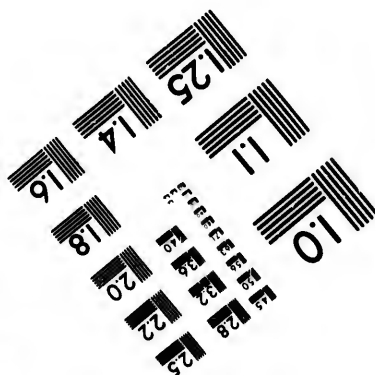
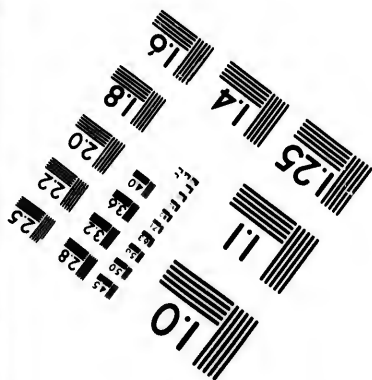
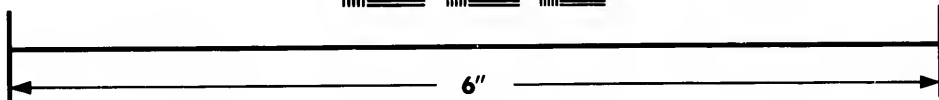
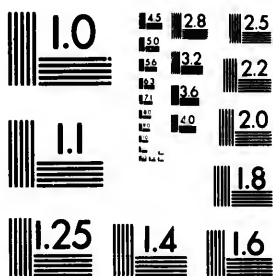


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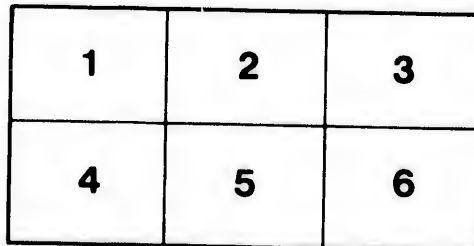
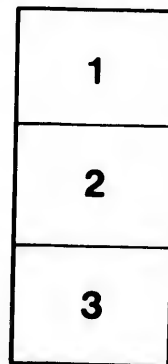
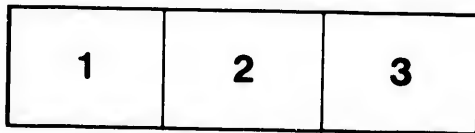
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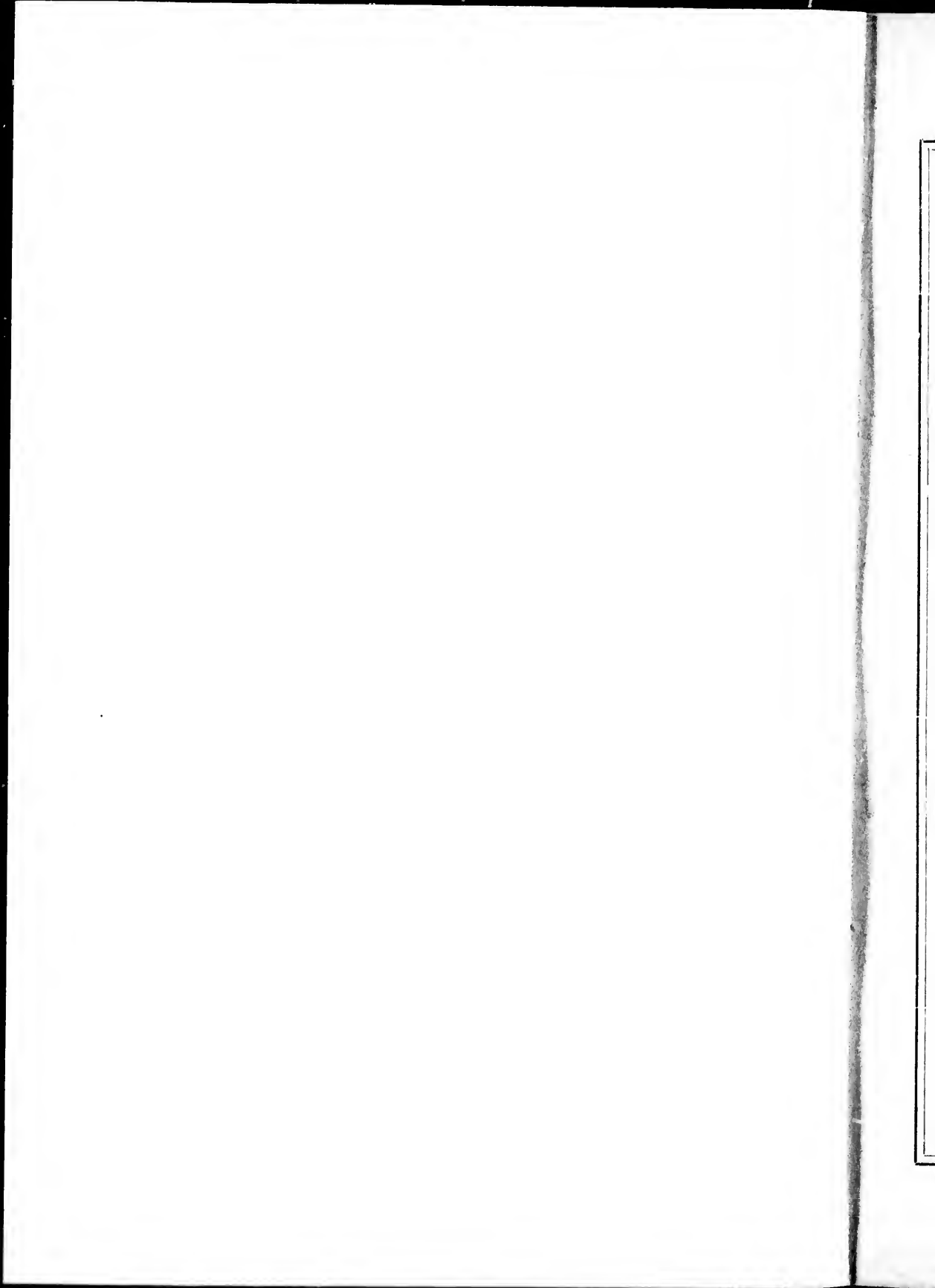
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WHAT SHALL WE DO

