

The Union Advocate.

A WEEKLY JOURNAL

W. C. ANSLOW,

Our Country with its United Interests.

EDITOR and PROPRIETOR.

Vol. XXX—No. 36.

Newcastle, Wednesday, June 9, 1897.

Whole No. 1544

PROFESSIONAL

Law & Collection Office.

C. J. Thomson,
BARRISTER AT LAW,
Commissioner Newcastle Civil Court.
Public Building.
Newcastle, N. B.

Thomas W. Butler,
Attorney & Notary Public.
Collecting and Conveyancing Promptly attended to. Office over T. Russell's Store, facing the Public Square.
Newcastle, N. B.

O. J. McCully, M. A. M. D.

MEMBER, ROY. COL. SURG., LONDON, G. B.
SPECIALIST.
DISEASES OF EYE, EAR & THROAT
Office: Cor. Waterland and Main Streets
Moncton, Nov. 17, 1894

HOTELS.

HOTEL BRUNSWICK,
MONCTON, N. B.
W. D. McWENNEY, Proprietor.

Clifton House.
Princes and 44th Streets
ST. JOHN, N. B.

A. N. Peters, Prop'r.
Heated by Steam throughout. Prompt attention and moderate charges. Telephone communication with all parts of the city.
April 6th 1896.

Intercolonial Railway.
On and after Monday the 7th September, 1896, the trains of this Railway will run daily (Sunday excepted) as follows:

WILL LEAVE NEWCASTLE.
Through express for St. John, Halifax and Victoria (Monday excepted).
Through express for Quebec, Montreal, Accommodation for Moncton and St. John.
Accommodation for Indian River.
All trains are run by Eastern Standard time.

D. POTTINGER,
Railway Office, General Manager.
Moncton, N. B., Sept. 2nd, 1896.

MILLINERY!

Our spring and summer millinery is now open and is really very fine. We have all the latest in fancy hats, sequins, striped gauze, chiffon, ribbons and flowers. Our range of hats and bonnets is very stylish. We have salons in Panama, Milan and Paris and the very latest in Turban, plain and fancy styles.

A new lot of blouses, white, undervests, blouses, boleros, vestings, dress caps and children's headgear just opened.
Trimmings Millinery always on hand or made to order at shortest notice.

LADIES' MOURNING
SPECIALTY.
Mrs. H. A. Quilty,
OPPOSITE SQUARE.
Newcastle, April 12th, 1896.

Tuning and Repairing.

J. O. Biedermann, Piano-forte and Organ Tuner.
REPAIRING A SPECIALTY.
Regular visits made to the northern Counties of which due notice will be given.
Orders for Tuning etc. can be sent to the Advocate Office, Newcastle.
J. O. BIEDERMANN.
St. John, May 6th, 1897.

Pigs Feet in Kegs,
Rhubarb,
Lettuce,
Radish,
Horse Radish 1 doz. in case.
JOHN HOPKINS,
ST. JOHN, N. B.

GREAT EASTERN FERTILIZERS.

FOR GRAIN, GRASS, ROOTS and VEGETABLES.
I wish to inform the public that I keep on hand the Great Eastern Fertilizers which are unequalled in their results upon the various crops grown by the farmer.
Full descriptive pamphlets with testimonials supplied on application. In bags of 100 lbs. Try a bag and you are sure to be satisfied. Those who need these Fertilizers here last season were highly pleased with the results.
W. J. Miller.
Newcastle, April 9th, 1897.

Spring Stock NOW OPEN.

I have just received a new stock of Tinware such as is always in demand by housekeepers. My stock now comprises the following:—
Squabs, Round, Oval and Nestable Dinner Cases, Fancy Bread Boxes, Crockery and Glass, Floor Sifters, Pudding Pans, Cake Pans, Baking Cakes, Egg Beaters, Cake Cutters, Coffee Grinders, Enamelled Grates, Ware, Fish Skimmers, Planchettes, Kitchen Sponges, Fish Forks, Pie Tins, Washington Cake Pans, Mrs. Potts' Hot Irons, Coal Hoops—fancy and plain, Stove Pipes and Brooms, Dumpers and Collars.

