

# IT IS NOT A BIT TOO SOON

## To have that Photograph made to send him at Christmas.

'Phone 768.

THE HOLLOWAY STUDIO, LTD.

Corner Bates' Hill and Henry Street.

### Report on Improvements to Water Supply & Waste of Water, Oct. 30th, 1914.

St. John's, Nfld., Oct. 30th, 1914. The Municipal Board, St. John's, Newfoundland, Mr. W. G. Gosling, Chairman.

Dear Sirs:— I have been instructed by your Board to make a study of the water supply of St. John's, with especial attention to supply lines and distribution system.

This investigation was instituted because of the dangerous shortage of supply and lack of pressure in many parts of the city during cold winter weather and other times of unusual draft, and of the necessity during fires of resorting to the expedient of cutting off the supply from certain parts of the city in order to give adequate quantity and pressure at the fire.

The conditions have resulted in many ways, both direct and indirect, in serious inconvenience and expense to the consumers and they constitute a serious menace to the entire city.

The main conclusions resulting from my study of these conditions are first, that a large part of the water flowing through the conduit to the city is wasted; and second, that the pipes, both supply mains and distribution system, are entirely inadequate in capacity.

In view of these conditions it is physically impossible with the present equipment to provide proper supply and pressure. I have had the opportunity of seeing these conditions at close range and wish to record my opinion that the City Engineer and his staff have done most valiantly in maintaining the service as well as they have.

Investigation, however, has been commenced with a view to locating and reducing the waste of water, and the matter of adequate capacity of the supply mains and distribution system has been thoroughly studied and the results thereof are embodied in the report below.

#### CONSUMPTION OF WATER.

Up to the time when my investigation commenced there had been no measurements made of the quantity of water being delivered to the city. A weir was therefore built in a suitable position in the basin and measurements taken thereon covering a period of about a week. These

1891	25,738
1901	29,594
1911	32,292

From the records of the City Engineer's Office, the number of water services in the city are approximately as follows:

Year.	No. of Services Jan. 1st.	No. of New Services Added.
1906	2,309	86
1907	2,335	145
1908	2,540	199
1909	2,640	129
1910	2,769	131
1911	2,900	130
1912	3,046	146
1913	3,277	173
1914	3,450	100
To Date	3,550	approximately to date.

This is an increase of somewhat more than 50 per cent. in the number of services in a decade.

With the enormous waste of water that is going on continually it is difficult to predict with confidence, what the consumption will be even a few years in the future. The following points all have an influence thereon. The rate of increase of the total consumption of water probably does not correspond to the rate of increase of the population. The legitimate use of water probably increases in about the same proportion as the increase in the number of services.

If the large waste of water is permitted to continue without decided restriction, it is likely to increase as the distribution system is extended. So little intense study has been given in the past to the problem of the detection and elimination of waste, that it should be comparatively easy to make a fair reduction in the amount thereof. The difficulties of making a large reduction in the amount of

measurements gave the rate of flow throughout the twenty-four hours. They indicate that during that period of a week the average rate at which the water was flowing through the basin to the city was 5.3 Million Imperial Gallons per day which represents a per capita of 166 Imperial Gallons per day based on the total population or about 300 Gallons per capita per day based upon the population connected with the distribution system.

This rate is obviously excessive, far and away beyond the requirements of British and other European cities and even greatly in excess of the use in American cities where the quantity of water supplied per capita is generally greater than abroad.

The measurements of the water in the conduit to the city during the week of test was 5.3 Million Imperial Gallons per day. The minimum rate was 4.7 Million Imperial Gallons per day. It is reasonable to suppose that there is very little legitimate use of water between midnight and 5 o'clock in the morning; if the distribution system were tight the flow of water through the conduit to the city should during those hours reduce almost to nothing.

