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# Monday, March 14

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### THOS. WILKES GIVES VIEWS At Request of Mayor, he Reviews Sewage and Drains

Also Advises Upon the Fly in the Ointment

Thos. S. Wilkes, Civil Engineer, upon the request of Mayor Bailey, presented his views on the matter of sewers, drainage, and other sanitary topics, to the city council Tuesday evening. Mr. Wilkes gave the sewage proposition a thorough dissection. His views as read, are:

At the request of the Mayor I shall try to outline the most pressing needs of the city in the matter of disposing of the sewage and point out what appears to me the most practical solution of the problem under present conditions. That it is a pressing and urgent question is realized by many, if not all, of our influential citizens, and to them there is no need of addressing any arguments. Others, in many cases, only need their attention directed to the results that are likely to follow further neglect, and this is more within the province of the physician than the engineer.

In considering this question I must first disclaim any qualifications for deciding upon the plan that must be adopted, and when the city is ready to incur the expense of carrying out the plan, I should by all means recommend that the opinion of the very best available sanitary engineer be secured, and his directions followed, and about all I shall try to do is to give an outline of the data necessary, so that when his opinion is asked he will have the means at hand to render his opinion understandingly.

It will not do to decide on the route, depth and kind of sewer, and start in to build it, and then when we encounter difficulties we cannot overcome, call in the engineer to help us out. That plan has been tried in many other cities. In Los Angeles, within the last three years, has expended a vast amount of money trying to build an out-fall sewer, when a proper investigation beforehand would have shown the ground to be unsuitable and prevented the great expenditure on the previous work, which made it impracticable to abandon the route selected and compel the expenditure of something over \$200,000 to get out of a difficulty that might have been avoided by proper investigation in the first place.

The problem of disposing of the sewage in any city situated as Hillsboro is, calls for far more skill and technical knowledge than is required in a city located on a large stream or on tide water, for the reason that the sewage must flow a long distance through low, flat farming country, so that any pollution is sure to be noticeable, and if carried beyond a certain percentage, will become such a menace to the health of the people living below the discharge that it will not be permitted to continue—therefore, any system adopted must be built with a view to the final adoption of some means of purification that will admit of discharging the effluent into the river without danger of serious contamination.

When this question was first brought to my attention I was laboring under the impression the solution was comparatively easy, from the fact that I had known of several towns installing the septic tank system, and many whom I had believed were qualified to say, had told me that the septic tank properly constructed rendered the effluent chemically pure, but upon consulting the works written by some of the men who have investigated the question I find that such claims are utterly without foundation. The best results obtained for them are that they reduce the amount of putrescible solids in some cases, and in other cases, under conditions apparently similar in every respect have been found at other times to accomplish only a 20 per cent reduction. The reasons for this variation have not yet been determined, and the whole subject of bacterial treatment of sewage is so little understood at present that no one can, with accuracy, forecast what may be accomplished by any given system.

A few rules must, however, be observed to obtain even a moderately clarified effluent, and they may be briefly summarized as follows: The flow must be as uniform as possible; it must not pass through the tank too rapidly, and must not remain too long in the tank.

The works I have been able to obtain on this subject are "Methods and Devices for Bacterial Treatment of Sewage," by William Mayo Venable; "The Treatment of Septic Sewage," by George W. Rafter; "Sewage and Sewerage Treatment," by M. N. Baker, and they practically agree that 24 to 36 hours is the proper time for the sludge to remain in the tank, a shorter time being inadequate, while a longer time causes a saturation and discharge of the black sludge, which settles in the bottom of the tank. Too long exposure to the action of the anaerobic bacteria renders the effluent unfit for use, and further purification in the contact beds where the oxygen and aerobic bacteria accomplish the final purification necessary to render the effluent safe to discharge into small streams.

