of the sewer, which will hold say 1,000 gallons to be filled slowly, say twice in the twenty-four hours, through a pipe from the city water works, and when filled it will empty itself automatically through a self-acting siphon. This is an essential part of the small pipe system to flush and keep them clean and free from lodgments and sewer gas. Col. G. E. Waring has just completed, or is completing, a system of sewage on this plan in Memphis, Tennessee.

Throughout the United States preference has generally been given to the disposal of closet and house waste by water carriage. When water-closet and kitchen waste is promptly removed there is neither offense nor danger created by them. The dangerous gases are generated during delay in stagnant pools in the badly-constructed sewers.

The water closet as a sanitary measure was first introduced about 1840. Up to this time sewers were only used for carrying off storm or surface water. Since this kind of closet was devised the sewer has been taxed in most cities to carry off privy accumulations. The bad construction of many of the early sewers permitted, at bends and inequalities of bottom and sides, accumulations of putrid matter where dangerous gases form, and which has led to much discussion and a distrust of their safety. Of late a suggestion which has been adopted in a few places for a separate system of pipes to carry off only water-closet and house-waste material, excluding all storm and surface water, is coming into use, although I might on general principles prefer the large barrel sewer, were it not for the cost; but, in view of the fact that you have deep cellars to be drained which would require the sewers to be laid at a still greater depth and thus add much to the cost, and because you at present have satisfactory provision for the disposal of storm and surface water, which can be safely carried by the shortest routes to streams along your borders, I would favor the adoption of the small or tile-pipe system, the expense of which is so very much less. I am informed it can be laid at a depth of six feet, of ample size, for less than one dollar per running foot. This system, too, can be laid through your alleys, and thus avoid digging up the paved streets, and also obviate the objection of carrying the sewer pipes beneath your houses.

The slight elevation of the first floor which characterizes most of your dwellings is notable. This prevents good cellar ventilation, an important consideration in the hygienic condition of dwellings. Architects and builders should remedy this.

The door-steps of dwelling-houses in towns should be at least four or five feet above the sidewalk.

And, further, it is all-important to have sleeping-rooms considerably elevated above the ground, and particularly in regions where the soil is wet or inclined to be damp.

Cinders and coal ashes which have been much used to elevate the grounds and walks, and to dry up wet spots in your yards and gardens, are a dangerous filling, as they are porous and will conceal and retain putrid matters.

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When filling is to be done about a house, it ought to be with pure earth or gravel. Possibly for some years to come your sewerage may be conducted from the side streets directly into Stony Creek and the Conemaugh, as you have begun, without creating a nuisance of which your citizens will complain, but the principle is a bad one, and the practice attended with risk, and certainly it cannot be continued for many years with safety. Those who, from convenience, may at first favor it will be the sufferers, and in the end the most urgent to have it prohibited. If permitted at all, the pipes ought to run out into the middle of the stream. As a means of rendering less offensive the matter in the streams as they pass the town, I would recommend the throwing of the stones lying in the centre of the river, toward the sides, giving an unobstructed narrow channel to the diminished stream during the low water of summer, hoping that then the sewage would be moved forward rapidly enough to accomplish its oxidation and thus prevent putrefaction. No intelligent person of the present day believes that disease comes by chance or special providence, but in accordance with fixed laws. Some of these laws we understand in part; others we know with that degree of certainty that justifies prediction of results.

That there is poison, deadly poison, in the contents of water closets and house waste, I trust, needs no argument. Sanitarians, I assure you, do not attach any too much importance to the necessity of keeping man's dwelling places and surroundings free from impurities. "Prevention is better than cure," is an old and true adage. One of the principles taught in preventive as well as curative medicine, is to remove the causes, and filth is everywhere recognized as a most fruitful source of disease. One of the highest duties and aspirations of the learned and humane physician is to prevent disease, relieve suffering, and prolong life. The sanitarian's pleadings for better hygienic regulations are no sentimental fancies, but are the results of experience, a knowledge of cause and effect, and of an abiding faith in their benefits to the public. You have thus far, in all that relates to public health, relied greatly upon your mountain climate, your pure water, and the habits of your people, whose duties keep them much in the open air, and fortunately the reliance has not failed you.