—ABOUT—

OUR WATER SUPPLY ?

A CONVERSATION

BETWEEN A CITIZEN AND A DIRECTOR OF THE WATER
COMPANY.

WINNIPEG:
THE MANITOBAN PRINTING CO. (LIMITED).

1887.

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What Shall we do About Our Water Supply?

Why need we do anything?

Because we are behind every city of similar size in Canada in our provision of water for domestic use and for protection from fire.

Because, to fairly supply our city, we should have twenty-three to twenty-five miles of water mains, whereas we have only seven.

Because, except on Main street and a few short lengths of other streets, we are dependent for water upon water carriers or upon fetching water in pails from public pumps.

Because the supply by such means is inconvenient, insufficient and unwholesome, and, if the water is purchased from carriers, expensive as well.

Because, without a proper system of water supply, the sewers cannot be kept efficiently flushed, and will become a source of disease and nuisance from bad smells.

Because, without such a supply, we cannot gradually substitute water closets for the filthy and unwholesome system of privies and cesspools by which the whole soil of the city is being poisoned. In most parts of the city the ground is found to be full of water six to eight feet below the surface, and this water is nothing but dilute sewerage from the overflow and soakage of privies.

Because an abundant supply of water for washing, bathing, house cleaning, sprinkling and such purposes, as well as for manufactories, elevators and small motors, is one of the first essentials to a rising city, and we cannot afford to let Winnipeg be behind other cities in this respect.

Because, though we have an excellent fire brigade, we might have much more efficient protection for the same money, if, instead of depending on steam fire engines and tanks of limited capacity, we had a good fire hydrant, with ample

pressure, forming itself a powerful fire engine, at every 500 feet along our streets.

If anything is to be done, who should do it?

The tendency of the day is for cities to own and operate their own Waterworks. The rates actually charged are usually lower where the works are so owned, but on the other hand it is more difficult for the city authorities to resist pressure to lay mains in streets where the returns will not be remunerative. Perhaps it would have been better for the city to have taken this matter in hand at first. As it is, we have a Company in possession, and we must either buy them out or make such arrangements as will obtain through them what we require.

What are the present arrangements between the City and the Company?

By their charter, the Company have an exclusive right to supply the city for twenty years. In return for this, the Company are bound to supply as much water for the extinction of fires, gratis, as their pumps and pipes will enable them to supply. But they are not bound to provide either pumping power, pipes, or pressure for fire purposes beyond what the requirements of their commercial business of selling water to private persons may render necessary. So that the city is only entitled to use for fire purposes the surplus remaining after supplying the Company's customers, and is not entitled to require extra pressure for fire extinction.