There is now before the people of Hillsboro two ideas, each demanding attention and both questions quite important, so that in justice to all parties, the Council should earnestly try to give careful attention to both sides. The drainage ditch now projected from the corner of Fifth and Main streets and running southeast to the slough in the tract E. in Fairview Addition, and the one starting at the corner of Third and Lincoln, running westerly to McKay Creek, on the Connell place, are designed to drain the surface water off the streets and property adjoining. They are not designed, nor can they ever be used, for sewers, for the very obvious reason that the first one terminates in a slough which is dry during all but the winter months, and the second one empties into a very small and sluggish stream.

The sewer petitioned for is open to the same objection, as it is proposed to run into McKay Creek. This stream is about the smallest one of the three available outlets and cannot accommodate any extensive amount of sewage, either raw or through septic tanks, without becoming an unbearable nuisance. If the sewage is discharged here the stream will soon become offensive and civic pride would call for a prompt use of the petitioning such a nuisance immediately above the railroad bridge and wagon bridge over which the great and important traffic from the west reaches town. It is aware that the petition specifies that effluents shall be discharged into it, but nevertheless sewage passed through a septic tank is still sewage, but little less offensive and dangerous than when raw and untreated sewage is discharged. What then can we do with the sewage? For answer I will suggest that we should investigate a number of other well known methods, and I am confident that will prompt one at first glance to favor McKay Creek as the outlet. It being close to town the natural inference is that it can be disposed of with less expense for piping, but in a great many other cases, the thing that looks the cheapest may not

always prove to be so. As petitioned for, the trench will have to be dug about 13 feet deep at the corner of Second and Main to afford the proper drainage on Sixth and Main, while to afford any depth of drainage in the region south of Main will require 13 feet greater depth. This of itself is no great obstacle, but my experience confirms the statement that in this town at a depth of about 12 feet we encounter a very troublesome layer of quicksand. This was the trouble at Los Angeles mentioned at the beginning of my paper, and it is encountered in a town without the wealth of Los Angeles would have forced an abandonment of the work and a loss of all that had been expended. In fact many eminent engineers advised that the difficulty might prove so great as to make it more expensive to finish the work than to throw it away altogether and adopt other methods. They predicted, however, and finally succeeded, but Hillsboro could not have done so even though our system is a small fraction of that of such a city as Los Angeles and a quicksand proposition might be just as expensive here as there, and would be clear beyond the resources of a small town. The only way to ascertain beforehand as to this is to make frequent borings and find out how deep this layer is below the surface and how thick it is. A few inches of quicksand may be overcome by cutting the trench, but if it reaches its far more expensive sometimes requiring 10 to 20 times the depth that is needed for digging in clay while three or four feet of quicksand will require the use of sheet piling and multiplies the cost of trenching 50 to 100-fold. I found at least six feet in a well on the north side of town, and an expert welder worked a whole day without gaining one inch in depth, and was compelled to give it up after sinking six feet of brick wall into it. Knowing these facts, I would certainly advise very thorough trial borings before making anything but a shallow trench deeper than 10 feet in Hillsboro, as I have been told by a well-digger of large experience here that he has never found the quicksand less than 10 feet from the surface, and but few cases has he dug 12 feet without finding it.

The question of availability then resolves itself into two problems, one of which must be met and decided upon before anything can be safely undertaken. First to follow the natural drainage at the shallowest practicable depth toward McKay Creek and install an adequate purification plant at once, or, on the other hand, to go toward the Tualatin River, using it for an outfall at present until the town increases in size to such an extent that it can no longer be used and then install a purification plant. This latter seems to me to be the safer course. I have measured the flow of the Tualatin River above the mouth of Dairy Creek and find it has a flow of 50 cubic feet per second, and this I made a rough measurement of East Dairy Creek, once at the Mountaineer Bridge, and found about 12 second-feet. McKay Creek certainly does not exceed this, and I think 10 second-feet will be the maximum flow of that stream at dead low water. Dairy Creek may possibly afford 20 second-feet and this and McKay Creek may possibly increase the flow of the Tualatin River to 100 second-feet at the Jackson Bridge, so that in all probability the river can accommodate 10 times the amount of sewage that McKay Creek can without serious contamination, or in other words, the expense of a purification plant will be deferred 10 times as long by going to the river. By building toward the river the sewage is emptied below the crossing of the railroads and the principal sluggishness, and the take of the condenser pump, so that the contamination will occur at the least objectionable point and when the purification plant becomes a necessity, the Jackson Bottom is the most suitable location near to the center of town than any ground that is suitable for a gravity system on the Connell place and beside the deep trenching will be shorter and the trunk sewer will be located in a mainly built portion of the city, instead of extending for a long distance through cultivated fields where no sewer is needed. I think the investigation will prove that no quicksand will be found in Jackson Bottom, and a true sewer centrally located, will not have to be dug so deep to afford the proper drainage as it will if leading to the west.

