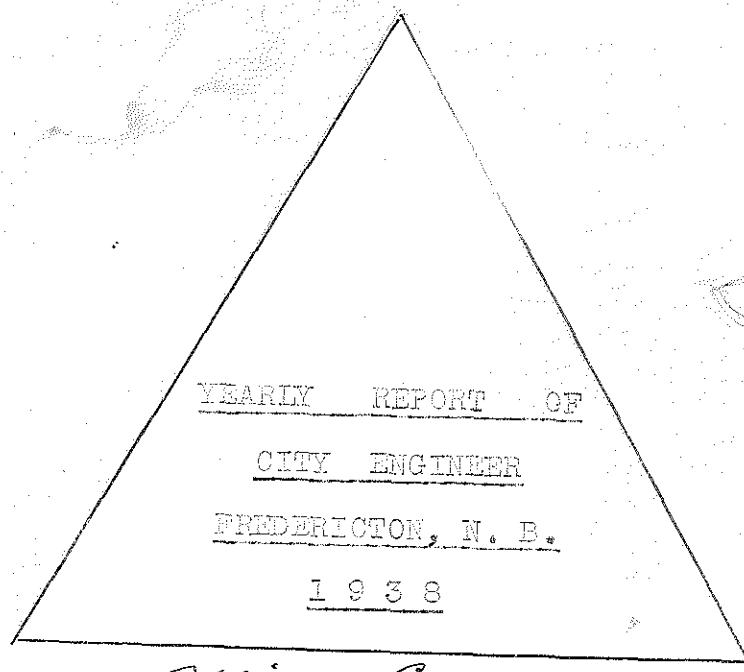


ANNUAL REPORT OF THE ENGINEERING AND PUBLIC WORKS DEPARTMENT

1938





Office Copy

I N D E X

YEARLY REPORT OF CITY ENGINEER

FREDERICTON, N.B.

Year 1938

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JANUARY 1, 1939.

TO HIS WORSHIP THE MAYOR AND ALDERMEN
OF THE CITY OF FREDERICTON:-

Gentlemen:

I submit herewith this report which is a statement of the work done in the different City Departments under the direct supervision of the City Engineer, and covers the period of time from the first of December 1937 to the first of December 1938.

This report is written with the purpose of reporting to the Council on the costs of the various Departments for the year. It is also written with the idea of having on file an accurate record of the different activities and costs under these departments.

All figures and statements derived from them, appearing in this report have been carefully compiled and I believe are correct and fit to be used in working out costs for future expenditures.

The various City activities which come under the supervision of the City Engineer are:-

Roads and Streets, construction and maintenance.
Public Works, construction and maintenance.
Water System, operation, construction and maintenance.
Domestic Sewerage System, operation, construction and maintenance.
Surface Sewers, operation, construction and maintenance.
Street Lights, operation, construction and maintenance.
Shade Trees, planting, pruning, removal, etc.
Other construction or maintenance activities such as repairs to City Hall or other City buildings, or any other work which the Council may from time to time put in the hands of the City Engineer.

Following in the body of this report is a detailed statement of work done, comparative expenditures and unit costs under these different departments. The detailed report of any particular Department can readily be found by referring to the Index found on preceding page.

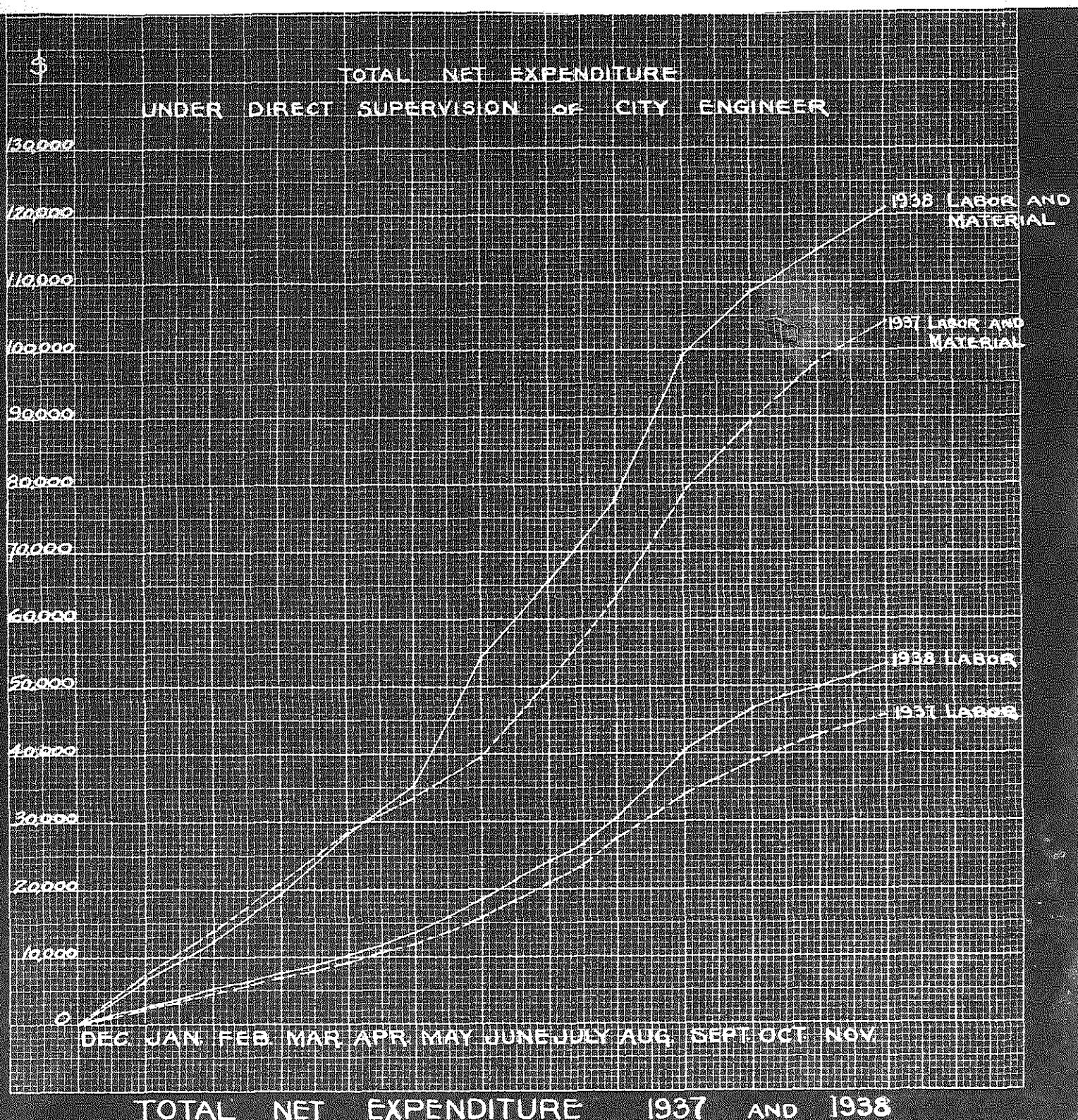
Respectfully submitted,

City Engineer.

TOTAL YEARLY EXPENDITURE

The total yearly net expenditure under the direct supervision of the City Engineer this year amounted to \$121,069.29. This expenditure will be taken up in detail under the different headings in this report.

A graphic comparison of expenditure for labour and material for the year 1937 and 1938 is shown on the following chart:-



TOTAL NET EXPENDITURE 1937 AND 1938

ROADS AND STREETS

The City of Fredericton roads and streets system may be divided into two districts, namely, the Urban District and the Outlying or Rural District. The Urban District is bounded roughly as follows: on the North and East by the St. John River and on the South and West by the line of Albert and Dundonald Streets.

The Outlying or Rural District would be the district within the city limits outside the above mentioned boundaries.

Altogether in Fredericton we have some $44\frac{1}{8}$ miles of roads and streets and about 32 miles of sidewalk. This sidewalk of course all lies within the Urban District.

The roads and streets are divided between the two districts as follows:

| <u>Roads and Streets</u> | | | |
|--------------------------|--------------|-----------------|--------------|
| | <u>Urban</u> | <u>Outlying</u> | <u>Total</u> |
| Paved | 10.15 | 5.46 | 13.61 |
| Gravel | 7.53 | 23.21 | 30.74 |
| Total | 17.68 | 26.67 | 44.35 |

Roads and Streets Expenditure 1938:-

| | |
|-------------------------|-------------|
| Gross Expenditure..... | \$24,273.83 |
| Credits..... | 781.88 |
| Net Expenditure..... | 23,491.95 |
| 1938 Appropriation..... | 22,500.00 |
| Dr. Balance..... | \$ 991.95 |

The above credits are made up as follows:-

Received from other City Departments for work done and material sold by Roads and Streets Dept..... \$645.00

Work done for and material sold to private parties by Roads and Streets Dept..... 118.28

Gas Tax refund from Provincial Government..... 18.60
\$781.88

The Gross Expenditure of \$24,273.83 is divided as follows:-

| | |
|--------------------------------------------------------|-----------------------------|
| Labour..... | \$15,601.78 |
| Material charges and Workmen's Compensation Board..... | <u>8,672.05</u> \$24,273.83 |

The labour charge of \$15,601.78 is divided as follows:-

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <u>Snowploughing sidewalks:-</u> | \$ 366.83 |
| <u>Snow Control:-</u> Shovelling and hauling snow, ploughing or scraping roads, cleaning gutters of ice and snow and any other means of snow control... 3146.57 | |
| <u>Streets:-</u> General work on maintenance of streets and sidewalks and any other items such as building culverts, curbs and gutters or pavements which are not mentioned under some particular heading..... 1332.94 | |
| <u>Surface Sewers:-</u> Cleaning, flushing and repairing surface sewers and building new surface sewers within street limits..... 206.26 | |
| <u>Sanding Walks:-</u> Hauling, drying and storing sand in winter storage piles and spreading same on slippery walks..... 277.05 | |
| <u>Yard:-</u> Men working at blacksmith shop and repair work in City Yard, taking summer equipment out and storing winter equipment, etc..... 1399.56 | |
| <u>Gravel:-</u> Tallying..... 54.07 | |
| <u>Street Sprinkling:-</u> Water carts..... 418.70 | |
| <u>Stone Crushing:-</u> Repairs to crusher and crushing stone..... 61.92 | |
| <u>St. John Road:-</u> (Not capital account). All work done on River road from Alexandra Street to Eastern City line other than work done by power maintainer..... 34.07 | |
| <u>Doak and Wilsey Roads:-</u> All work done on these roads other than work done by power maintainer.... 2282.07 | |
| <u>New Maryland Road:-</u> From C.P.R. crossing to southern city line. All work done on this road other than that done by power maintainer..... 76.41 | |
| <u>Outlying Roads:-</u> Hanwell Road, Cross Roads lying between Brick Hill and College Hill Road, Brick Hill Road, Poor House Hill road, College Hill Road and Forest Hill Road. All work done on these roads other than work done by power maintainer..... 212.64 | |
| <u>Street Cleaning:-</u> All cleaning and removal of dirt from streets..... 4546.64 | |
| <u>Tarvia Repairs:-</u> Patching and repairing asphalt and tar pavements and sidewalks and applying seal coat of light tar or asphalt to pavements..... 678.43 | |
| <u>City Road Patrol:-</u> 507.82 | |
| <u>Quarry:-</u> -0- | |

Total..... \$15601.78

The above items are made up entirely of labour costs and give a good idea of the amount and kind of work done by the Roads and Streets Department for this year.

Following is a table comparing labour expenditures in these items from 1933 to 1938.