Tinware made to order or promptly repaired. Contracts taken for Redding in Iron, Tin, Brass and Steel—Hall and Parlour Stoves, Cooking Stoves and Ranges, Furnaces of improved make promptly fitted up.
Don't forget my new shop is just above the Newcastle Ferry Road.

FRANK MASSON.
Newcastle, May 15th, 1897.

Spring Opening!

New Goods, New Spring Importations &

J. D. GREAGHAN'S.

NEW DRESS GOODS—Novelties.

CARPETS, CARPETS, CARPETS.

Window Curtains, Window Hangings, Blinds.

WALL PAPER, Wall Paper, Wall Mouldings.

FLOOR OIL CLOTHS, RUBS and SQUARES, BRUSSELS CARPETS, Axminster, Velvet

PILES, Moquettes, Scotch Wool Carpets, Tapestry Carpets and Straw

Matting, Sheetings, Bed Coverings and Household Drapery. Men's, Youth's and Children's Clothing, Hats, Caps and Furnishings.

Don't Fail to see our Tapestry Carpets at 29 cts. per yard, worth 48 cents.

WHOLESALE AND RETAIL.

J. D. GREAGHAN.

NEWCASTLE AND CHATHAM.

McALLISTER'S

The Best and Cheapest in town. I am prepared

to sell my stock to suit everybody.

Will quote you a few of my prices.

5 lbs. Dried Apples 25c

2 lbs. good Tea 25c

10 lbs. Barley 25c

10 lbs. Beans 25c

3 lbs. Sausages 30c

3 1/2 lbs. Soda Biscuits 25c

Molasses, per gallon 35c

8 bars Soap 25c

10 lbs. Whiting 25c

White wash brushes 10, 12, 15 to 1.50

Scrubbing brushes 10 to 50c

Brooms 10 to 30c

Flower Pots 5 to 50c

Herring in 1/2 bbls. or bbls.

Call and we can give you prices that take.

JOHN McALLISTER.

Newcastle, March 23.

The CASH STORE.

Big Stock of Clothing now ready for Inspection

More CHILDREN'S SUITS this Spring than ever we had, Cheaper

too. A Good Serviceable suit for boys from 5 to 8,

\$1.75. Better ones at better prices. Just see our boy's suits at \$2.00.

Boy's 3 piece suits all sizes, large variety of patterns from \$3.00 up

If you have a boy, big or small, and he needs a suit, bring him in

and see if we can't fit him at just the price that suits you.

Men's Strong Tweed Suits \$4.50. Men's good Serge suits straight

cut fronts \$6.00. Men's suits at most any price up to \$12.50.

Men's & Boy's Felt Hats, caps, & Spring Headwear.

Ladies Wrappers—\$1.20, \$1.25 and \$1.50.

Ladies Agra Linen Suits \$2.75. Ladies Blouse Waists from 65 cts

to \$1.30. AT THE CASH STORE.

CLARKE & CO.

Newcastle, April 5th, 1897.

Fresh Goods, New Goods.

Just received a lot of Choice Butter in Rolls and Tubs.

Fresh Beef, Hams, Bacon, Sausages, Finest Haddies, Prime

Figs, Dates, Cranberries, California and Messina Oranges, Lemons.

Trilby Soap 6 bars for 24cts.,

call and get a lot of it.

A very good Tea for 15c., 21b. for 25c.

Something a little better 18c., 21b. for 35c.

Beans 10 pounds for 18 cts.

Everything away down in price. Lion Brand mixed pickles

15 cts a quart and cheaper by the gal.

Assorted Jams in 5lb. pails cheap and good.

I have just opened 400 Novels all by the best authors.

I have just received a choice lot of Wall Papers with bordering

to match. All of the latest and handsomest patterns.

Give me a call and see the goods.

GEO. STABLES.

Newcastle, March 8, 1897.

\$38.50 CASH AND

300 Welcome Soap Wrappers

FOR A HIGH GRADE BICYCLE.

Write us for full particulars. Option of Ladies', Gentlemen's or Boys' Wheels.

We have made a Spot-Cash Purchase of a large number of Wheels from one of the Largest

Manufacturers, and offer this Splendid Opportunity to everybody

to own and ride, for a small amount.