Another matter that should be considered in dealing with this purification plant is the fact that the septic tank is covered by a patent granted in 1899, the validity of which was confirmed by the United States Supreme Court in 1908, so any system that competes the least and owners to use these septic tanks may be the cause of their having to pay large sums of money for royalty, while if the city takes up the matter of purification there will be but one such royalty to pay.

What this has done for the city is fully investigated it may prove to be in the proper location and position to serve as a natural filter and thus be made to take the place of a percolating filter for several years, although this is only a mechanical and the time will surely come when the foul matter will percolate into the adjacent water courses and compel the installation of a purification plant. After the sewage passes through a properly constructed septic tank the effluent is of some value for irrigation, and it may be that it could be made use of on the low ground adjoining the town for a few months in the summer, but this can never be so successfully done here as in the arid regions, for obvious reasons.

As I have said before, it is not the proper thing to start anything in the line of a sewage system until the data is carefully gathered. The profile survey made last year is a good start, and if supplemented by the borings heretofore alluded to, and measurements of the flow of the several streams, and an analysis of the present contents of the number of persons and extent of territory to be provided for, and the nature of the sewage to be taken care of, this will enable the sanitary engineer to determine what is possible, and to accomplish, but by all means do not take the judgment of any but men of proven qualifications. An engineer may have installed any number of different systems in town where conditions are different without becoming in any way qualified to deal with our problems. We have heard of several of these who were willing to tell us just what could be done upon a representation of the sort that we had a good idea of the lay of the land. It is a safe bet that all such engineers were utterly ignorant of the simplest elements of sanitation, so beware of the man who comes from another town and calls himself a civil engineer.

Now, as to what must be done immediately. The ditch already laid out to the southeast is located on the best possible ground for draining the town, and a large extent of which cannot possibly be benefited by a sewer that is needed in the region around the courthouse and city hall. Let it be put in, and a similar one to the northwest, and the route that has been preliminarily surveyed. If the objection is urged that they do not afford drainage sufficiently deep for basements along Main street they can be made two feet deeper, or possibly three feet, without getting into quicksand. Let their province be to take care of the storm water and drain the basements. This storm water cannot be run through any purification plant as it contains the great irregularity of the flow and seriously impairs its efficiency by the excessive quantity of grit, which renders frequent cleaning of the tank necessary.

If a sewer is at once installed, a few septic tanks, located at the proper points, constructed by the city, and properly looked after, may be found adequate to supplement the present system, and eventually must be built. The tanks drained through some filtering material several feet in extent into the tiles may be made to serve the needs of the city for a few years, but it is a question of the extent of adaptation of this method of disposing of the effluent. If the charter will admit of voting bonds for the purpose, I think the

very best thing to do is to go to work at once with the definite purpose of adapting a thoroughly sanitary system. No mere money consideration should be allowed to stand against the health and well-being of the community—every dollar judiciously expended will be returned in a short time through increased values and rentals. If the charter must be amended, let that be done as soon as possible, that we need not stop here, for the town is so much scattered that no sewerage system that is possible for many years to come can be made to serve it all, so some other means must be adopted for the outlying districts. I think it is time that the common privy vault, with its reeking, fettering pestilence, and fly-breeding mass should be banished forthwith by stringent regulations, properly enforced. I have found it very easy to avoid these pestilential and indecent nuisances in my own home by the use of one of the most common and plentiful articles in Washington County, viz. road dust. Enough of this can be scooped up by an able-bodied man in one hour to disinfect a family privy for a whole year, and with the expenditure of \$5 extra, the privy can be so made that the effluent can be removed once or twice a year. It is perfectly innocuous and sanitary if attended to once or twice a day, which need not take more than one-half minute at a time. If the privy is built on well-drained ground, a common pit may be dug, and when filled the privy may be moved to another spot, as is now done, but this should not be permitted on any ground where the pit is ever filled by seepage water. Along these projected drains these pits can be kept from filling with water by properly constructed tile drains extending clear around them.