But crowding is beginning and will increase. To prevent absolute and dangerous nuisances from house-waste will in the future require sanitary police regulations. Already the death rate among children has risen to be much above what it ought to be, and this is largely, if not solely, due to bad sanitary surroundings. There is imminent need and an abundance of work for a sanitary inspector who should from time to time examine slaughter-houses, factories, fowl-yards, undrained cellars, outhouses, stables, etc., and also the water of the springs and wells which are in use, and report their condition to the City Council or Board of Health, and have power to correct nuisances. If your health laws and regulations rested upon my judgment it would be to first appoint a Board of Health or competent health officer, with powers to cause the abandonment of your old and filthy privies, and in their places, as soon as practicable, cause to be erected for each house at least one water closet, under cover communicating with, but outside, the dwelling part of the house.

Their erection should not be left to choice, but be constructed with a view to their thorough ventilation and protection from freezing in winter, and in accordance with the best improvements known to the plumbing art to prevent sewer gases from escaping into the house. The house connection with the main sewer ought not to exceed four-inch pipes. Iron ventilating pipes of at least four inches diameter should be carried from the sewer to a point above the highest room of the dwelling or of an adjacent dwelling. All these premises should be subject to periodical inspection by health officers. A system for the daily removal of kitchen garbage should be established. Such waste can no longer be consumed on your premises by domestic animals, and if left to decompose becomes not only offensive but dangerous, and harbors rats and other vermin.

You doubtless recognize the fact that the day has passed for permitting slaughter-houses and pig-pens to be built in a manner which does not admit of their being kept clean and in an inoffensive condition. The only justification for their existence so long, has doubtless been that of economy to the individual in the profitable disposal of refuse. But the question of preserving good hygienic surroundings to dwellings in the interest of the public health, demands their regulation, if not their exclusion from the more thickly-settled parts of the town.

But it is not my intention to outline the duties of a Board of Health. They are multifarious, and the competent and vigilant health functionary, like the good house wife, will find that each day brings new duties requiring prompt attention. The necessity for street and alley cleaning and the keeping of the storm water ways free, and the prompt removal of dead animals to points where they can be disposed of in a manner to create no offense, are the only matters to which I shall allude. You let it be borne in mind that the duties of a health officer will, if properly performed, be no sinecure. And if you are fortunate enough to get one of education, and ability and zeal in sanitary matters, he will prove of inestimable value to your community, and to the health and lives of your citizens, and of those who shall reside here in the future. But I am impressed with one difficulty which lies in the way of your carrying out complete and satisfactory sanitary regulations. I allude to the scattered dwellings outside of the corporation limits, which are not amenable to the sanitary control of your Burgess. You could not at present deal effectually with small-pox, cholera, diphtheria, and other contagious and infectious diseases in these tenements. You could neither isolate the sick in them nor enforce purification of the dwellings. This want of municipal control is the great problem which seems to me to be in your path, and must eventually be solved by a unification of the several adjacent boroughs and villages into one, to be governed by one head. In a word, I most earnestly entreat you, for sanitary government at least, to consolidate all your towns into one. The interests of your several communities are, or ought to be, the same, as I trust I have shown your hygienic security depends upon your not only protecting yourselves, but each other. Consolidation once accomplished, you can adopt a comprehensive system of sewage, water supply, and registration of sickness and deaths, and by concert of action prevent the fouling of the streams.

The question of how far you should go in the matter of consolidation and the extent of territory to be inclusive is one of moment to yourselves. I do not imagine that it will or should make your taxes for local government much, if any, higher than they are at present. But I suspect this will be made the bugbear to delay its adoption. In extending your lines for sanitary control they must, to secure the best results, be far enough to include in the east the settlement at Conemaugh Station, the most remote of any of the villages from the centre of the borough of Johnstown.

Whether your boundary should describe a circle of say three miles from a centre in Market Square to circumference, or by lines which should only take in the village and outlying tenements on the hillsides, and about the mines and settlements along the river, would be determined by the consideration of the end to be accomplished. If you cannot agree upon legislation to the end of complete consolidation by an act of the Legislature, then I would suggest that you call a convention of the councillors and officers of the several boroughs and discuss the necessity for sanitary regulations, which I am quite sure you can agree upon and adopt. Among these should be a set of rules for registration of deaths, for the prevention of the introduction of infectious and contagious diseases, and for the isolation of persons suffering from such, and for the purification of houses in which this class of diseases is found to exist, and provide for the removal of garbage and the prompt abolition of nuisances, the proper construction of privies, methods of cleaning them, and all such matters as pertain to public health. Let the Council of each borough adopt the same rules, and pledge themselves to the vigilant support of them. But if the other villages will not join in this movement then I earnestly hope that Johnstown will, without delay, procure such legislation as may enable her to establish a Board of Health of her own. This done, her example and good administration of health matters will, I doubt not, in a few years lead to the adoption of similar or even better laws by the other boroughs.