A Strictly First-Class, Up-to-Date Wheel, the equal

of any High-Grade Bicycle in the market.

GUARANTEED.

The Celebrated Morgan and Wright Quick-Repairs, Single Tube 1 1/2 inch Tires, Garford Saddles,

Combination Rubber Pumps, Re-inforced Joints, Dust Proof Bell Bearings, Tool Steel

Cones and Caps, Nickel Plated Handle Bars and Parts, and the Finest Workmanship and

Material throughout.

Buy the famous Welcome Soap and save the Wrappers.

The Welcome Soap Company, St. John, N. B.

General Intelligence.

CUBAN LEADER DEAD.

A MASSACRE IN A HOSPITAL.

HAVANA, May 28.—It is announced that General Castillo, the insurgent leader, was seriously wounded in the breast

in an engagement which took place recently between his forces and the Le

Altad battalion. Fifteen insurgents were killed at the same time.

Key West, Fla., May 29.—Advice from Havana, dated May 26, state that the Spanish forces of San Quintin attacked

a Cuban Hospital at Luna Calabro, Province of Havana, sick and wounded Cubans in the hospital were slain by the

Spaniards, and also two women who were acting as nurses.

The official report published here by the Diario de la Marina and La Lucha says that an attack was made on the

camp of the insurgent leader, Juan Dalgado, but private advice from trustworthy sources prove that the so-called

camp was a hospital, crowded with unarmed and invalid Cuban soldiers.

One of the nurses fought against the assailants in defence of her life, and the other begged for mercy from the Spaniards, crying and kneeling before them,

but were beheaded with machetes. Famine is making ravages in the province

of Matanzas. Both Spaniards and Cubans are perishing. The city of

Matanzas itself is in dire distress. At Cardenas, in the same province, the

depreciation of paper money has reached a ridiculous extreme. Ten dollars in

paper is worth only 50 cents in silver.

The distribution of relief to American citizens here will probably produce a

conflict with the Spanish Government at the \$50,000 voted by the American Congress

to be applied in favor of starving Americans. The Spanish army is

contributing the relief, and this plan is looked upon by the Government as

an involving interference by the United States in Cuban affairs. They say that

the food and money should be given to the Spanish authorities, who would take

care of the distributions.

New York, May 28.—The provisions and medicines for the relief of suffering

Americans in Cuba, for which the Congress has appropriated \$50,000, will be

carried to the island in steamers of the War Line.

Cuban \$5 and \$10 bonds made their first appearance to-day. The issue will

amount to \$1,000,000. The Junta's treasurer, B. J. Gierres, said to-day: "We

have issued these bonds in response to repeated demands for both Cubans and

Americans, who desire to make contributions in small amounts to the Cuban

cause. The bonds will have an interest of 5 per cent, and will be payable

in full within 10 years after the evacuation of Cuba by the Spanish, and begin

to draw interest at six per cent, within one year after that evacuation."

YOU ARE A VICTIM!

Medical Statistics Prove that Eighty Out of Every Hundred are Tainted With Catarrh.

Are you one of the eighty? Foul breath, pains over the eyes, dropping the throat and head, denote it. Have you these symptoms? Dr. Agnew's Catarrhal Powder never disappoints in a cure.

For years I was a victim of chronic catarrh. I had tried all kinds of cures, and had been treated by numbers of physicians, but no cure was effected until I had procured and used Dr. Agnew's Catarrhal Powder. The first application gave me almost instant relief, and in an incredibly short time I was absolutely cured from this distressing and disgusting malady. James Hensley, Dundee, N. Y.—Sold by E. Lee Street.

CUBANS CAPTURE A TRAIN.

THEIR DYNAMITE DESTROYED THE LOCOMOTIVE AND A CAR.

HAVANA, via Key West, May 30.—It is reported from Santiago de Cuba that a Spanish military train from ElCristo to Sonpo was attacked by 600 insurgents.

The train was carrying troops to reinforce the garrison of Sonpo. At the first shots of the insurgents the train stopped and Lieutenant Lafuente, who commanded the Spaniards, ordered his men to fire

upon the assailants, but at that moment several dynamite bombs, which had been previously placed on the track by the Cubans, exploded, killed Lieutenant Lafuente and twelve Spanish privates and wounding thirty-two others. The locomotive and one car was destroyed by the explosion.