If the Council will pass an ordinance requiring dust, or some equally efficient absorbent, to be used, and give it its observance, the city can be made far more agreeable, sanitary and desirable, and a landlord who would omit to provide this simple and efficient method for disinfection would be unable in a few years to rent his property and the city would never revert to its present filthy and unsanitary conditions, even if permitted to do so by the repeal of the law.

The keepers of horses and cows should be compelled to keep the offal in airtight, flyproof receptacles, and remove it from the city at once or perform it may never become a pestilential or offensive. These open manure piles are the breeding places of the flies, which are becoming recognized as the most active distributors of disease germs and filth.

They should be banished from our homes, and no better means to accomplish this can be adopted than to destroy their hatching places. Scores of people from Hillsboro and Washington County attended an aviation meet in Portland last week, and witnessed Chas. Hamilton sail the air in his biplane. He had perfect control and his feats in air navigation were a wonder to all. The meet was at the country club ground-out on the O. R. & N., and will be held on the 10th and 11th inst. Thousands paid to get there, many times the number who witnessed his flights from the hill surrounding the amphitheatre with out payment. There was no society except that the Wenne machine knocked down two or three people in its effort to get into the air. While Hamilton has nothing in Paulhan, the Frenchman, who exhibited at Los Angeles, he was the best and only aeronaut Portland has ever witnessed, and the meeting was well worth while.

The fact that Jim Hill now owns the United, and has sent his surveyors out for a pass into the Tillamook timber, is encouragement to be taken in the mountains who have timber to sell. Hill is a man who does things, and that Tillamook will soon have two railway lines goes without saying. The Lytle road will be completed this summer, without fail, and Hill will reach the coast by another year. North Washington County long cut off from the railway world will then have transportation facilities with the rest of the county.

J. B. Loring, of Newton, returned Tuesday from a trip to Southern Oregon and Northern California, and while he saw much fine country, he says nothing that would beat this section, and to use his own expression, "While I saw lots of fine country, and lots of poor country, the best would have to go some to beat Hillsboro and Washington County."

Captain C. E. McDonnell, well known to all the Philippine veterans in Washington County, was in town the first of the week, ostensibly on real estate business. He was seen traversing the Banks and Greenville sections.

Walter Galloway, son of S. J. Galloway, came down from the front on the P. R. & N. the first of the week, and went to Coville, to take a position with Marion Wilkes, county surveyor of Benton County, at Corvallis, and who is a son of T. S. Wilkes, of this city.

D. W. Packham of St. Joseph, Mo., and late of Salem, was in the city this week, looking over the railway situation. Mr. Packham is an experienced car inspector and repairer, and may take a position with the P. R. & N.

Sam Tunstall, of rear Phillips, was an A-gus caller Tuesday, and says that the United has completed all bridges on their line clear into Washington County.

Married, at the home of the bride's father, Banks, Ore., March 5, 1910, Elmer L. Hopkins and Miss Florence Eberly, daughter of Mr. and Mrs. J. F. Eberly, Rev. W. C. Stewart officiating.

### Candied Fruits

By ARTHUR BINGHAM  
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When I started to practice medicine there was one admonition laid down by the gentleman who delivered the final address to our class when we were graduated that had greatly impressed me. It was this: "Remember that mind has a great effect over matter. Therefore try to detract so far as possible from the terror your patients naturally have for you as practitioners. Above all things, preserve a cheerful exterior. The more hopeless a case appears to you the more hopeful appear to be, for by giving way to your anticipations you lessen the patient's chances for recovery, and you may be wrong in your prognosis. Do not force patients to take your remedies if it can possibly be avoided. Rather persuade them or banter them. Remedies taken against a patient's will are apt not to act, and the patient's description of the disease by unwelcome doctoring."