Notes

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note (1)

[The writer's parents resided in Johnstown, or Conemaugh, as it was called, in 1830 and 1831]

Note

(2) [The following description of the town was written in 1828, and indeed it strikes me as a correct picture. "Johnstown, in Cambria County, is about seven miles from the base of the Allegheny Mountains, at the junction of Stony Creek with the Little Conemaugh. The village contains about two hundred inhabitants and thirty tenable houses, with out-houses, two taverns, five stores, and one mill. A basin for the Western Division of the Pennsylvania Canal, it is supposed, will be made in the heart of the town, which has occasioned a rapid rise in the value of property. The town is regularly laid out on a plot of upward of two hundred acres of ground, completely surrounded by mountains. The water advantages are very considerable, offering a direct communication with Pittsburgh.—Nov., 1828, Register of Pa., vol. 2, p. 3171.]

Note (3)

The first boat on the Western Canal was launched on the Kiskiminetas on Saturday, October 25, 1828, Captain Levi Fay commander, and the first merchandise shipped on her of current date was salt, at Mr. David Beneman's works, on Section 17. (Register of Pa., vol. 2, 1828, p. 338.) The canal between Blairsville and Pittsburgh was declared completed and made navigable to the Ohio River, June 24, 1829. (Register of Pa., vol. 4, 1829, p. 16.) The canal was completed from the head of the basin in Johnstown to the outlet lock into the Allegheny River, in Allegheny City, late in the fall of 1830. (Report of Canal Commissioners and Register of Pa., vol. 7, 1831, p. 12.) The first freight over the completed Allegheny Portage Road from Philadelphia arrived in Pittsburgh March 24, 1834. (Register of Pa., vol. 13, page 207.) The road had at that time but one track, the second being laid in 1835]

Note (4)

[The letting

which put the basin in Johnstown, and a little over three miles of the canal under contract, was held in Johnstown, May 10, 1830. It was stipulated that the work should be completed by the first of August ensuing. It was completed in seven months, boats coming into the basin at Johnstown late in the fall of 1830. "The act of 28th of March, 1830, authorized the construction of that part of the western division leading from Section No. 57 of the Ligonier line, to a suitable point for the connection of the Portage Road and the canal at Johnstown." The distance from the head of the basin, at Johnstown, to Section No. 57 of the Ligonier line is three miles and a half. The estimated cost of this work, made by Sylvester Welsh, the principal engineer on the division in April, 1830, was \$70,100. The actual cost completed is \$64,255. The following are the principal works and their cost:

Sections, including 2,089 perches of wall.....	\$18,192 31
1 basin of $8\frac{1}{2}$ acres, and a towing path 1,470 feet.....	1,693 28
3 Locks, of cut stone masonry, laid in hydraulic cement.....	13,751 85
Built in the best style, and including lock sections, 1 aqueduct, length of trunk 45 feet, with eighteen-foot stone abutments, superstructure wood.....	3,720 00
1 aqueduct over the Conemaugh River, two spans, length of trunk 163 feet, width 17 feet, piers and abutments contain 1,885 perches of cut-stone masonry, laid in cement; also, 161,000 feet, board measure, of timber, and 6,500 pounds of iron—the structure is roofed and weather-boarded.....	13,050 00
5 culverts, whole span 20 feet.....	2,660 00
2 waste wiers, 100 feet.....	360 00
1 dam across the Conemaugh, 140 feet long, six feet high, stone abutments, crib-work, filled with stone and sheeted.....	1,219 00
1 grand bank 405 feet long, top 12 feet wide, and $17\frac{1}{2}$ feet above the bottom of the canal.....	537 00
1 water way 43 feet long, 13 feet high, four gates, 141 perches of masonry..	1,158 45 $\frac{1}{2}$
2 lock houses.....	1,165 00
Fencing required.....	805 00
Roads.....	288 00
1 dam and waste wier connected, 100 feet long and 11 feet high.....	1,539 34
2 road and 1 form bridges, 50-foot span and 18 feet wide, stone abutments, superstructure of wood, trussed with iron.....	2,240 00
3 water ways around locks.....	1,245 46
Add proportion of expenses of engineers, superintendent's pay, and all other charges, for ten months.....	630 24
Total.....	\$64,255 00
Report of Canal Commissioners submitted 1830.]	