The best of systems are never absolutely tight and there may always be a reasonable amount of legitimate use of water even during those hours. The flow during those hours therefore cannot be expected to stop entirely, but should be only a small percentage of the flow during the day-time. From the maximum and minimum rates of flow given above it is seen however that the water flows through the conduit to the city during the dead hours of the night at 30 per cent. or more of the rate at which it flows during the day.

The obvious conclusion from this is that a large quantity of water is being wasted all the time. There are but few manufacturing or commercial establishments that consume any considerable quantities of water regularly at night, and it is therefore probable that the waste is constantly going on, day and night, at a rate somewhat approaching the observed night rate flow.

The population of the city is given by the Colonial Secretary as follows:

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1911	32,292

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This waste is formidable. While entirely possible, therefore, the assumption of a large figure for this reduction, as a basis for the design of the supply mains and distribution system, is too optimistic when satisfactory service and fully adequate fire protection are the important issues.

A consideration of all these facts and conditions leads me to the conviction that provision should be made at the present time, by an annual average supply of 6.0 Million Imperial Gallons per day.

It is important to emphasize the fact that if a fair reduction in the waste is not made, the term of years through which this amount will give perfect service, may not be long. On the other hand if the measures taken for the restriction of waste are vigorous, and a large reduction is secured, this amount will serve the city well for many years to come.

#### CAPACITY OF SYSTEM.

The demand for water is not constant at all times. Some months are certain to show a monthly average greater than the yearly average. Some days are certain to show a greater demand than the maximum monthly average. And the rate of demand at certain hours of the day is greater than the average rate for the day.

Taken in a broad way experience shows that the maximum draft of water for a period of a day exceeds the annual average by as much as 50 per cent. Considering the excessive waste of water in St. John's during freezing weather I consider this 50 per cent. margin is none too great to allow. The carrying capacity must be made for the maximum rate.

In addition to the margin that must be allowed on the daily rate over the annual average rate, provision must be made for the fluctuations in rate at different hours of the day and night and also the large increase in rate that may be demanded in case of fire.

Adequate protection against any fire in St. John's short of a general conflagration, may be secured with the provision of a rate of 5.0 Million Imperial Gallons per day for that purpose. The maximum rate of draft is therefore much greater than the average rate and even much greater than the maximum daily rate. For St. John's the above basis indicates that the carrying capacity of the system should be about 15.0 Million Imperial Gallons per day. In order to give my falling satisfaction in quantity and pressure the system must be so designed as to be able to deliver water up to this maximum rate.

#### ARRANGEMENT OF SYSTEM.

The supply mains from the basin to the city, if no service reservoir is provided in or near the city, must have the capacity just mentioned, which is 2.5 times the annual consumption to be provided for. Some of the cost of this excess capacity may be saved with no disadvantage to the service, if a reservoir is used close to the point of drafts, combined with pipe-lines smaller in size than would be required without it.

Such a reservoir would be connected with the main supply lines and the distribution system by means of a pipe of suitable capacity. Its function would be to store water from the main supply when the demand in the city was less than the carrying capacity of the supply mains, and to furnish water to make up the deficiency whenever the demand exceeded the carrying capacity of those mains.

The capacity of a service reservoir should be great enough to provide available storage for the amount by which the maximum hourly rate during the day exceeds the average for the day, plus the large amount that may be required quickly at any time in case of fire.

#### FUTURE ADDITIONAL SUPPLY.

At some time in the future, the present sources of supply in Windsor Lake and adjacent developed areas, will be insufficient for the growing needs of the city. There are several other lakes and drainage areas near or adjoining that of Windsor Lake. If these are at a high enough level, they may when needed, be diverted into Windsor Lake in order to increase the supply. No information is at hand as to the elevation of these other lakes. In anticipation of future need, the city should secure this information at the present time, by survey if necessary, and should then acquire the right in water and lands of these drainage areas which could be economically used to supplement the present sources.