TABLE COMPARING YEARLY COSTS IN ROADS AND STREETS
LABOUR ITEMS

| <u>Item</u> | <u>1933</u> | <u>1934</u> | <u>1935</u> | <u>1936</u> | <u>1937</u> | <u>1938</u> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Snowploughing side-walks | 121.71 | 329.78 | 225.05 | 247.00 | 54.43 | 366.83 |
| Snow Control | 918.95 | 4999.27 | 3973.77 | 3195.55 | 1263.06 | 3146.57 |
| Streets | 1292.66 | 940.59 | 2908.55 | 1526.75 | 3162.53 | 1332.94 |
| Surface Sewers | 351.75 | 241.53 | 258.05 | 198.75 | 911.68 | 206.26 |
| Sanding Walks | 242.07 | 75.20 | 108.53 | 154.10 | 621.94 | 277.05 |
| Yard | 844.42 | 1134.59 | 1073.73 | 1202.68 | 1377.97 | 1599.56 |
| Gravel | 110.99 | | 55.91 | 58.99 | 41.62 | 54.07 |
| Street Sprinkling | 758.18 | 813.20 | 817.63 | 815.10 | 772.95 | 418.70 |
| Stone Crushing | | | 65.66 | 3550.57 | 2990.43 | 1926.04 |
| St. John Road | 259.45 | 240.25 | 497.56 | 425.21 | 81.73 | 34.07 |
| Doak & Wilsey Road | 218.69 | 99.90 | 296.30 | 239.45 | 417.07 | 2282.07 |
| New Maryland Road | 1935.44 | 69.87 | 168.84 | 98.21 | 157.35 | 76.41 |
| Outlying Roads | 518.26 | 172.12 | 142.15 | 594.51 | 651.36 | 212.64 |
| Street Cleaning | 1937.02 | 2409.02 | 3095.83 | 2662.17 | 3522.89 | 4546.64 |
| Tarvia Repairs | 346.33 | 782.82 | 488.61 | 758.07 | 951.35 | 678.43 |
| City Road Patrol | 723.09 | 715.92 | 632.88 | 602.45 | 780.16 | 507.82 |
| Quarry | | 209.85 | 6990.20 | 1737.85 | 1277.25 | |
| Relief | | | | 869.78 | | |
| Richardson Cons. Co. | | | | | 109.14 | |
| Total | 10579.01 | 15296.97 | 25264.16 | 18357.05 | 18060.48 | 15601.78 |

These labour items may be better understood by the following explanations:

Snow Control:-

| | |
|--------------------------------------------|-----------|
| Snowploughing roads and streets..... | \$ 451.35 |
| Shovelling and hauling snow..... | 1728.09 |
| Scarifying walks..... | 37.69 |
| Draining Streets..... | 60.87 |
| Thawing catch basins..... | 118.50 |
| Snow Fences..... | 64.20 |
| Picking ice on streets..... | 439.69 |
| Thawing culverts..... | 76.25 |
| Thawing at Valley Motor Co..... | 5.95 |
| Thawing at Red Indian Service Station..... | 4.55 |
| General Expenses..... | 159.43 |
| Total.... | \$5146.57 |

The labour expense under Snow Control this year was about what I would consider our average expense for this item. A winter of real heavy snow fall might possibly double the expenditure and a winter such as the winter of 1936, when the snow fall was light, might possibly bring this expenditure down to around \$1500.00.

Snow Fences:-

Snow fences were erected the same as in 1937. These fences were made of small evergreen trees and about 1.6 miles were placed. The fences were located on the Maryland Road, Hanwell Road, Woodstock Road and on Odell Avenue and University Avenue.

The small labour expense here shown of \$64.20 is due to the fact that most of the labour used under this item was supplied by men on relief payrolls who were paid in kind by the City and who, therefore, do not show under cash expenditures.

Streets:-

Summary of labour costs:-

| | |
|-------------------------------------------------------|--------------|
| Repairs on streets..... | \$201.02 |
| Spreading gravel on streets..... | 648.74 |
| Painting signs..... | 54.80 |
| Sweeping side-walks clean from winter sanding..... | 48.96 |
| Hauling ashes..... | 5.16 |
| Painting Streets (traffic lines)..... | 145.90 |
| Painting Poles (city owned)..... | 37.80 |
| Cutting grass on streets..... | 123.50 |
| Spreading calcium chloride..... | 9.00 |
| General Expenses..... | <u>78.06</u> |
| Total..... | \$1552.94 |

Stone Crushing:-

This year the stone crushing charges were carried under the Permanent Road Account. The small amount of \$61.92 was the cost of some minor repairs put on the crusher before the permanent road account started.

Doak and Wilsey Roads:-

This total labour expenditure of \$2282.07 was divided into an expenditure on the Wilsey Road of \$2118.67 and an expenditure on the Doak Road of \$163.40. During September and October we turnpiked and gravelled the Wilsey Road from Doak Station to Baker Brook, a distance of about three miles. The rest of the Expenditure of these roads was maintenance.

Outlying Roads:-

The labour expenditure of \$212.64 is made up as follows:-

| | |
|-----------------------|-----------------|
| Brick Hill..... | \$69.70 |
| Forest Hill..... | 24.20 |
| Cross Roads..... | 41.25 |
| Poorhouse Hill..... | 66.60 |
| General Expenses..... | <u>10.89</u> |
| | <u>\$212.64</u> |

Street Cleaning:-

Street cleaning with a labour cost of \$4546.64 shows an increase of almost \$1000.00 over the labour cost of 1937.

This increased cost is principally due to a demand by the public for better service in this department. I believe this item must tend to increase in the future rather than to be cut down, as the service once installed cannot be lowered and there will be constant demands to have it extended. The only way of lessening the labour cost for this item would be to instal some mechanical street cleaning equipment. However, our labour cost does not seem to me to be high enough as yet to necessitate the purchase of mechanical street cleaning equipment.

Tarvia Repairs:-

The labour expenditure of \$678.43 is divided as follows:-

| | |
|-----------------------|-----------------|
| Patching streets..... | \$533.15 |
| Tarring streets..... | 95.90 |
| Miscellaneous..... | 3.72 |
| Patching walks..... | 10.90 |
| General Expenses..... | <u>34.76</u> |
| | <u>\$678.43</u> |

The following table shows the bituminous material used in 1938. This table includes material used in permanent road account as well as in our ordinary roads and streets account.

| | <u>Heavy Tar or Asphalt Tarvia X</u> | <u>Light Tar or Asphalt</u> | <u>Road Oil Cut Back Asphalt</u> | <u>Asphalt Emulsion Colas</u> |
|------------------------------|----------------------------------------------|---------------------------------|------------------------------------------|---------------------------------------|
| Gallons in stock spring 1938 | 0 | 0 | 0 | 0 |
| Gallons Purchased 1938 | 25051 | 0 | 5037 | 9236 |
| Available for season 1938 | 25051 | 0 | 5037 | 9236 |
| Stock on hand fall 1938 | 400 | 0 | 600 | 70 |
| Used in season of 1938 | 24651 | 0 | 4457 | 9236 |

Gravel:-

This year we purchased 3500 cu. yds. of river gravel at 43¢ per cu. yd. f.o.b. city wharf. This gravel was dug from the river between January 14 and February 12 by Everett Bonnar under contract to the city.

TABLE SHOWING COMPARATIVE COSTS OF ROADS AND STREETS

YEARS 1927 to 1938:-

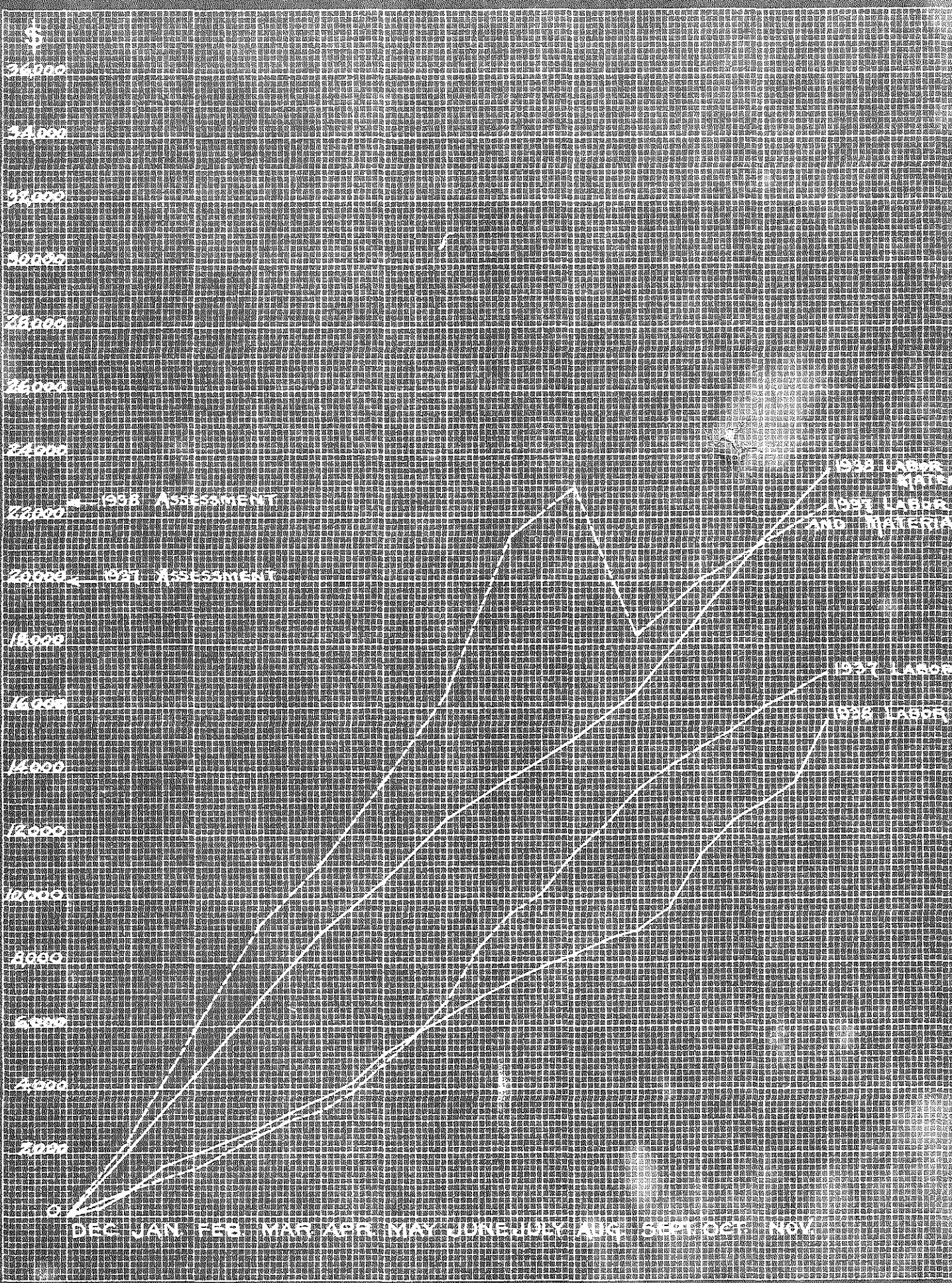
| Year | Expenditure for Labour | Gross Expenditure Labour and Mater- ials | Credit | Net Costs Labour and Materials | Appropriation |
|------|---------------------------|------------------------------------------------|-----------|--------------------------------------|---------------|
| 1927 | 15,692.00 | | | 24,245.00 | 26,000.00 |
| 1928 | 17,122.45 | | | 26,058.70 | 26,000.00 |
| 1929 | 14,490.47 | | | 26,682.98 | 31,000.00 |
| 1930 | 16,553.53 | | | 34,556.35 | 32,500.00 |
| 1931 | 26,024.54 | 50,849.60 | 15,511.97 | 55,357.63 | 31,000.00 |
| 1932 | 25,450.96 | 39,101.62 | 4,822.19 | 54,279.43 | 25,000.00 |
| 1933 | 10,607.99 | 19,161.38 | 333.28 | 18,828.10 | 19,000.00 |
| 1934 | 13,532.51 | 25,665.94 | 2,311.58 | 21,354.36 | 20,000.00 |
| 1935 | 25,264.14 | 46,588.85 | 21,502.31 | 25,086.54 | 25,000.00 |
| 1936 | 18,557.05 | 53,238.01 | 11,059.77 | 22,178.24 | 25,000.00 |
| 1937 | 18,060.48 | 54,951.68 | 12,641.95 | 22,289.73 | 20,000.00 |
| 1938 | 15,601.78 | 24,275.83 | 781.88 | 25,491.95 | 22,500.00 |

The following plate shows graphic comparison of Roads and Streets costs for years 1937 and 1938.

- Purchases in Dec 1938 but paid in 1939 the following:
- 1 - Cat. #2 Tractor Serial #10-958 } Total \$1,198.00
with extra Snow Truck Amend }
 - 1 - Model S-2 - 'Baldwin' Snow plough.
Serial #3964 . Total - 450.00

No. 334 - 2 TN. 10 X 10 TO THE HALF INCH.

PRINTED IN U. S. A.



ROADS AND STREETS COSTS 1937 AND 1938

PERMANENT ROAD ACCOUNT

| | |
|------------------------|-------------------|
| Cross Expenditure..... | \$28197.52 |
| Credits..... | 94.67 |
| Net Expenditure..... | <u>\$28102.85</u> |

The Credit of \$94.67 was on account of work done for private parties by the Permanent Road Department and charged to and paid for by these parties. The work consisted of a concrete driveway for L. Charters and 290 cu. yds. of stone quarried for LeBaron Grass.