The Company are bound to provide pumps and mains sufficient to supply 25 gallons per head per day, that being the standard adopted in Europe for ordinary domestic use, apart from waste, and from extraordinary consumption such as watering lawns and gardens, manufactories, etc. It is usual to provide a larger quantity on this side of the Atlantic, partly because more water is used for these extraordinary purposes and partly because there is more waste from bad fittings and carelessness of consumers.

The Company are bound to extend their mains on the requisition of the City Council, whenever the latter can show that in each quarter of a mile a revenue equal to 10 per cent. on the cost of the extension can be obtained; which practically

means whenever the Council can produce agreements from consumers to take water at rates which will yield such a revenue. No attempt has hitherto been made by the Council to put this provision in force.

What are the objections to this arrangement as regards fire protection?

The effect is that the Company instead of receiving from the city about \$1000 per mile of mains, for a fire supply, as in other cities, receive no income from this source, consequently they have no inducement to provide more powerful pumps, larger mains, and higher pressure than are required for the domestic supply. But the appliances sufficient for the latter, which are all that the Company are bound, either by the charter or by their commercial interests, to provide, are altogether insufficient for adequate fire protection. For instance, a certain street would require for the ordinary domestic supply 14 cubic feet of water per minute, and a pipe 4 inches in diameter would suffice to convey this quantity. But the efficient fire supply for this street would be 160 cubic feet per minute, or eleven times as much as before; and the pipe for this would have to be 12 inches diameter. Consequently a system of pipes carried out under this arrangement, though useful for filling the fire tanks, and for giving some additional supply in case of fire, cannot supersede the expensive steam fire engines, and as the city grows will entail still larger expenditure upon the fire brigade.

How came the City to make this undesirable arrangement with the Company?

At the time the charter was granted it was not contemplated that it would be necessary to supply a larger population than about 10,000, at any rate for some years. To protect the city, with this small population, very much scattered over a large area, by the "direct hydrant" system, that is with large pipes and high pressure, without the intervention of "steamers," would have added greatly to the cost of the works, and would have required a large contribution from the city, in hydrant rental, or otherwise. It no doubt appeared at the time to the city authorities cheaper to use the steamers and obtain water for them gratis, than to pay hydrant rent.

But the circumstances have very much changed, and with the present prospect of Winnipeg becoming quite a large city before many years are over, some better arrangement has become a necessity.

Why not wait at any rate till the City has power to buy the works compulsorily, when the Council can revise the means of fire protection as may then seem best?

Because the Company, for their own interests, must make considerable extensions of their mains, and if they did not do so of their own accord may very likely be called on to do so under the compulsory clause of the charter. In making these extensions the Company are not required, and cannot afford, to lay pipes of the extra size necessary for the "direct hydrant" system, unless they obtain compensation in some shape. But if these street mains be now laid of the size necessary for domestic supply only, with corresponding leading mains to feed them, should the city hereafter take over the works and desire to establish the "direct hydrant" system, it would be necessary to take up and relay all these mains at very great expense.

What, then, do the Company propose to meet this difficulty?

They propose that to compensate them for the additional cost of extra sizes of mains and additional pumping power, to give the necessary high pressure, the city should levy a "fire protection" rate on the frontage of lots upon streets in which the Company have laid or may lay mains; such rate to be ten cents per foot on occupied and five cents per foot on vacant lots. The Company represent that this method is more fair to the citizens than a fixed hydrant rental, paid out of general taxation, because the latter would tax all citizens for protection enjoyed by only a portion, and because those who actually receive the benefit should pay for it. They also represent that this method makes the compensation to the Company in part proportional to the number of houses actually protected, as seems reasonable. They think it fair that owners of vacant lots should pay something, because the provision of water supply and fire protection in front of a building site adds something to its eligibility and value, and efficient fire protection in any case should lead to some saving in insurances.

With regard to the domestic supply, how has the arrangement between the Company and the City affected the extension of the mains?

The surrender by the Company of any hydrant rent or other contribution towards the cost of extension has been very prejudicial to the progress of the Company's works. Under the customary arrangements the payment of hydrant rent secures to the Company some return, at any rate, upon the outlay of capital, and helps them to wait for the gradual growth of revenue from private consumers. In the case of our Company they have been entirely dependent upon such growth for any return, and the slow increase of consumption upon the mains has not hitherto encouraged them to further outlay in this direction. Winnipeg is an unusually scattered place, and the small number of houses per mile of street makes it necessary that a large proportion of householders should become consumers within a short time if any adequate return is to be obtained. Had the monopoly granted by the charter been adhered to, so that the Company would have had to contend only with the sale of water from house to house by water carriers, there might have been a prospect of securing within a reasonable time sufficient customers to make extensions pay. Unfortunately for them, and as the Company contend in infringement of their chartered rights, the City Council has adopted the unusual and almost unprecedented policy of supplying water gratis, from public wells and pumps, over almost the whole area in which extensions might otherwise have eventually become remunerative. The result is not only to discourage extensions, but that consumers living upon streets where the Company have laid mains already, instead of taking the Company's water, avail themselves of the free supply afforded by the city.