The Spaniards surrendered, and the Cubans, after plundering the train and securing a large supply of provisions and munitions of war, burned three maiming cars. Sixty Spanish soldiers and twenty other persons, employees of the railroad and officers of the Spanish Government, were made prisoners. Two hours later they were set free by order of Gen. Calixto Garcia.

The Spanish military commander of Sonpo was afraid to go to the aid of the troops, but waited until they were released and the insurgents were far away.

Then he sallied forth and near the town killed two countrymen, one of them a non-combatant and the other a Cuban of his own forces. He then returned to town reporting a victory over the insurgents.

REMOVED.

My Customers and the public generally are hereby notified that they will find my office and warehouse in the building on the Public Wharf, formerly occupied by John McLaughlin, Esq., where I will keep on hand a full supply of

PROVISIONS

consisting of Flour, Beef, Pork, Ham, Bacon, Tea, Sugar, Molasses, Barley, Peas, Soap, Lard, Bran and Feed, Rolled oats and standard Oatmeal and Cornmeal in bbls and 1/2 bbls, and in an incredibly short time I was absolutely cured from this distressing and disgusting malady. James Hensley, Dundee, N. Y.—Sold by E. Lee Street.

Store on Public Wharf.

J. A. RUNDLE.

Newcastle, Feb. 16, 1897.

Rope.

SALTER BRICK STORE.

Plain and Tarred Manila.

Hemp and Sisal

Rope

From 6 yards to 4 1/2 inches.

Spun Yarns, Marlines, Houslin.

John Ferguson.

Newcastle, May 11th, 1897.

New Goods. New Prices.

I have now in stock Window Screens, Netting, Poultry Netting, Window Screens, framed ready for use, Screen Doors, Royal Dominion Clothes Wringers, Washers, Iron Cages, Ice Cream Presses, Mrs. Potts' Hot Irons, Spring Clothes Pins, Griddles from Ten Poles, Sauce Pans and Stew Kettles, Creamers, Milk Pails, Milk Pans, Water Pails, Wash Bowls, round and oblong, Covered Pails, all sizes, Handled Dish Pans, Covered Bread Pans, etc.

For the next three months I will give a special discount of

Ten Per Cent. for Cash on all my Tinware, Water, Niagara, Star, Perfect and Comfort Cook Stoves. For sale every

J. H. Phinney.
Newcastle, May 8th, 1897.

THIS PAPER may be taken at Geo. Stables, 100 Water Street, Newcastle, N. B. or at the Advocate Office, 100 Water Street, Newcastle, N. B.

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The Union Advocate

Established 1867.
NEWCASTLE, MIRAMICHI, N. B.
WEDNESDAY, June 9, 1897.

Newcastle Societies.

MEET AS FOLLOWS:
NORTH BRANCH LODGE, 17 A. & M., in the Lodge rooms on the evening of the second Tuesday of each month at 8 o'clock.

NEWCASTLE DIVISION No. 45 S. of T., in the Temperance Hall every Thursday evening at 8 o'clock.

COURT MIRAMICHI No. 165 I. O. F., in their rooms, Masonic Hall, on the evening of the fourth Tuesday of each month at 8 o'clock.

NEWCASTLE BOARD OF TRADE, in the room in the Bannan building on the evening of the first Monday in each month at 8 o'clock.

COURT HAPPY HAROLD No. 150 I. O. F., in Foresters' Hall, Derby, on the evening of the 3rd Thursday of each month at 7.30 o'clock.

Editorial Notes.

The Sussex Record ventures the assertion that "every town of importance under the British flag will hold a Jubilee celebration this year." Consequently Newcastle can not be a town of importance as there does not seem to be energy enough among the young men to start a celebration with already some eighty dollars promised towards it. Our only resource seems to be to waive our town on the 22nd June and proceed to Chatham to celebrate one of the leading events of the century.

The question of running the steamer Monticello between the Miramichi and P. E. Island has been discussed in several papers of late, but the latest on that subject is that owing to there being no hope of either Dominion or provincial subsidies being obtained this season the project has fallen through.