The labour cost of \$13,116.86 under this Permanent Road Account is divided as follows:

| | |
|------------------------------------|---------------|
| Quarry..... | \$5857.55 |
| Building stone crusher..... | 184.08 |
| Crushing stone..... | 1691.15 |
| Curbing..... | 2155.57 |
| Paving..... | 2556.43 |
| Surface Sewer on University Ave... | 347.04 |
| General Expenses..... | <u>325.24</u> |
| | \$13,116.86 |

In March it was decided, on account of the unemployment situation that it was necessary to make some work so a crew was sent to the stone quarry to quarry rock for the summer's operations.

A compressor was hired from the Provincial Government and the Grass quarry was drilled and blown. This quarry had about a 30 foot face and it was necessary to put a line of holes in at the toe of the slope and also a line of holes at the top of the slope. Both lines of holes were blown at once and I figure about 8000 tons of trap rock was loosened and thrown down.

I believe this work could be carried on more conveniently and cheaper in the summer season as the men work more efficiently in the summer. Again the rock when blown in the winter and allowed to lay over until summer becomes compacted with the top soil and is more difficult to load.

While this quarrying operation was going on a small amount of stone was hauled in by the city trucks. The rest of the stone was hauled in during the summer as we needed it in the crusher, and to make a storage pile.

In July, from the 8th to the 21st, the city entered into an agreement with Everett Bonnar to load and haul in stone for the city yard at 45¢ a ton. Bonnar hauled in about 1355 tons but the city had to take the job over from him as he could not deliver stone fast enough.

Altogether we brought in 10541 tons from the LeBaron Grass quarry in the following manner:-

| | | |
|----------------------------|---------------------|--------------|
| March 15th to 18th..... | 133.6 tons..... | by city |
| May 9th to 14th..... | 683.9 tons..... | by city |
| July 8th to 21st..... | 1355.8 tons..... | by E. Bonnar |
| July 22nd to 30th..... | 1385.2 tons..... | by city |
| July 31st to Aug. 15th.... | 2612.9 tons..... | by city |
| Aug. 16th to 31st..... | 5595.2 tons..... | by city |
| Sept. 1st to 3rd..... | 777.1 tons..... | by city |
| | <u>10541.7 tons</u> | |

The total cost, including both labour and material of quarrying rock, loading and hauling to the City yard, including a royalty of five cents a ton paid to LeBaron Grass, was 85.8¢ a ton.

The labour cost, including trucking, was 61.3¢, leaving a material and Workmen's Compensation cost of 24.5¢.

At the beginning of the year there was some 300 tons of crushed rock in the city yard. This rock was used in cement sidewalks and on ordinary street work, leaving the 10541 tons hauled in during 1938 to be accounted for in permanent road construction.

Of this amount 3362 tons were used on pavement and curb, gutters, concrete catch basins, etc., under the heading of "Permanent Road Account", leaving in the stone yard some 7179 tons of trap rock. About 2000 tons of this has been crushed and piled leaving about 5179 tons of uncrushed trap rock in our storage pile.

The labour cost of \$1691.15 on crushing stone this summer was all carried by the permanent road account. As above shown, 3362 tons of stone was crushed giving a unit price per ton for labour only of stone crushing of 51½¢. I believe a fair price for this stone crushing, including both labour and material which would include the purchase, depreciation of plant, would not exceed 50¢ a ton.

Curbings:-

Under the permanent road account during the season the following curbs and gutters were laid:-

| Street | Location | Side | Lineal feet of curb |
|----------------|-------------------------|------------|---------------------|
| Westmorland | Saunders to Charlotte | Both sides | 651'-10" |
| Northumberland | Brunswick to George | Both sides | 638'- 0" |
| Northumberland | George to Charlotte | Both sides | 625'- 0" |
| Northumberland | Charlotte to Saunders | Both sides | 634'- 6" |
| George | Regent to Church | Both sides | 1204'- 0" |
| George | Church to St. John | South side | 119'- 6" |
| Winslow | Lansdowne to Grey | East side | 400'- 0" |
| Grey | Winslow to Waterloo Row | Both sides | 1024'- 0" |
| Winslow | Grey to Alexandra | East side | 526'-10" |

| Street | Location | Side | Lineal feet of curb |
|-----------------|-----------------------------------|-------------|------------------------|
| University Ave. | Subway to Shore | East side | 924'- 0" |
| Brunswick | Subway to Church | Both sides | 1128'- 0" |
| University Ave. | Subway to George | Both sides | 300' |
| University Ave. | Charlotte to Westmorland | West side | 273'- 0" |
| George Street | University Ave. to Westmorland | Both sides | 106'- 0" |
| University Ave. | George to Charlotte | West side | 402'- 0" |
| | | Total | 9016'- 8" |

Pavement:-

A tarvia penetration pavement was laid in the following locations:-

| Street | Lineal Feet | Sq. Yards |
|---------------------------------------|-------------|-----------|
| Westmorland, Saunders to Charlotte | 329 | 1007.5 |
| Northumberland, King to Queen | 272 | 859.8 |
| Northumberland, King to Brunswick | 295 | 944.0 |
| Northumberland, Brunswick to George | 519 | 1000.8 |
| Northumberland, George to Charlotte | 320 | 1010.0 |
| Northumberland, Charlotte to Saunders | 314 | 978.6 |
| George, Regent to St. John | 604 | 1820.8 |
| George, St. John to Church | 620 | 1848 |
| Church, Charlotte to Union | 328 | 998.5 |
| Brunswick, (near subway) | 76 | 211.1 |
| | 3477 | 10679.1 |

Lineal feet of Pavement laid in 1938 = 3477

Miles of pavement laid in 1938 = .66

Sq. Yds. of pavement laid in 1938 = 11559

This pavement consisted of a crushed stone base rolled and filled with crusher dust or sand. This base varied in thickness from 4 to 8 inches as the nature of the subsoil seemed to demand. When the base had been consolidated it was penetrated by a binder coat of cut back asphalt primer. A wearing course of from $2\frac{1}{2}$ to 3 inches was then laid and penetrated with tarvia "X". The penetration was done with two applications, the first of about 1.6 gallons and the second of about .5 gallons per square yard.

On University Ave. before the paving could be put down it was necessary to lay a 12 inch surface sewer from the subway to the corner of Shore Street, a distance of some 656 feet. 12 inch terra cotta pipe was used in this sewer.

Under the permanent road account this year considerable curb and gutter work was done ahead of the paving and considerably more stone was quarried and crushed than was used during the season. However, I believe a fair price for the pavement constructed this year, including all costs of labour and material, the grading, the construction of surface sewerage, where necessary, concrete curbs and gutters, and, in fact, everything pertaining to the pavement, would be \$1.65 per square yard of finished pavement or about \$28,586.00 per mile of finished pavement 50 feet wide with concrete curbs and gutters on both sides.

In figuring these prices I have deducted the amount of money expended on stone hauled in and crushed but not used this summer and on curb and gutter and any other construction which was done in advance of the actual locations paved.

Following is a map of the city showing the streets paved this year marked in red and those paved previously marked in blue.

CITY ENGINEERS OFFICE

FREDERICTON N.B.

Dec. 1937

Scale - 1. inch equals 800 ft.

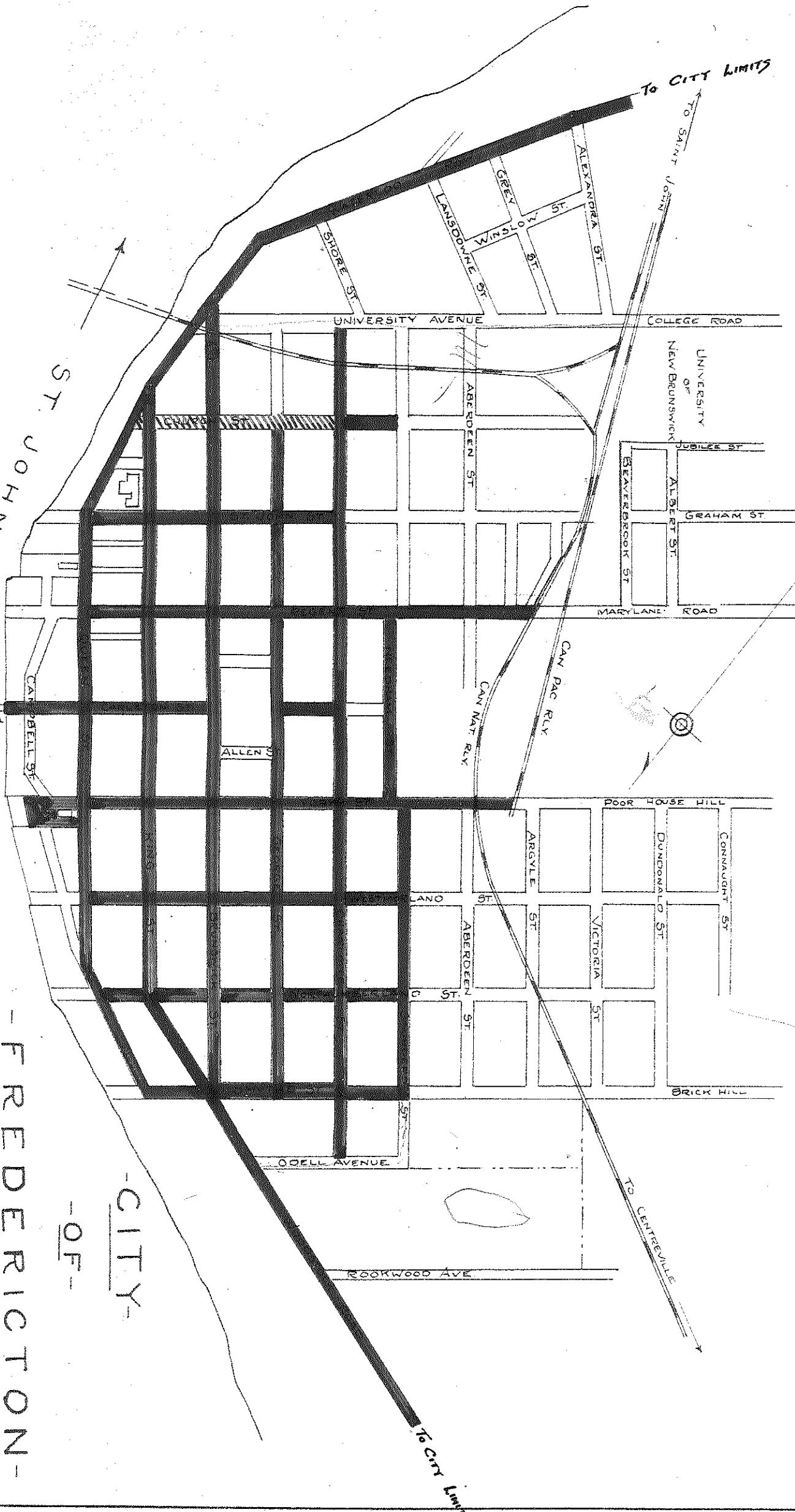
- F R E D E R I C T O N -

-CITY-

-OF-

PAVEMENT LAID 1938
LAID PREVIOUS 1938

ST JOHN RIVER



CEMENT WALKS

| | |
|------------------------|------------|
| Gross Expenditure..... | \$10213.48 |
| Credits..... | 110.60 |
| Net Expenditure..... | \$10102.88 |

This credit of \$110.60 was the amount charged to two citizens for some mixed concrete which they purchased from the sidewalk operations and used to put in concrete cellars.

For the above net expenditure five foot sidewalks were laid at the following locations:-

| <u>Street</u> | <u>Location</u> | <u>Side</u> |
|-----------------|---------------------------------|-------------|
| Alexandra | University Ave. to Winslow | North |
| Alexandra | University Ave. to Waterloo Row | South |
| King | Queen to Church | South |
| Queen | Court House Sq. to St. John St. | North |
| Queen | Regent to Court House Square | North |
| Regent | Queen to King St. | East |
| Scully | St. John to Regent | North |
| Scully | St. John to Regent | South |
| St. John | Scully to McLeod | West |
| George Street | York to Barrack Lane | North |
| Westmorland | Brunswick to George | East |
| Westmorland | George to Charlotte | East |
| Westmorland | Argyle to Victoria | East |
| Victoria | Westmorland to Northumberland | North |
| Victoria | Westmorland to Northumberland | South |
| Argyle | Westmorland to Northumberland | South |
| Argyle | Northumberland to Smythe | South |
| Argyle | Northumberland to Smythe | North |
| Northumberland | Charlotte to Saunders | West |
| Northumberland | George to Charlotte | West |
| Northumberland | Saunders to Aberdeen | West |
| Northumberland | Saunders to Aberdeen | East |
| Regent | Campbell to Queen | East |
| Regent | Canadian National Railways | West |
| Brunswick | Barrack Lane to York | South |
| University Ave. | Grey to Alexandra | East |
| Winslow | Grey to Alexandra | East |

Altogether this sidewalk construction amounted to 11601 lineal feet of five foot sidewalk.