Have not the high rates charged by the Company had much to do with the small growth of consumption?

The rates in a city like Winnipeg must necessarily be high, as compared with other cities, at any rate until the use of the Company's water becomes universal (by compulsion or otherwise), for several reasons. First, the city is unusually scattered, and hence a much greater length of pipe has to be laid to serve a certain number of houses than in cities more

closely built up. Then freight is so high that pipes, etc., cost here nearly double as much as in eastern cities. The pipes have to be laid deeper to escape the frost. The cost of labor and of fuel is higher than elsewhere, so that both in the original outlay of capital and in subsequent working expenses the Company are at a disadvantage. But if the consumption were more general, the Company could undoubtedly afford to lower their rates to some extent, with advantage to themselves as well as to the public.

Then why do not the Company seek to obtain more general consumption by lowering their rates?

The Company have already tried that experiment more than once. A new schedule of rates, much lower than the original one, was issued last year. By that schedule, householders were offered not only an ordinary supply but water for a bath and a wash basin as well, for an annual payment little more, and in some cases, less than they are now paying to water carriers for a barrel or two per week. Since this tariff was issued scarcely any new applications for private residences have been received. Again, last fall, when about to lay a pipe in Donald street, the Company offered a still lower tariff, lower than is paid in Montreal, to every householder in that street who would at once agree to take the water. Only three did so, and that is all the Company have gained by laying about half a mile of main.

No doubt in the course of four or five years, nearly every house on that street will take the water, but the Company cannot afford to wait for people to make up their minds at that rate.

There is another point which affects the Company in trying to obtain fresh consumers by lowering rates. They cannot refuse to give old consumers the benefit of the reduction, and hence, unless the alteration induces general consumption, the result to the Company may be that they supply more water at great cost to themselves and, nevertheless, may receive less total revenue.

What does the Company want the city to do in this matter of domestic supply?

They want to be relieved of the competition of the city in supplying water gratis from public wells and pumps, so that

they may only have to contend with the legitimate competition of the water carriers. But this alone would not be sufficient to enable them to make such a general extension of the system as is necessary to bring Winnipeg up to the standard of other cities and to afford the general supply requisite for health and comfort. Having in view the scattered condition of the city, and the consequent small number of houses to the mile of streets, they consider that it would be too long to wait for the gradual accession of consumers to give them the necessary revenue per mile of main. Speaking roughly, it requires about 100 consumers per mile of main to make the laying of pipes remunerative to the Company. Now, if there were, say, 300 houses per mile of streets, and one-fifth became consumers each year, at the end of two years the company would obtain its fair return. But, if as in most of the streets in Winnipeg, outside of Main street, there are not more than 100 houses per mile, and one-fifth of these become consumers each year, it will be five years before a sufficient return is obtained, and the Company cannot afford to wait so long.

The only way to secure a general extension of the system, and at the same time cheap rates for water, is to make the consumption general, that is compulsory. The Company offer, if this is done, to extend their mains at once to about twenty miles, sufficient for the present population, and to lower their tariff to one which will compare favorably, all things considered, even with cities where the corporation own the water works, as at Montreal and Ottawa.

Is it not hard upon people to compel them to buy what they do not want?

It is not harder, as a matter of principle, to make the use of water compulsory here than in Montreal, Ottawa and Quebec. Indeed, in many cities the owners of vacant lots are required to pay water rates, which is not proposed here (except as to the separate rate for fire protection). Everybody wants water; it is not a question of compelling people to buy what they don't want, but of compelling them to buy from an authorized seller, just as those who want liquors can only buy from a licensed vendor, or those who want drugs from a qualified chemist. People now buy from water carriers; in future they would have to buy from the Company, that is all.

If the city had originally built the water works, or if it hereafter took them over under its powers of acquisition, the city would undoubtedly adopt the compulsory system. Why not, then, start now, seeing that every year which passes and every addition to the size of the city will make the alteration more difficult in the future?

But it is proposed, not only to make the use compulsory, but to fix a price that people must pay?