#### CAPACITY OF CONDUIT.

The upper part of the conduit leading from Windsor Lake to the basin, is a concrete channel of large dimensions for a supply of this size, with a width of 4 feet and a depth of 6 to 7 feet and a slope of 1 foot per 1,000.

The new screen house and gate chamber is located at the lower end of this large upper conduit at a distance of 3,000 feet, more or less, from Windsor Lake. From this structure the water flows through a concrete conduit with a cross sectional area of 7.4 square feet laid with a minimum slope of 2 feet per 1,000.

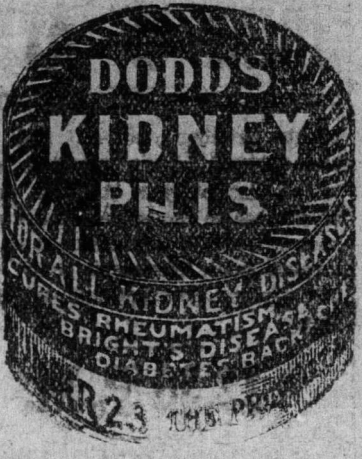
The entire conduit is therefore capable of carrying from Windsor Lake to the basin a quantity of water far in excess of that now being used, or of that which may reasonably be drawn from the present sources. (To be Continued.)

#### A Medicine That Prolongs Life.

It builds up a run-down system. Creates a new lease of life. Drives out everything that causes disease; purifies and cleanses your whole machinery. Rheumatism, kidney and liver troubles is removed. You are made over again. You will eat and feel better. Now is the time to take a tonic. Just you try it. Sold at all drug stores.

#### Russians Capture 18,774 Men.

Petrograd, Nov. 7.—The left wing of the Russian army, in engagements taking place between October 23 and November 4, on the front in the vicinity of Chacow, too prisoners 271 officers and 18,774 men of the enemy.



When visiting Water Street will do well to view my window, then come in, when I will have the opportunity of Proving the Price far below the Quality. Stock Comprises MEN'S, WOMEN'S & CHILDREN'S WEAR, together with a big range of special clearing lines too numerous to mention. GEORGE KNIGHT - - 164 Water Street.

### THE PUBLIC

When visiting Water Street will do well to view my window, then come in, when I will have the opportunity of Proving the Price far below the Quality. Stock Comprises MEN'S, WOMEN'S & CHILDREN'S WEAR, together with a big range of special clearing lines too numerous to mention. GEORGE KNIGHT - - 164 Water Street.

### MOIR'S

Sounds Like More, Tastes Like More, More Centers, More Coating, More Popular, More for the Money, Many More More's. But ONLY ONE MOIR'S When talking of Chocolate.

### Waterproof Coats at Rainy Day Prices.

"THE rain it raineth every day" or nearly every day when dreary November comes along. Don't wait until you've had one good drenching and laid the ground-work of a heavy cold, but come at once to our outfitting department and choose a good, serviceable, weather-proof Water-proof Coat, as a protection against both wind and rain. We have a very comprehensive stock of Water-proof Coats for Men and Women, in all sizes, and in many different colors and weights; all these Coats are really good values, and each has been reduced considerably to clear. Also selling at far below usual prices a special line of Men's Raglan Coats, in different textures, well cut and perfectly tailored. If you want to keep dry, come to the U. S. Picture & Portrait Co.

### New Room Papers!

SPECIAL PURCHASE. Newest designs in Room Papers, including range of Papers usually sold at 40 and 50 cents for only 22c. and 25c. JOB LINE OF American Papers with Borderings to match. Paper and Borderings the same price, 12 and 15 cts. Robert Templeton.

This information was given out in Petrograd to-day. This information was given out in Petrograd to-day. In addition to these prisoners the Russian forces captured three howitzers forty pieces of artillery, thirty-eight rapid fire guns and a large quantity of material for the manufacture of cartridges.