Besides this above-mentioned footage some 180 square yards of driveways, walks to houses, steps, etc. for private persons were installed. The cost of these extras are included in the above-mentioned expenditure.

Plans have been made up and are on file in the city

offices showing all this sidewalk construction and bills have been made up and sent out to the property owners for their part of the sidewalk construction and for the private construction done for them on their properties.

Following is a map showing the sidewalks laid this year in red and those laid in previous years in blue.

CITY ENGINEERS OFFICE

FREDERICKTON N.B.

DEC. 12 1937

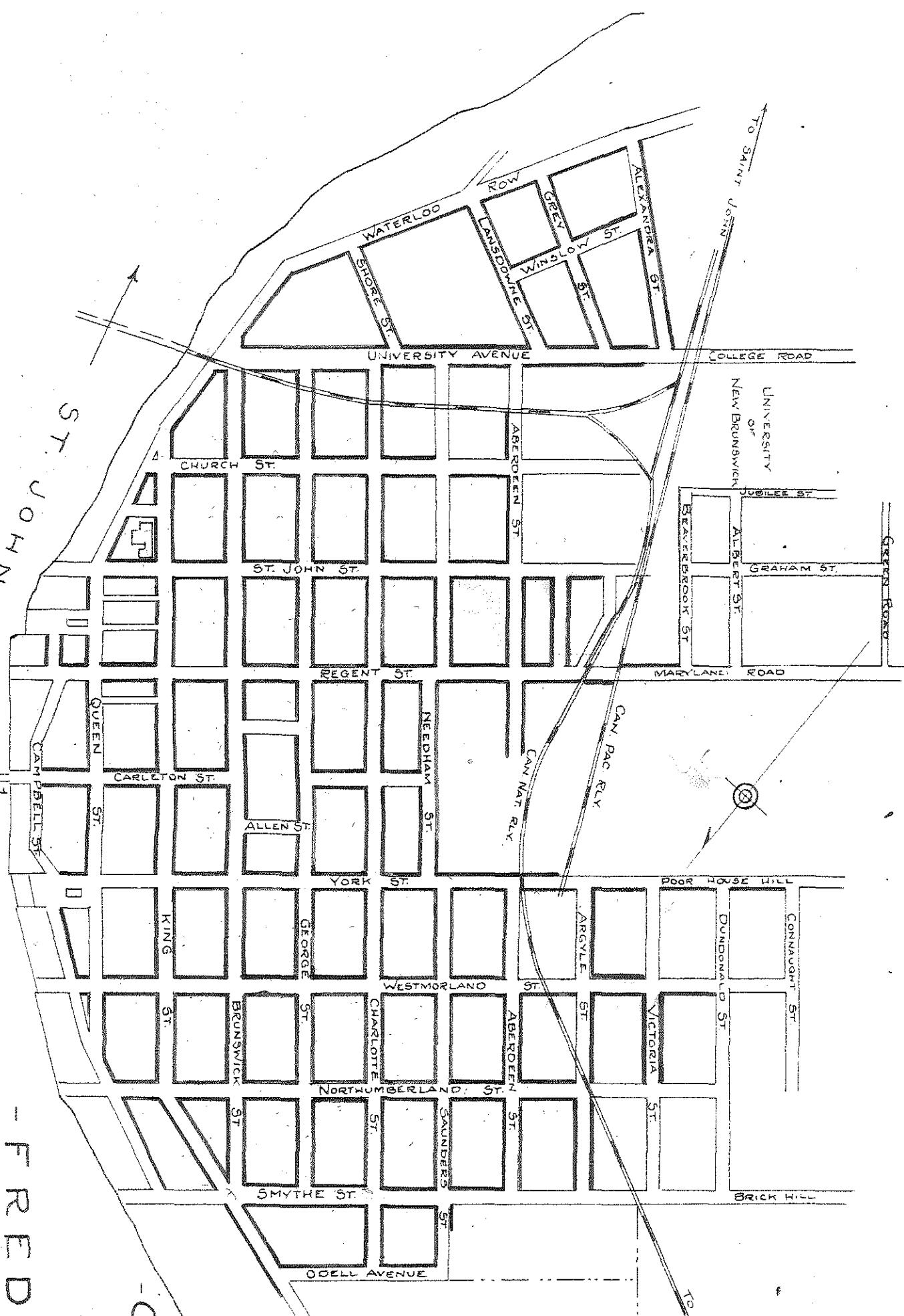
Scale - 1 inch equals 800 ft.

- F R E D E R I C T O N -

- C I T Y -

- O F -

CONCRETE WALKS LAID 1938
WALKS LAID PREVIOUS 1938
About 3 1/2 Miles laid so far



PUBLIC WORKS

| | |
|-------------------------|----------------|
| Gross Expenditure..... | \$8631.67 |
| Credits..... | 664.00 |
| Net Expenditure..... | <u>7967.67</u> |
| 1938 Appropriation..... | 4000.00 |
| Dr. Balance..... | <u>3967.67</u> |

The credits of \$664.00 are made up of \$59.00 charged to private persons for cutting trees on their property and \$605.00 charged to the Municipal Home Department for 121 cords of 4 foot wood cut on the city quarry lot by the Public Works Department and delivered to the Municipal Home Department in the City Yard.

The Gross Expenditure of \$8631.67 is made up as follows:-

| | |
|--------------------------------------------------|--------------------------|
| Labour..... | \$5135.07 |
| Material and Workmen's Compensation charges.. | <u>5496.60</u> \$8631.67 |

The above labour item is divided as follows:-

| | |
|-------------------------|-------------------------|
| Dump..... | \$1221.48 |
| Surface sewers..... | 280.91 |
| Back Drain..... | 120.06 - |
| Trees..... | 501.35 |
| Unforeseen account..... | 1352.97 |
| Wood lot..... | 899.40 |
| Surveying..... | <u>256.90</u> \$5135.07 |

The labour cost charged to dump is for the wages of a dump tender who is employed the year round at our city dump located on the Fraser Company's property at the junction of the St. John and Wilsey Roads.

This item also includes the wages of a night caretaker whom the Fraser Companies insisted be employed during the summer season, as without this night caretaker in attendance they are unable to get proper rates on their insurance.

The dump was again infested with a species of cockroach known as Yankee Settlers. We kept these down very appreciably by spraying with arsenate of lead, using our tree sprayer for this purpose.

Back Drain:-

Practically all of the expenditure this year was during the month of February and March and was made in cleaning the drain from snow and ice.

During the month of December 1938, when there was over a foot of snow on the ground, we had a quick thaw and heavy rain which filled the city back drain and caused a slight overflowing at Victoria Street and a heavy overflowing below York Street and between York Street and the extension of Church Street. The drain at this time was, I believe, more efficient than it has ever been at any time in the past. If the heavy rain had continued for another hour, I believe the streets in that low lying area of the city south of the Valley tracks and the West of York Street would have been entirely flooded.

Had the above-mentioned conditions of heavy rain and thaw occurred later in the season when the back drain might have been filled with ice, it would have caused serious flooding in this area which was endangered by this storm, as the back drain could not possibly have carried off the amount of water required.

Between the years 1952 and 1958 inclusive, the city has spent on alterations and maintenance of this city back drain the sum of \$7475.69. This was spent in the following manner:-

1952 Expenditure \$2895.74. The back drain was cleaned out in August. In November and December considerable work was done on the back drain from Smythe to Regent Street. The drain was widened to over 10 feet at the bottom and the side sloped to a $1\frac{1}{2}$ slope.

The stone wall wooden top culvert was built under Northumberland Street.

The stone wall culvert at York Street was widened five feet.

A back drain diversion was started at University Ave. This included the construction of a 66 foot long 8 foot concrete arch culvert.

The expense of \$2895.74 for 1952 includes an item of \$1158.00 which was made up of relief labour at 28¢ an hour.

1935 Expenditure \$5313.71. Of this amount \$867.56 is accounted for by relief labour taken at 28¢ an hour.

Practically the entire expenditure this year was used up in the back drain diversion at University Ave.

1934 Expenditure \$71.54. The culverts and bed of the back drain were cleaned of deposits which had accumulated. Relief labour was used this year but it is not shown in the expenditure of \$71.54.

1935 Expenditure \$159.72. This was spent in cutting ice from culverts and brook bed in February and March and cutting weeds from the bed of the brook in summer. Relief labour was used but does not appear in expenditure.

1936 Expenditure \$795.87. Money was used to clean the ice and snow from the brook in February and March.

Culvert at Regent Street was widened and rebuilt.

The back drain from Victoria Street to Regent Street was widened and riprapped from Victoria Street to the runway over the brook of the Chestnut Canoe factory.

Some relief labour was used but does not appear in the expenditure.

1937 Expenditure \$101.05. The brook was cleaned of deposits and weeds. Relief labour is not shown in the expenditure.

1938 Expenditure \$140.06. Money was spent in February and March cleaning ice from the drain.

Relief labour was used but not shown in this total.

Although the city has spent considerable money on maintenance and construction of this back drain during the last few years, the fact remains that under certain conditions the present drain cannot carry the amount of water required of it.

The residents and factories situated in that area of the city between the Valley Railway and the back drain and between York and Smythe Street are in danger of having their streets and cellars flooded under certain conditions of heavy rain.

This condition might be partially remedied by increasing the size of the culverts on the brook and widening them out. However should a quick thaw or heavy rain take place when the whole brook is filled with ice, they would be of no avail.

The flooding of the brook between York Street and Church street is not a serious matter as far as the personal property of the citizens is concerned. This flooded area is almost entirely owned by the railway companies, although in a serious flood Regent Street may be blocked to pedestrian traffic for some few hours.

In this particular district the old bed of the brook has been very much constricted and altered by the construction of the railroads and to alleviate the condition here the brook would have to be considerably widened and realigned.

Trees:-

This item covers the cutting and pruning of city shade trees and also covers the purchase of a tree sprayer for the spraying of trees in the city which had become infested by a parasite known as the elm avis.

The city purchased a sprayer from the Fitzhenry-Guptill Company of Cambridge, Mass. This sprayer was billed to the city as follows:-

| | | |
|-----|-------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 1 | Fitzenry-Guptill Model FX Power Sprayer on skids for mounting in truck body, with 400 gallon solution tank..... | \$1185.00 |
| 1 | Large Worthley Nozzle complete with 5 tips and spreader..... | 27.50 |
| 400 | ft. 1" U.S. Gov. type High Pressure Spray Hose, coupled in 50 foot lengths with the Albee patented couplings @ .74..... | <u>296.00</u> 1508.50 |
| | F.O.B. Boston Terms: Net | net |

The excise and duty on this unit amounted to \$150.17, making the total cost to the city f.o.b. Fredericton \$1658.57.

This unit was very satisfactory and did the work as guaranteed by the Fitzhenry-Guptill people.

The spray used was a solution of pyrethrum powder and arsenate of lead. The city purchased these chemicals from The New Brunswick Fruit Growers Association and they were billed to the city as follows:-

2000 lbs. Pyrethrum @ 27¢.....\$540.00
including rebagging and storage of balance

| | |
|------------------------------------|---------------|
| Fwd..... | 540.00 |
| 2100 lbs. Arsenate Lead @ 15¢..... | <u>315.00</u> |
| | \$855.00 |

The labour cost of tree spraying was \$290.05.

We have on hand at the present time about 1000 lbs. of pyrethrum, which has been sealed up in drums, and, I believe, will be effective next year.

The spraying started on May 27th and concluded on June 3rd. During this time we had exceptionally good weather. We started the work at daybreak in the morning and as a rule had to lay off in the middle of the day when it became breezy. We were generally able to resume work about 3 o'clock in the afternoon and worked till dark. The area sprayed can best be shown by a map which I am including.

Some of the area first sprayed had to be gone over again in order to kill the parasite which hatched after the first spraying.

On the whole the spraying was practically 100% effective. Mr. R. E. Balch of the Entomological Branch of the Dominion Government was kind enough to advise the City of Fredericton as to the amount of infestation which we might expect on the city trees. He also advised us as to the type of sprayer to purchase and gave us the formula for the spray solution. He actively supervised the work of spraying, and I believe, to him entirely is due the credit that a great percentage of our city shade trees in the infested area have been saved from ruin.