In referring to this matter the Chatham World of a recent date, under the head of "The Miramichi Route to Prince Edward Island" says:

"The St. John Globe says there is 'some talk of running the steamer City of Montreal between Chatham and Prince Edward Island. Some gentlemen interested in the project had a meeting Wednesday evening. Something depends on whether subsidies can be secured from the Dominion as well as the provincial governments."

This steamer would be a good one for the purpose, and would make the route a favorite one. But we are not sure that the facilities for handling the freight. What is the use of talking about handling Prince Edward Island freight on a large scale with the present railway facilities? There is nothing but the one horse branch to the inner corner of the Canada wharf, a narrow gauge line, and a maximum weekly, a maximum daily and a maximum hourly consumption, so that double the average would be provided to satisfy present domestic and manufacturing wants. This would indicate that 300 gallons per minute is necessary. Fire protection however calls for more. At least 3 good fire streams should be provided, or say 700 gallons per minute, which with the ordinary 200, makes 1000 gallons per minute the quantity that should be available at any hour of the day or night.

SOURCE OF SUPPLY.
Two possible sources of supply were mentioned to me by your Committee, viz. artesian wells, (of which there are several in the town at present) and "Mill Stream," a brook flowing in a general south westerly direction, at about five miles north west of Newcastle.

The idea in reference to the artesian wells is, to sink one or more in the lower part of the district adjacent to the town, and pump the water by steam power to a reservoir to be constructed on the heights, from whence it would be piped to the consumers.

I had no way of determining with any reasonable degree of accuracy, what quantity of water might be procured from an artesian well in the neighborhood of your town, and the study of the question is one involving a considerable expenditure of time and requiring besides the assistance of an expert in the business of locating and sinking such wells. It is true that the wells already sunk and in use, would probably, if carefully pumped, give some indication of what might result from similar works on a larger scale, but there are certain points in connection with this mode of supply, which induce the belief that even though an abundance of water were procurable, it would be injudicious to resort to this means, where surface water of equal quality, is to be had.

I may mention as an objection to ground water generally, that it will not keep pure in a reservoir, unless covered so as to exclude sunlight, and then it requires a low temperature. Again its being kept not subject to pressure, as when in a Reservoir, is detrimental to its quality, or at all events is a condition favorable to its deterioration.

The perpetual expense of steam pumping, is another objectionable feature. The practicality or otherwise of obtaining a supply from "Mill Stream" was the question I gave most time to when at Newcastle.

I visited the Stream, first, where it is crossed by the Chaplain Island Road. The water looked dark in its bed, but in a tumbler the tinge of brown seemed very slight and as a beverage the water was most palatable. At the place Mr. Fish and I roughly gauged the volume of the stream? Having been told by a farmer who lives in the vicinity, that the stream had at the time of our measurement three times its low water volume I made a corresponding allowance, and also allowed for difference between surface and mean velocity, finally getting a volume of 3375 cubic feet per minute. Afterwards from a plan of the district I estimated the drainage area of the brook, from where "High Bank Brook" falls into it, upwards, at 30 square miles, which at 11 cubic feet per second per acre, the ordinary allowance gives 45 cubic feet per second or 2700 cubic feet per minute. This I take as the actual available quantity and accept this source of supply as satisfactory, so far as quantity and quality are concerned, subject to clogging and to expert analysis of the water.

WATER OF CONVEYING THE WATER.
On the first examination of "Mill Stream" in spite of the fact that the profile along Chaplain Island Road showed a summit between Newcastle and the Stream 150 feet above the latter, it

was thought a depression might be found near the head of the South branch of Bayle's Brook, sufficiently low to enable the water to be carried over it by gravity, from a point on "Mill Stream" near the mouth of High Bank Brook, where the stream is 75 feet higher than at the latter and where there are facilities for further raising it by damming.

But instrumental measurements showed the depression in the ridge had been overestimated and that the scheme contemplated was impracticable.

This being the case, two means present themselves.
To dam the stream at a point seven hundred feet below the mouth of High Bank Brook, and having thus created a water power, to utilize it either, 1st, to pump the water over the ridge, 2nd, to pump it to the town, or 3rd, to pump it over the ridge to a reservoir to be built on the hill above the town and from thence convey it by gravity to the town.