That is as much for the protection of the consumer as of the Company. The Company has power, under its charter, to charge very high rates. It would not be fair to compel people to take water unless the price was fixed at a reasonably low figure. Nor would it be fair to compel them generally to pay more than it costs them now to buy water from the water carriers, and the proposed rates have been fixed on this basis. A householder who buys water now can scarcely do with less than a barrel a week, which costs him \$13 a year. The Company propose to charge for houses containing—

1 room	\$ 5
2 "	6
3 "	8
4 "	10
5 "	12

so that residents in such houses would pay less than at present. Residents in houses of six to eight rooms usually pay a good deal more than \$13 a year for purchased water, probably from \$20 to \$30, in some cases much more.

Now, the proposed compulsory rates are, for—

6 rooms	\$16
7 "	20
8 "	24

so that, practically, nobody would pay more than he does now, and he would get a much larger supply, fresh every hour, of good filtered water.

Is it not hard on the water-carriers to interfere with their business?

Not so hard on them as for the city to compete with them by allowing anybody who chooses to carry away water gratis

from the public wells, but there will always be a considerable and growing zone of the city outside the districts supplied by the Company which will give scope for the water-carriers. And the Company will help the water-carriers to supply these districts by allowing them to take water from the Company's mains at a small charge, if they do not take them into the Company's employ for the express purpose of supplying these outlying districts, as they probably will.

But how about the poor people who now carry away their water gratis from the public wells?

The city has undoubtedly got into a difficulty by sinking these wells. Even if they had not been hampered by an agreement with a company, giving the latter exclusive rights, the question would have arisen some day; it will arise anyhow should the city ever take over the works. The real question underlying the difficulty is this; should any portion of the citizens be supplied with water gratis, out of public taxation, any more than with any other necessary of life, such as fuel? The answer surely must be, all or none.

Inasmuch as water rates, for this class of property, are usually paid by the owner, not the tenant, the effect of relieving the property of water rate must be one of two things. Either the tenants pay less rent than they would do if water were laid on, in which case the city is practically paying part of their rent; or as is more likely to be the case, they pay the same rent, in which case the city is practically subsidizing the landlord, by relieving him of a charge he would otherwise have to pay.

Probably a large number of those who now avail themselves of these public wells are too independent and public-spirited to object to pay a fair sum for water brought conveniently into their houses, thus saving the trouble of fetching water in all weathers from the pump, and the danger of drinking unwholesome and polluted water.

With regard to the very poor and the squatters living in mere huts in certain parts of the city, as the Company do not propose for the present to extend their mains to those parts, the question of the wells there might be left open for the present. Even where the Company do lay their mains, they would not object to the wells remaining open for a time, provided the compulsory system be adopted, so that persons living

off the streets containing mains might continue to obtain water from them. The Company are convinced that the city will ultimately have to close these wells for sanitary reasons before long, and would not object to their remaining for the meantime if the Company are protected from direct competition on their own mains.

But even on the better streets where the Company purposes to lay its mains there are a few houses whose occupiers are too poor to pay for water, and now get it from the public wells. How do you propose to deal with them?

If the water rate is levied, as it should be, on the owner, it will not necessarily affect the occupier. A man who owns a house and lot on one of the better streets can afford to pay the low rates proposed. If he lets to tenants he may or may not raise the rents. In the latter case the poor occupier cannot suffer; if the rent is raised and he cannot afford to pay for the consumption of water laid in, he can move to a part where the pipes are not laid and no water rate is payable, just as he would have to do if rents were raised through increased value of the site or for any other reason. A great measure of public utility can seldom be carried out without inconvenience to a few for the benefit of the many.

There is another plan that might be adopted. In certain cases of poor class property, exemptions might be granted by arrangements between the city and the company, the occupiers taking water from a stand pipe supplied by the company; the city paying for the water so used. The advantage of this would be to bring clearly before the council and the citizens the real meaning of the free wells system, viz.:—that it is supplying a certain class of the citizens with a necessary of life at the expense of the whole body; and further that this ultimately resolves itself into a grant from the general funds to the owner of the property on which the persons so aided reside.

Why do you say the city will ultimately have to close up the wells for sanitary reasons?

Because these wells derive their supply from one of two sources—the water which saturates the clay soil immediately under the city, or from the subterranean reservoir which

supplies the flowing wells, The ordinary subsoil water in this city is profusely contaminated with sewage matter, the overflow and soakage from privies and cesspools; so much so that in excavating trenches for water pipes and sewers, the water which percolates into the openings is offensive and sickening to a degree. Any water derived from the strata above the "hard pan" is more or less in communication with this polluted subsoil water, or dilute sewage, and is totally unfit for use, in fact poisonous.