**1938
SPRAY PLAN**

LEGEND :

XXXXX June - 3rd
 XXXXX June - 2nd
 XXX June - 1st
 MAY - 31st
 MAY - 30th
 MAY - 29th
 MAY - 27th

- CITY ENGINEERS OFFICE -
FREDERICTON N.B.

Dec. 1937

Scale - 1 inch equals 800 ft.

RIVER

JOHN

ST.

CAMPBELL

ST.

CARLETON

ST.

QUEEN

ST.

YORK

ST.

GEORGE

ST.

WESTMORLAND

ST.

CHARLOTTE

ST.

NORTH

BERLIA

ST.

SAUNDERS

ST.

ODELL AVENUE

ST.

SMYTHE

ST.

BRUNSWICK

ST.

KING

ST.

ALLEN

ST.

REGENT

ST.

JOHN

ST.

ABERDEEN

ST.

NEEDHAM

ST.

YORK

ST.

WESTMORLAND

ST.

CHARLOTTE

ST.

ODELL AVENUE

ST.

SMYTHE

ST.

YORK

ST.

CHARLOTTE

ST.

ODELL AVENUE

ST.

YORK

ST.

Unforeseen Account:-

The labour cost is divided as follows:-

Wood Lot: -

The labour item of \$899.40 is divided as follows:-

| | |
|------------------------------|-----------------|
| Wood from quarry lot..... | \$682.38 |
| Wood at College grounds..... | 166.12 |
| General Expenses..... | 50.90 |
| | \$899.40 |

During a slack time last winter I sent some of the men out to the quarry lot. They cut 121 cords of four foot wood and about 10 cords of pulp wood, cut and piled. This four foot wood was good sound hardwood and was delivered to the Municipal Home Department at the city yard and billed to them at \$5.00 a cord. The pulp wood is still on hand.

The \$166.12 spent on the wood lot on College ground was the wages of foremen, teamsters, etc., looking after a number of relief men who we had employed cleaning out underbrush and salvaging wood on a block of the college land alongside the Maryland Road which the College authorities allowed us to clean up in order to keep the relief men employed. We salvaged about 90 cords of wood in this operation which were delivered to the city yard and used by the Municipal Home Department.

Surveying:-

The labour item marked "surveying" is the cost of making surveys of different portions of the city, such as English Settlement. This information was necessary for different projects but could not directly be charged to Roads and Streets, Water or any other regular department.

Surface Sewer:-

During the month of April the surface sewer on the Woodstock Road which crossed the road near the Chapman property (originally the Fraser property) and then ran down through the Chapman property and into the river, became plugged.

This sewer was originally constructed a good many years ago. It was made in the form of a rock drain. Since its construction there has been some heavy filling in done on the property by its owners and the original course of the sewer was hard to determine. The sewer was plugged at some location on the Chapman property causing the water to back up on the south side of the Woodstock Road, partially flooding that territory.

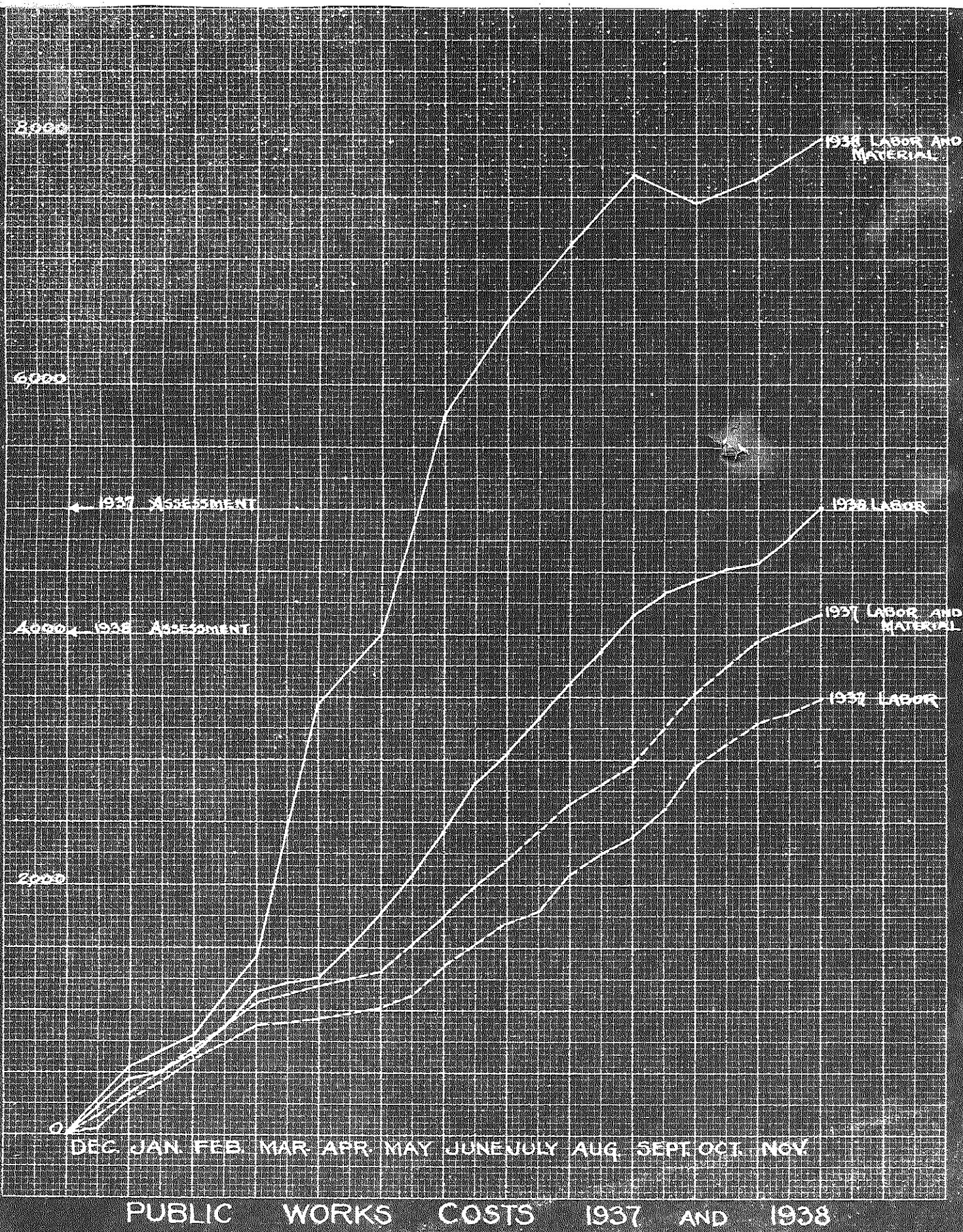
As it would have been very expensive to dig out the old sewer, a new 24 inch terra cotta pipe was laid from the north end of the culvert under the Woodstock Road directly to the Saint John River through the properties of Mr. Orlo Brewer and Mr. George W. Chapman, the property owners giving permission for this construction.

Some 350 feet of 24 inch terra cotta pipe was laid. We were able to give this sewer a good grade and it is working satisfactorily.

TABLE SHOWING COMPARATIVE YEARLY COSTS OF PUBLIC WORKS

| Year | Expenditure for Labour | Gross Expenditure | | Net Costs | | Appropriation |
|------|---------------------------|-------------------------|----------|------------------------|--|---------------|
| | | Labour and Materials | Credits | Labour and Material | | |
| 1927 | 1,204.90 | | | 2,520.00 | | 4,000.00 |
| 1928 | 2,470.39 | | | 5,156.87 | | 3,000.00 |
| 1929 | 1,685.59 | 2,606.00 | | 2,626.00 | | 5,000.00 |
| 1930 | 2,729.82 | 3,379.09 | 257.90 | 3,159.19 | | 5,000.00 |
| 1931 | 1,574.17 | 1,982.91 | 61.95 | 1,920.96 | | 2,500.00 |
| 1932 | 5,797.65 | 4,992.98 | 522.85 | 4,670.63 | | 2,500.00 |
| 1933 | 3,948.39 | 5,394.06 | 474.89 | 4,919.17 | | 4,500.00 |
| 1934 | 3,734.85 | 4,929.00 | 1,302.36 | 3,626.64 | | 4,000.00 |
| 1935 | 2,906.24 | 4,425.84 | 2,776.96 | 1,648.88 | | 3,000.00 |
| 1936 | 2,867.56 | 4,211.55 | 2.75 | 4,208.60 | | 3,000.00 |
| 1937 | 3,673.48 | 4,263.52 | 125.45 | 4,160.07 | | 5,000.00 |
| 1938 | 5,155.07 | 8,631.67 | 664.00 | 7,967.67 | | 4,000.00 |

The following plate shows graphically a comparison of 1937 and 1938 Public Works costs.



STREET LIGHTS

The street light system consists of some 17.92 miles of pole line and 377 lamps. 36 of these lamps are lighted only during exhibition time. This system is a series light system and is divided into four circuits. Two circuits are each controlled by a constant current transformer of 15 K.W. capacity. The other two circuits are each controlled by a constant current transformer of 25 K.W. capacity.

These transformers along with the main switch board are housed in a transformer room in the old street lighting building on Carleton Street.

Besides the above mentioned series lighting system, the city this year installed a multiple lighting system on Queen Street on the blocks between York and Carleton Street and between Regent and St. John Street.

The unit used was a Novalux Luminar fixture with a 500 W. 115 volt lamp or a lamp giving 10,000 lumens. On the installation between York and Regent Street nine lighting units were used. These units go on and off at the same time as the ordinary street lights, as they are controlled by a control switch which is energized by our series street lighting system.

The section between Regent and St. John Streets consists of five units which are controlled by a similar control switch. The city entered into a contract with the Maritime Electric Company, which contract states that the Maritime Electric Company will supply and instal and maintain these multiple lighting units and supply the current consumed for them at a flat rate of \$75.00 per year per lamp.

The series circuits are made up as follows:-

Lower Front Circuit:-

| | |
|--------------------------------------------|-----------------------------|
| 17-600 C.P. lamps at .372 K.W. demand..... | 6.524 K.W. |
| 45-250 C.P. lamps at .155 K.W. demand..... | 6.665 K.W. |
| 9-100 C.P. lamps at .0716 K.W. demand..... | <u>644 K.W.</u> 13.635 K.W. |

Lower Rear Circuit:-

| | |
|---------------------------------------------|-------------------------------|
| 93-250 C.P. lamps at .155 K.W. demand..... | 14.415 K.W. |
| 51-100 C.P. lamps at .0716 K.W. demand..... | <u>2.219 K.W.</u> 16.634 K.W. |

Upper Front Circuit:-

| | |
|--------------------------------------------|--------------------------------|
| 1-660 C.P. lamp at .372 K.W. demand..... | .372 K.W. |
| 72-250 C.P. lamps at .155 K.W. demand..... | <u>11.160 K.W.</u> 11.532 K.W. |

Upper Rear Circuit:-

| | |
|---------------------------------------------|--------------------------------|
| 111-250 C.P. lamps at .155 K.W. demand..... | 17.165 K.W. <u>17.165 K.W.</u> |
|---------------------------------------------|--------------------------------|

The city street lights are turned on in the evening and off in the morning by two time clock switches, each time clock controlling two circuits. The time at which lights go on and off is governed by a schedule which is supplied by the City to the Maritime Electric Company who set the time clocks accordingly.

The power for the series street lighting systems is purchased from the Maritime Electric Company at a contract price as agreed upon in the contract between the Maritime Electric Company and the City made in 1927. This contract also covers the cost of maintenance of \$20.00 a year per mile of pole line which is paid by the city to the company.

All material such as wire, poles, pole fixtures, lamps, lamp fixtures, transformers, etc., is paid for by the city but installed by the Maritime Electric Co. under their contract price for maintenance. Any new installations which require an enlargement of circuits must be paid for by the city both labour and material.

The following new installations were made in 1938:-

| | | |
|------------------------------------------------------------|-------|--------------|
| Beaverbrook Street..... | 2-250 | Candle Power |
| Old Burial Ground..... | 3-250 | " " |
| Regent Street between King and Queen...1-250 | " | " |
| Westmorland St. between George and Charlotte.....1-250 | " | " |
| Alexandra St. between Winslow and University Ave.....1-250 | " | " |
| Winslow St. Between Alexandra and Grey.1-250 | " | " |
| Grey St. between Winslow & University Ave....1-250 | " | " |

The installation of the new multiple lamps on front street enabled us to do away with 9-250 C.P. lamps from our series circuits. Besides the ordinary maintenance work on street light circuits done by the Maritime Electric Company the City this year painted the street light standards on Queen Street and around the Parliament Square.