Note (5)

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[As pioneer in methods of transporting merchandise across the Allegheny mountains without breaking cargo, which led to the O'Connor plan of portable bulk-heads which were hoisted out of the boats and placed upon car trucks, and finally led to the building of section boats of two, three, and four sections, the following facts may be mentioned. This is the same problem Capt. Eads has in view to accomplish for ships by rail across the Isthmus between the Pacific and the Atlantic Oceans. Jesse Christman, of Pennsylvania, constructed a boat which crossed on the new Portage Railroad in October, 1834. This gentleman, joined by several neighbors, who, with his and their families having concluded to remove from the vicinity of Wilkesbarre, in Luzerne County, Pennsylvania, built an *ark* which they called, "Hit or Miss," twenty-nine feet long and seven feet wide, in which they placed their families and effects, and sailed down the North branch to the Juniata Division of the Pennsylvania Canal, up which they ascended to Hollidaysburg. Here John Dougherty had the enterprise to place their boat, with its freight undisturbed, on platform cars and ship it across the Allegheny mountains to Johnstown, where it was safely placed in the Western Canal, down which it floated to the Ohio River, and thence to its destination in Illinois.] (Register of Pennsylvania, vol. 14, p. 284.)

Note (6)

[Joseph Johns, a German, settled upon the site of the town in 1791 or 1792. It had been formerly occupied by a tribe of Indians, and known as the "Shawaneestown," or "Cabins." The territory was then embraced in Somerset County, before Cambria County had an existence. Mr. Johns in 1800 filed a charter in the Court of Records at Somerset for a town of 14 lots, under the name of "Conemaugh." He, with liberality, set apart one square for a Court House and other public buildings, and one for a market, another for a burial place. He also left the Point as a public common for the benefit of the town forever. This common may in time be made a great boulevard. In 1831 the town was incorporated under the name of "Conemaugh," but in 1834, by an act of the Legislature, the name was changed to that of Johnstown.]

Note (7)

[The following list gives the names of heads of families in the town of Conemaugh, Cambria County, Pa., as reported in the United States Census of 1830. The list has been kindly furnished to the writer by Gen. F. A. Walker, Superintendent of the United States Census: Solomon Adams, William Barnet, Thomas Blair, Joseph Berry, Adam Bausman, Michael Boner, Thomas Brown, Jonathan K. Buckman, Joseph V. Buskirk, John Capehart, Hiram Craver, John Coal, Frederick Cobart, John Charters, Joseph Chamberlain, Patrick Dillon, Patrick Donahoe, John Davis, John Dimond, Samuel Douglass, Henry Ellis, Henry Ebbert, John Ellis, John M. Eckles, John Foster, William Fields, John Fairman, Widow Frazer, James Folsom, John Good, William Graham, Joseph Gordon, Jonas Huber, William Huber, William C. Hayes, Samuel Horner, John N. Huey, Harvey Hubbard, Robert Hamilton, Joseph M. Jordan, Solomon Kelsey, Michael Kinney, George W. Kern, William Kelly, Widow Keepers, Peter Levergood, Ann Linton, Thomas Laird, Luke I. Lilly, Dr. James McMullen, John McLene, William M. Martin, John McMillen, Phillip Murphy, John McGlade, Michael McGran, Hugh McFall, John O'Neill, Adam Otto, Shepley Priestley, C. S. Parshing, Mary Reilly, Adam Ross, Evan Roberts, Allen Rose, William Sink, Philip Sherbine, Samuel A. Stook, Dr. David T. Storm, Rachel Sech, Joel Simmons, Mary Scott, Meridith Toner, Adam Treftz, John Woodison, James White.]

Note (8)

[The writer was born in the city of Pittsburgh, Pa., April 30, 1825. His father was at the time engaged in furnishing supplies and merchandise to the contractors on the Western Pennsylvania Canal, and resided at several places along it during its construction from Pittsburgh to Johnstown. It is known to many now within this hall that, beside the childhood residence before referred to, the writer also lived in Johnstown from 1842 to 1849, as apprentice, merchant, and student. His honored preceptor, Dr. John Lowman, flatters him by his presence here to-night, and who he is glad to say is in the enjoyment of good health, and is still actively engaged in a large, responsible, and lucrative practice.]