I have estimated for each of these plans and will now describe them. The accompanying sketch may help to explain the question, what would be the position of the dam, and approximately the position of the pipe line.

1st. At the point before named and in place on sketch, the water of "High Bank Brook" will be raised 25 feet by a dam, thereby creating a water power of 60 horse power net, for wheels giving 75 per cent. of the power applied. 20 ft of this power will be used for the purpose of raising the water to the level of the town, over the summit. The reason so high a dam is proposed (giving more power than necessary for pumping) is to diminish the lift.

THE ESTIMATE IS AS FOLLOWS:
Dam, wheel, gates, etc., \$15,000
Water wheel, 8,300
Pump and connections, 2,500
Erecting, 1,000
Power House, 3,880
Raising main 16 inches wood stave 41 miles, 40,000
Same of cast iron, \$73,360
Same of mill cast riveted 20 per cent. less than cast, 45,500
Supply main 12 in. wood stave 11 miles, 10,000
Same of cast iron \$17,900
Raising main 8 in. cast iron mile, 4,500
Distribution pipes 6 in. 30,000 ft., 25,500
Hydrants 50, 3,750
Service pipes to houses 500, 6,000
Add 10 per cent. for contingencies, 11,130
Total, 122,920

The foregoing estimate is for one turbine set of pump and pumping main. But a system of direct pumping, without a reservoir, can not be considered, as the machinery and pumping main are in duplicate, because a break anywhere would completely stop the whole supply to the town. The insurance companies would look very unfavorably on such a system and it is doubtful if there would be any reduction of rates.

There was a large amount of shipping in the harbor last week, among which were thirteen steamers and a number of sailing craft ranging from the ship of upwards of one thousand tons to the small and 4 ft. coaster, all apparently busy engaged in discharging or loading cargo.

King Square looks as if more attention was being paid to it than formerly, the city being gay with tulips and pansies in bloom. The beautiful Young Memorial is situated on this square and attracts the attention of visitors to its architectural design as well as to the heroic death of the young man who gave it its name.

This square with its fine view of the city and harbor is a most desirable place for a residence. The square with its fine view of the city and harbor is a most desirable place for a residence.

Report.

The following is the report of the expert called in by the committee appointed at the public meeting to have the cost estimated of bringing in water to supply the town from the nearest available point. The report is published to enable our townsmen to have the full information before them for consideration prior to calling a public meeting to discuss the report.

Montreal, May 31st, 1897.

W. A. Park, Esq., Secretary Water Committee, Newcastle, N. B.

DEAR SIR,—In accordance with your request by writing and verbally, and in pursuance of the object of my recent visit, I beg to submit my views as to the best means of procuring a water supply for the town of Newcastle, with approximate estimates of the probable cost of same.

The first point for consideration naturally is, what quantity of water is required. You have informed me that you require a supply, for domestic, municipal and fire purposes,—and I presume to some extent for manufacturing as well.

The question, what would your case be a proper quantity to provide for these purposes, is one not very easy to determine. It has been the experience of many places, that the quantity determined on and provided, has almost invariably turned out, in a very few years, to be short of that needed, and the fact is that when people get accustomed to an abundant supply, they continually manage to use it more and more, until they soon begin to waste, so that the per capita rate of consumption, especially in some large cities of the United States, has reached an exorbitant figure.

In England an average of 30 or 35 gallons per head per day, is considered ample for all purposes, whilst here in the United States 60 gallons is thought moderate even in small towns, and over 100 is not uncommon in large cities. It is not the use of water, however, but its waste, that makes such records. And it is waste, that is the thing, when you are arranging for a water supply, that only by limiting at the beginning and persistently carrying out, measures for the restriction of waste, will it be possible to make the quantity provided, whatever that may be, adequate to the future demands of the community.