Upon the completion of the construction of the C.N.R. subway at the north end of University Ave. a lighting system was installed in the subway by the Maritime Electric Company. This system consists of six multiple lamps and fixtures installed on the roof of the subway. The lighting of these lamps is controlled by a switch which is energized by the street light series circuits.

According to the agreement between the railway and the city, the city paid the cost of material on this installation, which amounted to \$250.43, and the

railway paid the labour costs.

Street lighting costs for the year 1938 are divided as follows:

| | |
|-------------------------|-----------|
| Gross Expenditure..... | \$8456.24 |
| Credits..... | 142.18 |
| Net Expenditure..... | 8314.06 |
| 1938 Appropriation..... | 9000.00 |
| Cr. Balance..... | \$ 685.94 |

The \$142.18 which appears as a credit above is the cost of making some changes in our street light circuit because of the construction of the C.N.R. subway. The city paid this bill to the Maritime Electric who did the work and the railway reimbursed the city.

The Gross Expenditure is made up as follows:-

| | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Current on Subway lighting and series fixtures from Nov. 27/57 to Nov. 27/58, | |
| 251249 K.W.H..... | \$6221.77 |
| Charges on new multiple fixtures installed on Queen Street at the contract price of \$75.00 a light per year..... | 253.13 |
| Maintenance, labour as per contract price | 350.96 |
| City labour..... | 18.37 |
| Lamps for Replacement:- | |
| - 48 - 600 C.P. lamps @ \$1.69..... | \$ 81.12 |
| - 480 - 250 C.P. lamps @ 97 $\frac{1}{2}$ %..... | 468.00 |
| Material purchased for new installations and maintenance of lamp fixtures (including only such articles as lamp standards, lamp brackets, heads, sockets, shades, etc.)..... | 382.13 |
| Material and extra labour supplied by Maritime Electric Co. used in line maintenance and extension..... | 476.58 |
| Miscellaneous charges..... | 224.18 |
| | <u>\$8456.24</u> |

The total per capita charge for street lighting for 1938, assuming population of 11,000 persons =

$$\frac{8314.06}{11000} = 75.5\%$$

TABLE SHOWING CURRENT CHARGES FOR 1938
ON SERIES LIGHTING

| Date of Bill | K.W.H. | Demand in K.W. | Average No. of burning hours per night | Bill per month | Days per Bill | Burning hours in each bill |
|---------------|--------|----------------|----------------------------------------|----------------|---------------|----------------------------|
| Nov. 27/37 | | | | | | |
| to Dec. 26/37 | 24200 | 59 | 14 $\frac{3}{4}$ | 618.50 | 29 | 427.75 |
| Dec. 26/37 | | | | | | |
| to Jan. 29/38 | 26625 | 59 | 14 $\frac{1}{2}$ | 667.72 | 34 | 495.00 |
| Jan. 29/38 | | | | | | |
| to Feb. 28/38 | 22924 | 59 | 15 | 592.56 | 30 | 390.00 |
| Feb. 28/38 | | | | | | |
| to Mar. 29/38 | 17901 | 58 | 11 $\frac{1}{4}$ | 491.05 | 29 | 326.25 |
| Mar. 29/38 | | | | | | |
| to Apr. 29/38 | 17755 | 57 | 9 $\frac{1}{2}$ | 485.54 | 31 | 294.50 |
| Apr. 29/38 | | | | | | |
| to May 31/38 | 15051 | 58 | 8 $\frac{1}{2}$ | 432.43 | 32 | 272.00 |
| May 31/38 | | | | | | |
| to June 30/38 | 14477 | 58 | 7 $\frac{1}{2}$ | 421.36 | 30 | 217.50 |
| June 30/38 | | | | | | |
| to July 28/38 | 12695 | 58 | 7 $\frac{1}{2}$ | 386.32 | 28 | 210.00 |
| July 28/38 | | | | | | |
| to Aug. 27/38 | 15215 | 57 | 8 $\frac{3}{4}$ | 454.51 | 50 | 262.50 |
| Aug. 27/38 | | | | | | |
| to Sep. 26/38 | 18555 | 57 | 10 $\frac{1}{2}$ | 500.65 | 30 | 315.00 |
| Sep. 26/38 | | | | | | |
| to Oct. 27/38 | 20621 | 61 | 12 | 549.89 | 31 | 372.00 |
| Oct. 27/38 | | | | | | |
| to Nov. 28/38 | 25230 | 60 | 13 $\frac{1}{2}$ | 641.24 | 31 | 418.50 |
| | 251249 | | | \$6221.77 | 365 | \$3999.00 |

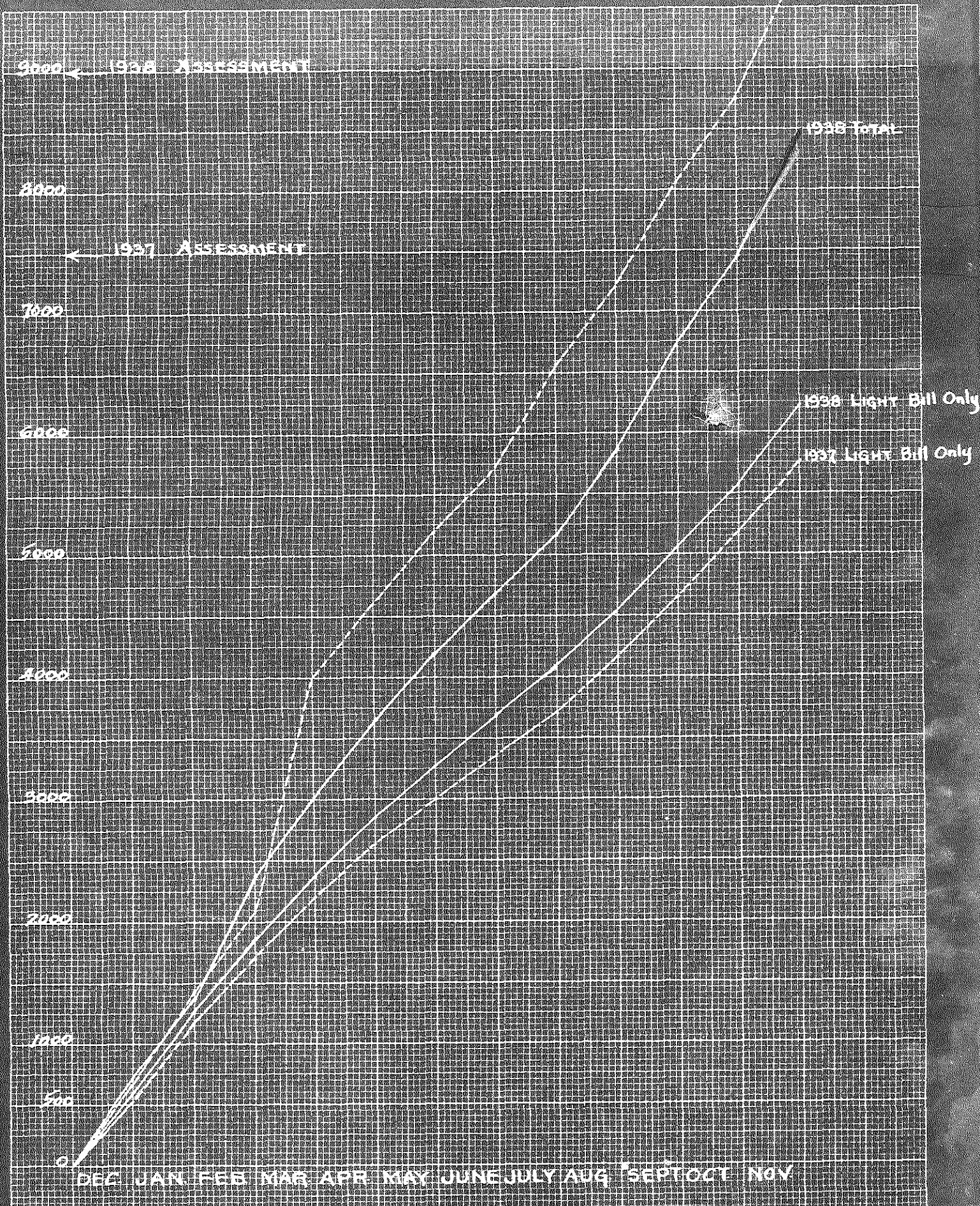
TABLE SHOWING COMPARATIVE YEARLY COSTS IN STREET LIGHTING

| Year | Total Yearly Cost | Yearly Appropriation |
|------|-------------------|----------------------|
| 1927 | \$8,088.41 | \$8,000.00 |
| 1928 | 7,325.41 | 7,000.00 |
| 1929 | 7,434.72 | 7,000.00 |
| 1930 | 7,115.40 | 7,000.00 |
| 1931 | 6,672.25 | 10,000.00 |
| 1932 | 6,532.51 | 6,000.00 |
| 1933 | 6,425.87 | 6,000.00 |
| 1934 | 6,065.28 | 6,000.00 |
| 1935 | 6,652.33 | 6,000.00 |
| 1936 | 6,957.72 | 7,000.00 |
| 1937 | 9,688.62 | 7,500.00 |
| 1938 | 8,314.06 | 9,000.00 |

A graphic comparison of 1937 and 1938 street light expenditure and power cost is shown on the following plate; the curve for power cost includes the bill for the series lighting and the lighting in the subway only and does not include the bill for the multiple fixtures installed on Front Street and owned by the Maritime Electric Company.

No. 334 - 2 TU 10 X 10 TO THE HALF INCH
PRINTED IN U.S.A.

1931 TOTAL



STREET LIGHT COSTS 1937 AND 1938.

BATHING BEACH

This year as usual we maintained a bathing beach at the end of Smythe Street near the water works under the care and supervision of Mr. Charles Williams.

The beach was opened from June 2nd, 1938 to September 15th, 1938 at the total cost to the city of \$291.92 made up of \$287.36 for wages and \$4.56 material cost.

MUNICIPAL HOME

Under this heading appears on my books the sum of \$1516.78. This cost is made up as follows:-

| | |
|------------------------------------------------------------------------------|---------------|
| Labour charges against Municipal Home Dept..... | \$693.98 |
| Wood delivered to Municipal Home from quarry lot, 121 cords @ \$5.00..... | 605.00 |
| Proportion of J.D. MacKay's car expenses for 1938 | 25.00 |
| Coal delivered to the Municipal Home..... | <u>192.80</u> |
| | \$1516.78 |

This labour cost of \$693.98 includes some small cost for the repairs at the city Municipal Home building but is chiefly made up of the cost of delivering wood to persons who are being assisted by the city.

During the year 1938 three hundred and forty-two cords of wood were delivered to such persons by the city Municipal Home Department.

SEWERAGE DOMESTIC

| | |
|------------------------|------------------|
| Gross Expenditure..... | \$4219.16 |
| Credits..... | 1658.47 |
| Net Expenditure | <u>\$2560.69</u> |

This credit of \$1658.47 is made up of work done on domestic sewers for private citizens and has been billed to those persons.

The Gross Expenditure is made up as follows:-

| | |
|-----------------------|----------------|
| Labour..... | \$1552.08 |
| Material charges..... | <u>2667.08</u> |
| | \$4219.16 |

No new extensions were made to the domestic sewerage system this year other than house connections.

The domestic sewerage on Argyle Street between Westmorland and Northumberland Street has for the last number of years given us trouble in the winter by freezing up. This year we relaid about 400 feet of this sewer. We were unable to get the sewer any deeper as it already had a minimum grade. However, we found when we dug the old pipe up that it was cracked and out of alignment. We relaid using new 8 inch terra cotta pipe, the same as formerly put down. We surrounded the pipe with sawdust in an endeavour to insulate it against frost action. I hope, partially due to this installation and partially due to a proper alignment, the sewer will not give us trouble for the next few winters.

The entire domestic sewerage system was flushed out twice during the year, once from May 5th to 14th at a labour cost of \$63.60 and once from October 1st to 13th at a labour cost of \$95.20.

Domestic sewerage was charged \$70.00 by the water pumping station for the water used in these two flushings.