The water from the "flowing wells" itself liable without the greatest care to get mixed with the poisonous subsoil water, is besides loaded with salts to an extent injurious for habitual use. It contains according to a recent analysis 70 grains of dissolved matter to the gallon, or as much as many professed "medicinal" mineral springs. Of this about 62 grains are mineral salts, and about 8 grains organic matter and loss.

The mineral salts include 20 grains of Epsom salts to the gallon and 14 grains of sulphates of soda and potash, besides a large quantity of carbonate and sulphate of lime. The continued use of such water tends to produce disorders of the bowels, kidneys and bladder, and, in fact, does frequently cause immediate diarrhœa to new comers.

But I thought the deep well water was generally acknowledged to be better than the Assiniboine water?

That is a popular delusion, based partly on a prejudice against river water in general, and partly on the bright sparkling appearance of the deep well water. But scientists know that the very water which appears most excellent to the eye and to the taste is the most dangerous to health. The proof of the pudding is in the eating. While it is certain that the deep well water produces diarrhœa in those unaccustomed to it, and probable that it is responsible for more remote and serious disorders, no evil results have appeared from the Assiniboine water during the three or four years it has been constantly in use, as, for instance, at the Queen's Hotel, and by the engineers at the pumping station, as well as by numerous private individuals who have used it habitually for years. The fact is, the Assiniboine water contains less than two thirds of the solid matter dissolved in the deep well water, and in more wholesome forms, for instance, carbonate of magnesia instead of epsom salts.

But is not the Assiniboine River liable to pollution from the washings of the soil, manure thrown into it by the farmers, and so forth?

The pollution of rivers by throwing in manure, etc., is forbidden under penalties by statute, and the Company intend strictly to enforce this prohibition. All rivers receive a certain quantity of organic matter from their banks, but it is found by experience that natural processes, aided by the great dilution to which this matter is subjected, purify the water in a short space, so that nothing but extraordinary pollution, such as the actual sewage of a town flowing into a river affects its wholesomeness. Were it not so thousands of towns and cities would have to be abandoned, because no other source than river water is open to them for a supply.

London, the largest city in the world, with 4,000,000 inhabitants, is mainly supplied from the River Thames. Although the valley of that river has about 1,000,000 inhabitants above the intakes of the water companies, yet by keeping the town sewage out of the river, and that only partially, the water is preserved so wholesome that London has a lower death rate than almost any other large city. Again, Calcutta, a very large city, is now supplied with water from the River Hooghly, which drains the densely peopled plains of Lower Bengal. The river water is nearly as thick as pea-soup at certain seasons before filtration, but nevertheless there has been a most remarkable improvement in the health of the city since the river water was substituted for the former supply from wells and tanks.

Numerous cities in Canada and the United States are supplied from rivers much more subject to pollution than the Assiniboine, which has not, and will not have for many years to come, anything like as large a population or so great an area of cultivated land within its water shed, as those rivers have.

But is not the mud contained in the Assiniboine water at certain seasons a great drawback to its use?

Certainly, if it is allowed to remain in the water and delivered to the consumer. But the Company undertake to erect filtering apparatus of the latest improved type, which has been successfully used to filter the water from rivers more

muddy than the Assiniboine, and will deliver the water pure and bright at all seasons.

The original presence of the mud does no harm but rather good. It is the surface soil washed off the ground by rains and floods and is well known to be itself an excellent deodorizer and purifier of noxious matters.

But why should a man who prefers to drink well water be compelled to drink river water?

Nobody proposes to compel him to drink good water if he prefers to drink bad. Out of the average daily consumption per head in large cities, of 50 or 60 gallons of water for all purposes, only about one quarter of a gallon is actually drunk as a beverage. Anyone who prefers to send and get water from a pump to drink can do so. He still has all the 50 or 60 gallons for other purposes in return for his water rent.

Is there no other source of supply available?

Practically none. The flowing well water is unwholesome as already stated and besides is too hard for domestic purposes generally.

Borings have shown that underneath the water bearing stratum is a magnesian limestone rock, beneath which any water found is likely to be still more highly mineralized than that above it. Any possible sources of supply from lakes, such as Lake Manitoba or Lake of the Woods are so distant that the cost of a line of pipes would be quite prohibitory, at any rate until the city has five or six times its present population.

What is the system on which the Company proposes to fix the rates?