### Mine Own.

My concertina is a sobs and shakes, for it's in poor repair, and neighbors say the noise it makes would cause a saint to swear. My neighbors come, on protest bent, when I on it perform: "Why don't you buy an instrument that's up to date?" they storm. "Pianos now are in the reach of even the poorest man, and you might so and buy a peach on the installment plan. Pipe organs, too, on easy terms, are sold most everywhere; why play a thing that squeaks and squeals, and murders every air?" "Because," I answer, "tis mine own, all paid for, long ago; and though it has a beastly tone, that fills the town with woe, I'd rather hear its music and, that keeps me in a sweat, than own the fairest sweetest Strad, for which I'd gone in debt. I'd rather it should make me sore with discords, every day, than have collectors at the door demanding instant pay. The humble whistle, built of tin, by local plumber made, beats organ, puts or violin for which you haven't paid. My concertina seems a crime to folks like you, and yet, I find that music most sublime which doesn't hint of debt."

### Is Your Back Full of Aches All Day Long?

That Stub-like Pain in the Back is Sure Indication of Kidney Trouble. Mrs. Anna Rodriguez writes as follows from her home in Valencia: "For a long time I suffered with falling strength and nagging headaches. My condition grew steadily worse, my limbs became bloated and shaky. I was sallow and thin, felt rheumatic pains, dizziness and chills. I unfortunately didn't suspect my kidneys and was nearly dead when I discovered the true cause of my sufferings. I read so much about the wonderful health and strength that comes to all who use Dr. Hamilton's Pills that I felt sure they would help me. Such measures of health and comfort I got from Dr. Hamilton's Pills I can't describe. They speedily put me right, and their steady use keeps me active, energetic, strong and happy. I strongly urge others to regulate and tone their system with Dr. Hamilton's Pills of Mandrake and Butternut." No greater medicine exists than Dr. Hamilton's Pills for the cure of Indigestion, constipation, flatulence, liver, bladder and kidney trouble. Refuse substitutes. 25c. per box or five boxes for \$1.00, at all druggists and storekeepers, or postpaid by the Carthorpe Co., Buffalo, N. Y., and Kingston, Canada.

Hudson seal coats are trimmed with fitch. The petticoat with a fringed edge is the thing. The string of pearls is worn as much as ever. Suede is the most fashionable evening glove. Very little trimming is used on evening waists. Military effects are seen even in children's clothes. Young girls are now wearing fringed corsets. There is a hint of the return of the one-button glove. The white waist is more favored than waists of color. Butterflies are a favorite motif in inexpensive jewelry. The new evening gowns are aglow with glittering trimmings. Very dark Roman ribbons are among the most beautiful. The new collars are higher in the back and open in the front. Fine cottons are used as much as ever for children's dresses. Various forms of shoulder capes are seen among the new furs. Plain and plaid serge combined makes excellent school dresses. Fashion continues to favor fine Oriental laces and tinsel laces. The newest ribbons are broadened with a stream of metal. Gowns should be selected to match the color of the boot tops.

### FINEST AMERICAN GRANULATED SUGAR, 7c. lb.

200 lbs. SELECTED APPLES. Kings, Wagners, York Beauty, Blenheim, Rib Pippin, Stark. Cranberries, 40c. gall. Bakeapples in Hiss. 20 boxes California Oranges. 50 cases Valencia Onions. BULLDOG and BANNAVALLA TEAS are still going strong. 40c. and 50c. lb. retail. 10 per cent. discount off 5 lb. lots. T. J. EDENS, Duckworth Street & Military Rd.

NECCO CANDIES, 500 boxes just in. Signet Chocolates, Royal Chocolates, Baby Bannanas, Sweet Smokes, Boston B. Beans, Gum Drops, Cocoa Caramels, Acme Mixture, E. V. Corned Beef, Singlet's Spare Ribs, Sperry's Jovis, Hunter's Oatena, 15c. pkg. Lemons, 30c. dozen. Dutch Butter, 25c. lb.