New customers connected to the city's sewerage system this year.....35

Old services which had to be dug up and relaid.....4

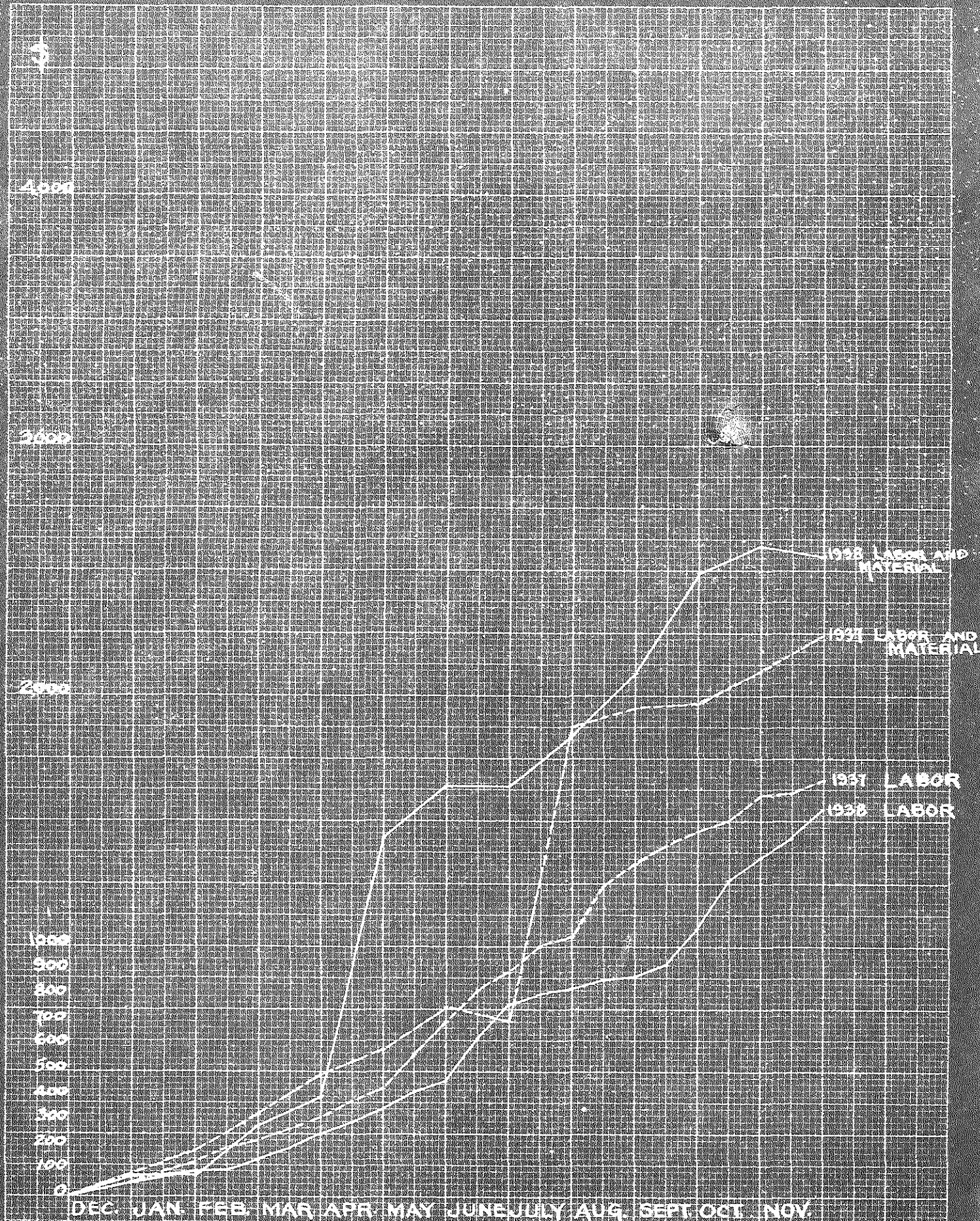
This year, as an experiment, we put in a catch well on the 8 inch sewer main on the Maryland Road. This catch well was located on the main between Beaverbrook Street and the C. P. R. tracks.

For the last few years we have had trouble with this sewer on account of the amount of sand which flows down along with the sewerage from the higher elevations of Beaverbrook and Albert Streets. This sand deposits and plugs up the sewer in Regent Street near the end of McLeod Street where the gradient becomes flat. We hope to trap most of this sand in the catch well. To date, I believe this well has been a considerable help.

A graphic comparison for domestic sewerage costs for 1937 and 1938 is shown on the following plate:-

EXTRACTING SEWAGE IS XEROX TO THE HAIR-NICHE
WHEN WORKING WITH SOIL OR ORGANIC OR STAINING PAPER OR LEAF

PRINTED IN U. S. A.



SPECIFICATIONS FOR SEWAGE AND DOMESTIC PIPE, JULY 1914, GENERAL INDEX

SEWERAGE DOMESTIC

*Revenue from Water and
Sewerage Rates for Year*

*1937. \$ 43,140.97
WATER Expenditure \$ 8,997.46
18,252.51 Net Profit.*

The expenditure in this department is divided into two headings, namely, "Water Ordinary" and "Water Pumping Station".

Water Ordinary:-

This account takes in all expenditures for water outside the pumping station and pumping station grounds. The expenditure under this heading is made up as follows:-

| | |
|------------------------|-----------|
| Gross Expenditure..... | \$7052.15 |
| Credits..... | 153.11 |
| Net Expenditure..... | \$6899.04 |

The credits are made up of work done for and materials sold to private parties when installing a water service over grounds other than city property or when the material is to be used on parts of systems which do not belong to the city.

The Gross Expenditure is made up as follows:-

| | |
|--------------------------------------|-----------|
| City Payroll for hydrants..... | \$ 575.29 |
| City Payroll for meters..... | 1399.65 |
| City Payroll for water ordinary..... | 3822.53 |
| Total payrolls..... | \$4797.47 |
| Material and other charges..... | 2254.63 |
| Gross Expenditure..... | \$7052.15 |

Hydrants:-

We have in the city 148 hydrants. Our above costs show us an average cost per hydrant for labour only of \$3.88.

These hydrants consist of five 8 inch hydrants, thirty-nine 6 inch hydrants, and one hundred and four 4 inch hydrants.

Meters:-

Of all our water services in the city 558 are charged under flat rate and 1093 are on meter, giving us altogether 1651 services.

The labour cost this year per meter for installing, reading, repairing, etc., is \$1.28.

Forty-six meters were found stopped this year and had to be repaired.

All meters are read four times a year but bills are only sent out twice a year. We have about 25 customers whose meters are read once a month although they also are billed only twice a year. These are customers who ordinarily have large consumptions and where a stopped meter or a meter turned over without being noticed would

mean considerable loss of revenue to the city.

| | |
|-------------------------------------------------------------------------|------------------|
| Meters in service 1937..... | 1080 |
| Services metered for first time | |
| in 1958..... | 15 |
| Total..... | <u>1095</u> |
| Meters taken off service in 1958... Services on meter Nov. 1958..... | 2 <u>1093</u> |

Meters in store room January 1, 1959:-

| | |
|----------------------------------------------------|---|
| 5/8 meters repaired and fit for service..... | 3 |
| 5/8 meters that can be repaired and made | |
| fit for service..... | 1 |
| New 5/8 meters..... | 5 |
| 5/4 meters fit for service..... | 0 |
| 1 inch meters that can be repaired and made | |
| fit for service..... | 2 |
| 1 inch meters fit for service..... | 0 |
| 1½ inch meters fit for service..... | 1 |
| Compound meters fit but not in service..... | 1 |
| Compound meters not fit but which can be repaired. | 1 |

The city purchased 20 new meters this year. Serial numbers 5568445 - 5568464.

DISTRIBUTION SYSTEM

| | |
|---------------------------------------------|----|
| New water services put in this year..... | 36 |
| Old water services relaid this year..... | 29 |
| Frozen services which had to be thawed..... | 16 |
| <i>Services discontinued</i> | |

We had in this city on the 30th November, 1958, 1651 water services of which 1093 are on meter and 558 flat rate.

The Fredericton distribution system consists of 16.71 miles of water main made up of the following sizes:-

| | |
|-------------------|------------|
| 10 inch main..... | 1.53 miles |
| 8 inch main..... | 4.21 miles |
| 6 inch main..... | 9.09 miles |
| 4 inch main..... | 1.60 miles |
| 3 inch main..... | .28 miles |

The water mains as a whole were not flushed out this year other than the flushing they received due to the watering carts, sewer flushing, etc. The dead ends, one on Woodstock Road, one on Rockwood Ave. and one on St. John Road were flushed when we received complaints from nearby customers.

We had a number of new water installations this year which were mostly charged to capital account. From this capital account moneys was spent during 1938 the sum of \$9419.34. Therefore, along with our water ordinary expenditure of \$6899.04 we spent altogether on the distribution system this year in maintenance and new installations the sum of \$16,318.38.

University Ave.: -

On University Ave. from Shore Street to the gate of the University of New Brunswick, a total length of 2075 feet, an old four inch main in place was replaced with an 8 inch main. It was necessary in making this installation to dig up the old four inch main and replace it by the 8 inch in such a manner that water services were not discontinued to the customers taking water from this main. This 8 inch main had to be connected in place of the four to the six inch mains on Lansdowne Street, Grey Street and Alexandra Street and to the eight inch main at the College gate as well as to the four inch main running up to the Beaverbrook building. Nine 8 inch gates were installed on this main and the three hydrants which had been on the old four inch main were connected to the 8 inch main, each hydrant having a separate gate valve installed.

The total labour cost on this job, covering every item of the replacement, amounted to \$1455.79, making a labour cost per lineal foot of new 8 inch main installed of 70¢ a foot.

Argyle Street: -

On Argyle Street, between Westmorland and Northumberland, a one inch water main was replaced by a six inch water main. 550 feet of this replacement was laid. Two new 6 inch gates were used.

The labour cost per lineal foot on this job was 39¢

Northumberland Street: -

The 3 inch main on Northumberland Street between Brunswick and George Street was removed and replaced by a 6 inch main. We had trouble in the past with this 3 inch main freezing so we lowered the 6 inch main below

frost level. This change was absolutely necessary as we were paving this block this year and had lowered the grade of the street over one foot. We put in on this location 275 feet of new 6 inch main with a labour cost per lineal foot of 73¢.

Northumberland Street:-

On Northumberland Street, from Argyle to Victoria Street, a one inch water main was replaced by 370 feet of 8 inch main. The water consumption in this locality had become greater than the one inch main could carry.

The labour cost on this replacement was 92¢ a lineal foot.

Smythe Street:-

On Smythe Street, from Aberdeen to Argyle Street, a one inch water main was replaced by an 8 inch water main for a distance of 445 feet.

The labour cost of this replacement was 47¢ a lineal foot.