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Note (9)

[The earliest manufacturing establishment in Johnstown was probably a mill. This was followed or amplified into a forge, the remains of which and the dam and cinder piles were still visible on the banks of the Stonycreek, about two hundred yards above the bridge, in my boyhood. I suspect there was no foundry in Johnstown in 1830 or 1831, and possibly for some years later, as about three hundred tons of chains for supporting the rails used in the building of the Portage Road were cast in Blairsville and Frankstown (Hazard's Register, vol. x, page 387). The foundry established on the Island by Matthews, Welsh & Kennedy, and afterward owned and conducted by S. H. Smith, was, I think, the first establishment of the kind in Johnstown. In 1831 a cement mill was built and a contract made for hydraulic cement from the Johnstown mines for use in the construction of locks and dams on the canal. I do not remember where the first cement mill was located, but all residents of Johnstown twenty-five or thirty years ago will remember the old cement mill just above the aqueduct, and which drew water for its power from the canal about the site that the Cambria Company's stores now occupy. The cement mills are still conducted with profit, and the iron interest has made a Birmingham of Johnstown].

note (10)

(Statement showing the population of Cambria County, Pennsylvania, according to the United States Census in 1830 and 1880, kindly furnished by Gen. F. A. Walker, Superintendent of the United States Census. The portion relating to 1880 is still subject to possible corrections by reason of the discovery of omissions or duplications of names in the list of inhabitants returned.

	Population.	
	1830.	1880.
Adams Twp.....	.....	1,004
Barr Twp.....	.....	899
Blacklick Twp.....	.....	587
Cambria Bor.....	.....	2,223
Conemaugh Bor.....	.....	3,504
Conemaugh Town.....	513	.....
Croyle Twp.....	.....	1,239
Jackson Twp.....	440	1,004
Johnstown City.....	.....	8,380
Millville Bor.....	.....	2,409
Prospect Bor.....	.....	700
Richland Twp.....	.....	996
Susquehanna Twp.....	722	949
Woodvale Bor.....	.....	639
Allegheny Twp.....	844	.....
And Loretto Bor.....	71	1,711
Cambria Twp.....	736	.....
And Ebensburg Bor.....	270	2,170
Carroll Twp.....	.....	.....
And Carrolltown Bor.....	.....	1,797
Chest Twp.....	.....	.....
And Elder Twp.....	.....	1,106
Clearfield Twp.....	436	.....
And Chest Springs Bor.....	.....	1,629
Conemaugh Twp.....	2,085	.....
And Stonycreek Twp.....	.....	1,318
Dean Twp.....	.....	.....
Reade Twp.....	.....	.....
And White Twp.....	.....	2,131
East Conemaugh Bor.....	.....	.....
And Franklin Bor.....	.....	1,490
Gallitzin Twp.....	.....	.....
Gallitzin Bor.....	.....	.....
And Tunnellhill Bor.....	.....	1,460
Portage Twp.....	.....	.....
And Munster Twp.....	107	1,311
Summerhill Twp.....	852	.....
And Wilmore Bor.....	.....	930
Taylor Twp.....	.....	.....
And Coopersdale Bor.....	.....	1,788
Upper Yoder Twp.....	.....	.....
And Lower Yoder Twp.....	.....	1,878
Washington Twp.....	.....	.....
And Summitville Bor.....	.....	1,582
County total.....	7,076	46,824

[The following are the names of the several boroughs, with the dates of their charters: Johnstown, 1834; Conemaugh, adjoining Johnstown on the east, incorporated in 1849; Millville, immediately on the northwest of and adjoining Johnstown, incorporated in 1858; Cambria Borough, or Cambria City, also on the west, about one mile below Market Square, in Johnstown, incorporated in 1862; Prospect Borough, on the hill to the north, overlooking Johnstown, incorporated in 1863; Woodvale, one mile east of Johnstown, and Conemaugh Station and Little Conemaugh, about three miles east of Johnstown, on the Conemaugh; the last three form an almost continuous settlement with Johnstown east of Conemaugh Borough; Sharpsburg and Hornerstown are rapidly-growing villages, and lie southeast, along the Stonycreek, the most distant of them being one and one-fourth miles. Although there are other villages lying round Johnstown, the above are the names of the principal ones.]