It seemed to me that there was a lot of common sense in this advice, and I cut it out of the printed address and pasted it within my writing desk in order that whenever I opened the desk I saw the injunction staring me in the face, so that it was impossible for me to forget it. I truly believe I would have built up a large practice by observing it had not that very observation of it on one occasion led to my leaving the profession.

I had been practicing but a short time when, returning to my office one day, I found a note from a stranger stating that a member of his family needed treatment, but was much averse to receiving a visit from a physician or taking remedies. He suggested that I call without the patient's knowing that I was a physician and studying the case without asking for symptoms after the stereotyped medical fashion.

This, owing to the rule I had laid down, was very easy for me. I went to the house, rang the bell and was admitted to the drawing room, where I was received by a very thin woman who did not appear to know my errand, so I told her of the note that had been left at my office. She seemed to be slow in understanding me—at any rate, for some reason, did not respond very freely, making vague remarks such as "Just so," "A doctor?" "I'll see," indicating that she had not been admitted to the confidence of the person who had asked me to call.

The lady went out of the room and, presently returning, asked me to walk upstairs. I did so and was ushered into a boudoir where sat a girl who but for a slight paleness did not appear in bad health. She was not even in dishabille; but, the older woman having left me with her, it was evident that she was the patient. I was armed with my cheeriest smile, took the girl's hand as a matter of civility, thereby getting her pulse—at least a trifle quicker than normal—beat down by her, said something to make her laugh and saw that her tongue was slightly coated. In this fashion I rattled on, telling her stories and interesting her until I had secured her confidence and a predisposition in my favor. Then I said abruptly:

"But you're not looking very well today."  
Then she told me that her back was troubling her and she slept badly and mentioned symptoms that indicated to me a condition very common and for which there were a number of simple remedies. When I went away I told her that I would send her a box of candied fruit, a few of which I thought she would like every day. Then I left her to have some medicine I intended for her divided between half a dozen real candied fruits and sent them to her with my compliments.

I called again soon and asked the lady who had received me how she had managed to impose upon the young lady that I was not a doctor; that it was important that I should know what story she had told in order that what I should say would tally with it. She told me not to worry about that; she had given a good reason for my calls. I asked her if I was to see the person who had left word at my office for me to treat the young lady, and she said she was away, and would be away several weeks.

By the time he returned I had made love to my patient, and she had responded favorably. Indeed, she sent me to him—a mere form, she said—be being her uncle, to ask for her hand. I did so, announcing myself as the physician he had asked to treat a member of his family.

"Well," he asked, "did you pill the wool over the old girl's eyes?"  
I didn't understand what he meant by the "old" girl, but I replied that I had succeeded admirably. I went on, but when I said something about the young lady he interrupted me.  
"Young lady be hanged! She's fifty-five."  
It came out that the elderly woman was my intended patient, I had given myself away to her at my entrance, and she had taken me to be the young lady, asking her to act in her stead. The girl from pure mischief consented to do so, but there were two of us hoist by our own petard. The two older ones were brother and sister; the girl was their niece, an orphan and possessing a fortune.  
I married her, and she preferred that I devote myself to taking care of her property rather than sending patients candied fruits.  
Probably Not.  
"You do not kiss as sweetly as the other girls I know."  
I said to get the goat of her whom I'm allowed to beat.  
"Oh, don't!" said the maiden, lifting up her eyes of blue.  
"That's funny! All the other boys I go with say I do!"  
—Cleveland Leader.

She handed you that, did she? That was hardly just the thing. That must have roused your dander some and left a little sting. But perhaps the boy she spoke of, we might make a little note. Had not 'kissed the gentle maiden since she had obtained the goat.  
—Houston Post.

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