I consider an average of 50 gallons per capita, per diem, a liberal allowance, for a small town, to cover every use, domestic, manufacturing and municipal, and I have adopted that as the figure on which to base the scale of works on which I propose to estimate, and the population to be provided for I put at 5000 being an allowance for an increase of 2000 over the existing population, 3000 by 50 gives 250,000 gallons as the daily average quantity required during the year; this if evenly distributed through the 24 hours would equal about 175 gallons per minute, but wherever water is freely used, we have, as is well known, a maximum monthly, a maximum weekly, a maximum daily and a maximum hourly consumption, so that double the average would be provided to satisfy present domestic and manufacturing wants. This would indicate that 300 gallons per minute is necessary. Fire protection however calls for more. At least 3 good fire streams should be provided, or say 700 gallons per minute, which with the ordinary 200, makes 1000 gallons per minute the quantity that should be available at any hour of the day or night.

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I may mention as an objection to ground water generally, that it will not keep pure in a reservoir, unless covered so as to exclude sunlight, and then it requires a low temperature. Again its being kept not subject to pressure, as when in a Reservoir, is detrimental to its quality, or at all events is a condition favorable to its deterioration.

The perpetual expense of steam pumping, is another objectionable feature. The practicality or otherwise of obtaining a supply from "Mill Stream" was the question I gave most time to when at Newcastle.

I visited the Stream, first, where it is crossed by the Chaplain Island Road. The water looked dark in its bed, but in a tumbler the tinge of brown seemed very slight and as a beverage the water was most palatable. At the place Mr. Fish and I roughly gauged the volume of the stream? Having been told by a farmer who lives in the vicinity, that the stream had at the time of our measurement three times its low water volume I made a corresponding allowance, and also allowed for difference between surface and mean velocity, finally getting a volume of 3375 cubic feet per minute. Afterwards from a plan of the district I estimated the drainage area of the brook, from where "High Bank Brook" falls into it, upwards, at 30 square miles, which at 11 cubic feet per second per acre, the ordinary allowance gives 45 cubic feet per second or 2700 cubic feet per minute. This I take as the actual available quantity and accept this source of supply as satisfactory, so far as quantity and quality are concerned, subject to clogging and to expert analysis of the water.

WATER OF CONVEYING THE WATER.
On the first examination of "Mill Stream" in spite of the fact that the profile along Chaplain Island Road showed a summit between Newcastle and the Stream 150 feet above the latter, it

was thought a depression might be found near the head of the South branch of Bayle's Brook, sufficiently low to enable the water to be carried over it by gravity, from a point on "Mill Stream" near the mouth of High Bank Brook, where the stream is 75 feet higher than at the latter and where there are facilities for further raising it by damming.

But instrumental measurements showed the depression in the ridge had been overestimated and that the scheme contemplated was impracticable.

This being the case, two means present themselves.
To dam the stream at a point seven hundred feet below the mouth of High Bank Brook, and having thus created a water power, to utilize it either, 1st, to pump the water over the ridge, 2nd, to pump it to the town, or 3rd, to pump it over the ridge to a reservoir to be built on the hill above the town and from thence convey it by gravity to the town.

I have estimated for each of these plans and will now describe them. The accompanying sketch may help to explain the question, what would be the position of the dam, and approximately the position of the pipe line.

1st. At the point before named and in place on sketch, the water of "High Bank Brook" will be raised 25 feet by a dam, thereby creating a water power of 60 horse power net, for wheels giving 75 per cent. of the power applied. 20 ft of this power will be used for the purpose of raising the water to the level of the town, over the summit. The reason so high a dam is proposed (giving more power than necessary for pumping) is to diminish the lift.

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Dam, wheel, gates, etc., \$15,000
Water wheel, 8,300
Pump and connections, 2,500
Erecting, 1,000
Power House, 3,880
Raising main 16 inches wood stave 41 miles, 40,000
Same of cast iron, \$73,360
Same of mill cast riveted 20 per cent. less than cast, 45,500
Supply main 12 in. wood stave 11 miles, 10,000
Same of cast iron \$17,900
Raising main 8 in. cast iron mile, 4,500
Distribution pipes 6 in. 30,000 ft., 25,500
Hydrants 50, 3,750
Service pipes to houses 500, 6,000
Add 10% for contingencies, 11,130
Total, 122,920

The foregoing estimate is for one turbine set of pump and pumping main. But a system of direct pumping, without a reservoir, can not be considered, as the machinery and pumping main are in duplicate, because a break anywhere would completely stop the whole supply to the town. The insurance companies would look very unfavorably on such a system and it is doubtful if there would be any reduction of rates.

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