It is proposed to charge a fixed sum for each house according to the number of rooms, that being considered the best available measure of the quantity of water used. This is for the ordinary supply to one or more taps. Baths, water closets etc., would be extras, for which people would only pay if they chose to have them. Many different systems are in use in different cities; in Quebec a percentage is charged on rental, in Montreal the charge is on the assessed annual values, in Ottawa it is on the assessed capital values. There are objections to all these plans in the case of Winnipeg. Thus rents

are at present in a fluctuating condition, and are likely to rise in the near future. A rate fixed on rental on the basis of present rents might prove onerous as rents regain their normal figure. If capital value be taken, it is found that sometimes poor frame houses stand on valuable sites, and a rate based on the total assessment (as in Ottawa) would press unduly on such houses. On the whole, the system of charging by number of rooms seems the most equitable, and it is also that provided by the company's charter.

How do the rates proposed by the Company compare with other cities?

If Montreal and Ottawa be taken as a standard, very favorably. The pumping for these cities is done at Montreal partly, at Ottawa wholly, by water power which lessens working expenses very materially. Materials and labor are also cheaper. Therefore if the City of Winnipeg owned the water-works, the rates should be somewhat higher for houses of similar class here than there. Moreover these cities charge water rates (at a reduced tariff) on vacant plots, which naturally enables them to charge lower rates for houses.

Assuming that the annual value of a frame house and lot may be taken for assessment at ten per cent. on the capital value, and fixing an average value for houses of a certain number of rooms, we find the comparison works out as follows:

No. of rooms.	Assumed capital value.	Assumed annual value.	Montreal rates.	Ottawa rates.	Proposed rate for Winnipeg.
3	\$ 800	\$ 80	\$ 8 75	\$ 8	\$ 8
4	1,000	100	10 25	10	10
5	1,300	130	12 50	12	12
6	1,800	180	16 25	14	16
7	2,300	230	20 00	16	20
8	3,000	300	25 25	18	24

It will be seen that the proposed rates are, if anything, lower than Montreal, and only a little higher than Ottawa, where the cheap water power and the taxing of vacant lots account for the difference. The Ottawa tariff is, perhaps, a little too favorable to the larger houses, which are charged much less in proportion there than the smaller ones.

How do you propose to charge stores and offices?

When part of a dwelling house is used as a store or office by the occupier of the whole house no special charge would be made.

When stores or offices are rented separately they would be charged for at a moderate percentage on the rental value. The company suggest the following as a fair scale. It is very much lower than the charge at Montreal, as will be seen; in that city the cost of the water works system is largely borne by the storekeepers, for the benefit of other consumers, which seems hardly fair:—

Rental value— not exceeding	Water rate, Montreal.	Winnipeg.
\$ 100	\$ 6	\$ 6
200	10	8
300	14	10
400	18	12
500	22	14
600	26	16
700	30	18
800	34	20
900	38	22
1,000	42	24

How is it proposed to collect the rates?

It is proposed that the fire protection frontage rate should be collected annually by the city authorities with the city taxes, the Company allowing the city a certain percentage for the extra labor.

The water rate would be collected quarterly in advance, either by the city authorities under a similar arrangement as the frontage rate, or directly by the Company's officials as might be agreed.

Are the rates to be paid by owners or occupiers?

The frontage rate would be payable by owners who receive the chief benefit from fire protection. The water rate would also be best levied upon owners, who can either recover it directly in additional rent from their tenants or can arrange with their tenants to pay the rate and deduct it from the rent, the owner remaining always responsible to the Company.

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What if the owners refuse to put water fittings into their houses?

That is one of the reasons for laying the rate upon owners rather than occupiers. If the owner has to pay the rate he has an inducement to put in the water fittings, without which he cannot get his tenant to repay him for the use of the water. After a short time, the use of water will become habitually included in the rent, and the owner will receive more in increased rent than will pay him for cost of fittings. In fact the provision of water generally within a certain area will add much to the demand for houses in that area, as after the experience of the convenience of water fittings tenants will not willingly rent houses without them.

If the rate were levied from the tenant a difficulty would arise that the owners might refuse to put in the fittings, and the tenant would either have to do it himself or get no benefit from the payment of water rate.

Will not the expense to the owner of putting in water fittings be a great difficulty?

It is only the extra luxuries of water closets, baths, etc., which are not compulsory, that cost much. The company lay the service pipe up to the street frontage line at their own expense. The cost of taking the pipe into the house, and providing a tap and sink need not in most cases exceed \$10 to \$20. In the case of artizans and others living in their own small houses to whom even this expenditure might be burdensome, the company would be willing to put in the fittings at their own expense at first, recovering the amount by say, four quarterly instalments, with the water rate.

How can you lay the water on to houses on streets where there are no sewers?

Out of 13 miles of new mains which the company now propose to lay, there are already sewers for 8 miles of street, and there are sewers on nearly all the streets on which mains have previously been laid. The remaining five miles would for the most part require only inexpensive pipe drains, of small diameter, and it is very desirable that these streets which have a good population should now be sewered. But although

water closets cannot be introduced till sewers are provided, there is no reason why water should not be laid on in the meantime for ordinary household purposes, such as drinking, cooking, washing, etc. The people have to use water already, they may as well get it from the company as from water carriers or public wells. Till sewers are provided they could dispose of slopwater just as they do now.

Will not the services be continually frozen up, especially in frame houses?

This is a difficulty which has been much exaggerated. A certain number of services get frozen everywhere, if there is frost in winter, but it is doubtful whether in comparatively mild climates the percentage is not actually larger than in severe ones, because more precaution in laying and protecting pipes, and more care by consumers are taken when the danger is evident. In Ottawa about 5 to 10 per cent. of the services seem to be frozen every winter. The thermometer there ranges to 40 below zero. In London, England, where it scarcely ever gets down to near zero, few householders escape a "freeze up" at least once during a winter. In Winnipeg, on the contrary, very little trouble has hitherto been felt, and with proper care this danger may be generally avoided. A frame house without a cellar is in some respects actually more favorable than a brick house with a cellar. The ground under the house is protected by the floor from the frost getting far into the ground, and if the pipe be brought up under the house it is not likely to freeze outside. Inside it will not freeze, if properly protected, and moderately near a stove. If no stove be burnt at night, then the water should be turned off and let out of the pipes every night, which only requires the turning of a key fitted to a proper stop and waste cock.

Of course a few services will freeze up occasionally with every care, but this is nothing to the convenience and comfort of having water in every house. In such a case the consumer can always get water from a neighbor.

Is not the idea of compulsion for the benefit of a private company likely to meet with much opposition?

Not from those who are intelligent enough to perceive that the benefit is quite as great to the consumer, who is

insured a convenient water supply at a cheap rate, which it is clear cannot be provided except by general, that is, compulsory use. If it were left to the choice of individuals whether they would pay for such appliances as street paving, foot walks, or sewers in front of their residences, how long would it be before everybody agreed to join in providing them? There must be compulsion, unless those citizens who are willing to avail themselves of the water supply provided are to continue to pay not only for themselves but for their neighbors. Besides, it is becoming absolutely necessary in the interests of health to pave the way for the abolition of the privy and cesspool system in the more thickly populated parts of the city. The first step is the introduction of water into the houses. Water closets will soon follow; and when these have become pretty general the way will be cleared for the council to require the minority to accept them, and thus do away with a terrible source of danger.

Suppose the Council do not see their way to adopt the Company's proposals, what is the alternative?

In that case the best thing the Council could do would be to buy out the Company and adopt the compulsory system themselves which would make the operation quite safe from the financial point of view. It is clear that the Company having laid out a large amount of capital on the faith of the exclusive rights granted them by the charter in consideration of their resigning the large revenue they would have derived from hydrant rents, cannot allow things to go on as they are. Failing such an arrangement as the Company have proposed, or the alternative of the city taking over the works, the Company would obviously be compelled to require the public wells to be closed, or compensation given them for the loss of custom they have sustained and are sustaining, and for the infringement of their charter.

Is it not a serious responsibility for the Council to bind the city to the compulsory system in perpetuity?

The city has the right to take over the works by arbitration in 1891, and if they found the compulsory system not to work well could then take it into their own hands; or if the Council deferred their right of acquisition for five years,

probably the Company would be willing to limit the period during which compulsion should be in force, to say ten years.

If the Company's proposals were accepted what guarantee would the city have that the Company would extend the works in the future to keep pace with the growth of the city?

The charter already gives the necessary power to the Council to require extensions whenever a revenue of ten per cent. on the cost can be shown. Under the compulsory system the revenue to be derived from any extension would be accurately ascertained, and this power put in force. But under the compulsory system the Company would be ready in their own interests to extend their works wherever a reasonable number of consumers could be found, simply because it would pay them to do so.

Is the Company in a financial position to carry out such an arrangement as is contemplated?

The concern has been taken hold of by strong financial people in London, who have already found \$350,000 to pay off all the old liabilities of the Company and provide for the seven miles of additional mains proposed to be laid immediately.

In the event of the proposals now before the Council being accepted, they propose to find \$150,000 more to carry out the further works contemplated. And in that case there will be no difficulty in obtaining through them the necessary funds for future extensions, since the arrangements with the city will make a fair return upon such investments secure.