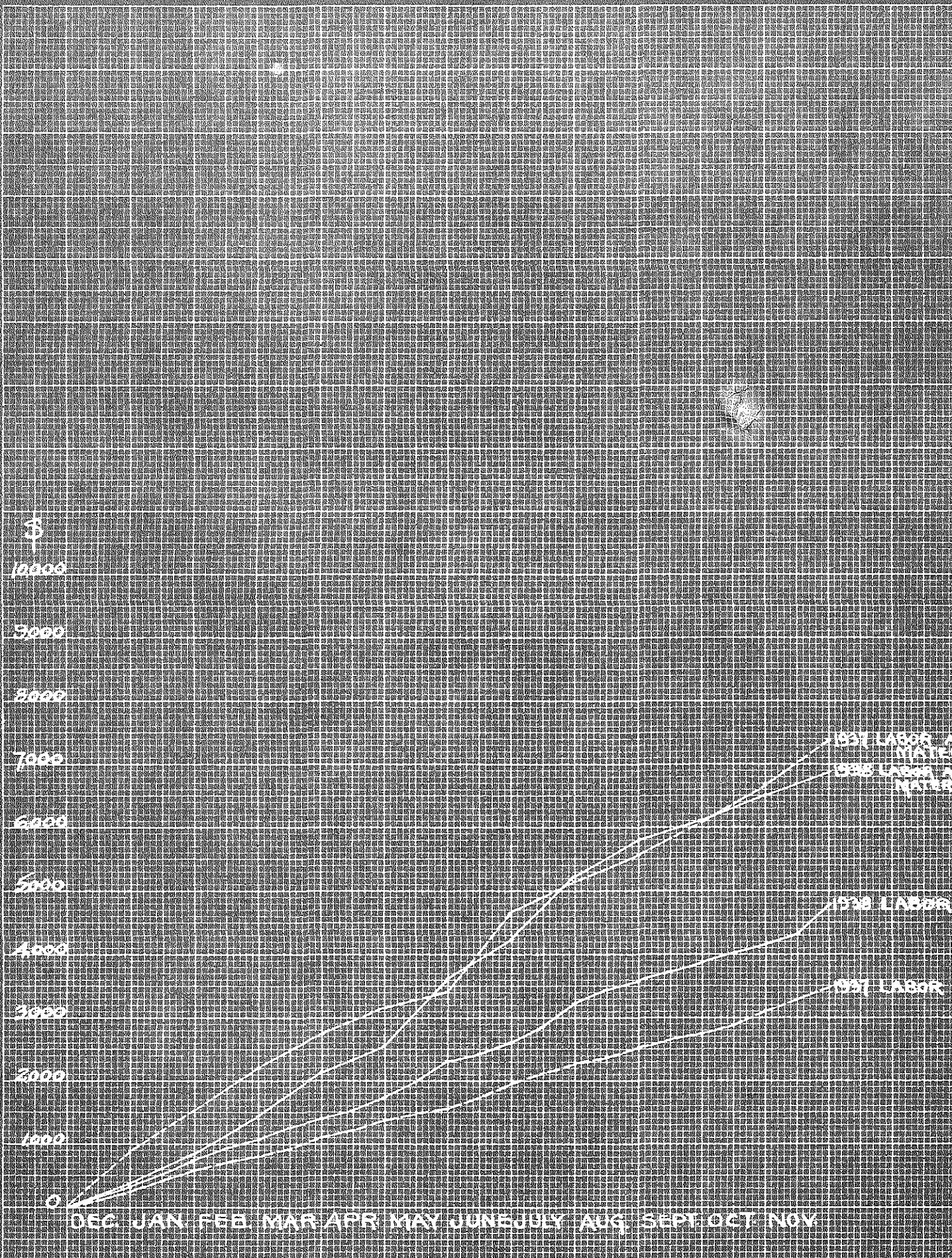
**TABLE SHOWING COMPARATIVE YEARLY COSTS
WATER ORDINARY**

| Year | Labour | Material | Gross Expenditure | Credits | Net Expenditure |
|-------|----------|----------|-------------------|---------|-----------------|
| 1929 | 5,236.77 | 2,205.13 | 5,439.90 | | 5,439.90 |
| 1930 | 5,647.97 | 2,513.18 | 5,961.15 | | 5,961.15 |
| 1931 | 5,856.33 | 4,576.87 | 8,213.20 | 279.65 | 7,933.55 |
| 1932 | 2,666.50 | 1,854.06 | 4,520.36 | 122.47 | 4,397.89 |
| 1933 | 2,355.25 | 1,604.17 | 5,937.42 | 30.27 | 5,907.15 |
| 1934 | 5,247.51 | 4,112.34 | 7,359.85 | 891.23 | 6,468.62 |
| 1935 | 5,372.83 | 5,897.23 | 11,270.06 | 598.42 | 10,671.64 |
| 1936 | 4,505.14 | 3,725.91 | 8,029.05 | 392.35 | 7,636.70 |
| 1937 | 5,718.86 | 5,938.81 | 7,657.67 | 256.46 | 4,701.21 |
| 1938* | 4,797.47 | 2,254.68 | 7,052.15 | 153.11 | 6,899.04 |

* The cost as shown on this table for 1938 does not include the capital cost expenditure of \$9419.54.

A graphic comparison of expenditure on water ordinary for years 1937 and 1938 is shown on the following plate:-

NO. 354 - 2 TN. 10 X 10 TO THE HALF INCH
PRINTED IN BLACK



WATER PUMPING STATION

The water pumping station under the plant superintendent and chief engineer, John Malloy, has been carried on in its usual satisfactory manner.

During the year the low lift and service motor driven pumps were each packed and kept in good running order. - *New bearing assembly or pump end of No. 2 Service Pump*

New brushes were put in No. 1 and No. 2 motors on the service pumps.

The rings were ground and brushes trimmed about once a month on all these motors.

The coagulating basin was emptied and washed twice during the year.

From our four filters which are in operation all sand and gravel was removed. The sand valves were taken out and cleaned. The lateral pipes were cut out of the cement and renewed with new pipe and recemented in the bottom of the filters.

The old gravel and sand was replaced in the filters and three inches of new filter sand added to the top of each filter.

One valve on the influent on No. 2 filter was renewed with a new hydraulic 6 inch gate valve.

Six new leather cups were put in the 4 inch valves.

All filter valves were cleaned and packed.

Both boilers were inspected by the boiler inspector and reported O.K.

The boiler settings and all piping in connection with the boilers was repaired, cleaned and painted.

All drain sewers from the basement of the main building as well as from the low lift room were dug up and replaced by new piping where necessary. These sewers were flushed out and left in good working order.

The intake pier in the St. John River was not cleaned out this year.

The low lift pump well was cleaned out.

The roof of the small house over the pump well was repaired and painted.

At the time the pump well was cleaned out the intake pipe from the crib pier in the river to the pump well was

well flushed out.

The pumping station grounds were, as usual, kept in good condition by the pumping station operators.

A new double door was built on the entrance to the shed at the back of the boiler room.

The chemical treatment of the water, which consists of lime treatment and alum treatment to aid the filtering operations, was this year carried on as usual under the supervision of Dr. H. H. Hagerman, City Analyst, by the regular waterworks operators under the direct supervision of John Malloy, Chief Engineer and Plant Superintendent.

Following is Dr. Hagerman's report for the year 1938:-

FREDERICTON WATER SUPPLY - YEAR 1938

Total Count of Bacteria per c.c., Agar. two days.

| Dates of Tests | Raw Water | Effluent | Tap Water | Per cent. Removal |
|----------------|-----------|----------|-----------|-------------------|
| 1938 | | | | |
| January 8 | 190 | 1 | - | 99.5 |
| " 15 | 1000 | 2 | - | 99.8 |
| " 31 | 3000 | 6 | 5 | 99.8 |
| February 14 | 2200 | 0 | - | 100.0 |
| " 22 | 4200 | 1 | 2 | 99.9 |
| March 15 | 1000 | 0 | 0 | 100.0 |
| " 18 | 1900 | 0 | 2 | 100.0 |
| April 1 | 13000 | 2 | 1 | 99.9 |
| " 18 | 6000 | 7 | 5 | 99.9 |
| " 27 | 1600 | 0 | 2 | 100.0 |
| May 18 | 1150 | 4 | 2 | 99.6 |
| " 27 | 900 | 8 | 4 | 99.1 |
| June 14 | 300 | 2 | 4 | 99.4 |
| " 29 | 260 | 5 | 1 | 98.1 |
| July 19 | 160 | 3 | - | 98.1 |
| August 2 | 250 | 3 | - | 99.6 |
| " 30 | 130 | 1 | - | 99.3 |
| September 17 | 600 | 1 | - | 99.8 |
| " 27 | 600 | 0 | 1 | 100.0 |
| October 15 | 300 | 0 | 2 | 100.0 |
| " 25 | 1000 | 5 | 7 | 99.5 |
| November 10 | 350 | 0 | 2 | 99.4 |
| " 22 | 1000 | 2 | 1 | 99.8 |
| December 6 | 700 | 1 | - | 99.8 |
| " 11 | 900 | 0 | - | 100.0 |
| " 25 | 2500 | 2 | 1 | 99.9 |
| | 45190 | 54 | 36 | |
| Averages..... | 1738 | 2.1 | 2.4 | |

Average per cent Removal equals 99.88, or practically 99.9

For Comparison:

| | | | | |
|------|------|-----|-----|-------|
| 1955 | 2525 | 3.7 | 4.7 | 99.85 |
| 1955 | 2197 | 2.4 | 3.2 | 99.9 |
| 1956 | 2218 | 2.7 | 3.3 | 99.9 |
| 1957 | 1827 | 1.9 | 3.3 | 99.9 |

The usual treatment of the water has been carried out during the year, using hypo continuously and alum as well, during the greater part of the time when conditions required it. The year has been one of generally high water with frequent fluctuations due to weather conditions making the satisfactory treatment of the water difficult at times. While ideal results may not always have been obtained, the results given above indicate a satisfactory removal of bacterial impurities.

(sgd) H.H. Hagerman

H.H. Hagerman.

Fredericton, N.B.,
December 28, 1958.

Water Pumping Station Cost 1958:-

| | |
|------------------------|-------------|
| Gross Expenditure..... | \$19,239.49 |
| Credits..... | 3,810.82 |
| Net Expenditure..... | \$15,428.67 |

This credit of \$5810.82 is made up as follows:-

| | | |
|------------------------------------------------------------------------------------------------|-----------|-----------|
| 79.6 tons of coal charged to pumping station and sold to other city departments..... | \$ 380.62 | 100 C.W. |
| Water used by Roads and Streets Dept..... (to sprinkle streets and flush sewers)..... | 200.00 | 100 |
| Water charged to Sewerage Domestic for flush- ing domestic sewers..... | 70.00 | 70 |
| Water used in City Hall building..... | 50.00 | 50 |
| Water used in old street light building, Carleton Street... Water used in City Yard..... | 25.00 | 25 |
| Water used in City Almshouse..... | 10.00 | 10 |
| Water used in City Parks..... | 25.00 | 25 |
| To yearly rental on 150 hydrants @ \$20.00,.... | 50.00 | 50 |
| | 3000.00 | \$5810.82 |

The Gross Expenditure is divided as follows:-

| | |
|-------------------------------------------------------------------------|-----------|
| City Payrolls for salaries of engineer at Pumping Station..... | \$5580.00 |
| Work done by other city employees in and around Pumping Station..... | 522.98 |
| Total City Payrolls..... | 6102.98 |
| Material and Workmen's Compensation charge | 15136.51 |
| Gross Expenditure..... | 19259.49 |

The material cost of \$15,136.51 is itemized as follows:-

| | | |
|----------|---------------------------------------------------------------------------------------|-------------|
| Item #1 | Light and power supplied by Maritime Electric Co. 521680 K.W.H..... | \$7372.74 |
| Item #2 | Transformer charges..... | 151.92 |
| Item #3 | Lime, 5700 lbs..... | 161.77 |
| Item #4 | Alum, 78,400 lbs..... | 1128.96 |
| Item #5 | Coal, 270,405 tons (79.6 tons of preced- ing amount sold to other city departments | 1310.87 |
| Item #6 | Fuel oil..... | --- |
| Item #7 | Engine Oil, 268 gal. Renown..... | 159.95 |
| Item #8 | Motor Oil, 8 gal..... | 12.67 |
| Item #9 | Gasoline..... | --- |
| Item #10 | Maintenance and repairs of the building and machinery..... | 1442.13 |
| Item #11 | New Installations..... | --- |
| Item #12 | Supplies, packing, reg's, etc..... | 87.76 |
| Item #13 | Stationery, forms, charts, etc..... | 67.35 |
| Item #14 | Workmen's Compensation Board..... | 155.75 |
| Item #15 | Dr. Hagerman's salary..... | 900.00 |
| Item #16 | Hoisting chemicals..... | 86.00 |
| Item #17 | Miscellaneous, telephone, etc..... | 78.68 |
| | | \$15,136.51 |

COMPARISON OF WATER PUMPED AND COSTS
FOR LAST TWELVE YEARS

| Year | I.O. Water Pumped | Yearly Gross Expenditure at: Pumping Station | Pumping Station cost per 1000 Gal. | Total Water Costs (Net Expen- diture of Water Ordin- ary and Gross Expenditure of Water Pump Station | Total yearly cost per 1000 gal. |
|------|----------------------|----------------------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| | | | (using Gross Expenditure) | \$ | \$ |
| 1927 | 198,168,000 | 18,040.65 | 9.10-cents | 26,656.62 | 13.0 cts |
| 1928 | 192,890,000 | 18,245.05 | 9.46 " | 26,122.73 | 13.5 " |
| 1929 | 195,590,000 | 17,722.44 | 9.00 " | 32,142.34 | 16.4 " |
| 1930 | 204,405,000 | 16,791.22 | 8.21 " | 22,752.37 | 11.1 " |
| 1931 | 197,164,000 | 16,425.55 | 8.8 " | 24,359.10 | 13.0 " |
| 1932 | 171,032,000 | 16,915.58 | 9.9 " | 21,515.47 | 12.5 " |
| 1933 | 175,050,000 | 16,483.67 | 9.5 " | 20,590.82 | 11.6 " |
| 1934 | 202,720,000 | 15,999.50 | 7.9 " | 22,468.12 | 11.1 " |
| 1935 | 197,641,000 | 16,251.61 | 8.1 " | 27,123.25 | 13.6 " |
| 1936 | 195,450,000 | 17,189.21 | 8.8 " | 24,825.91 | 12.8 " |
| 1937 | 187,008,000 | 19,678.21 | 10.5 " | 27,079.42 | 14.5 " |
| 1938 | 181,555,000 | 19,259.49 | 10.6 " | 26,138.53* | 14.4 " |

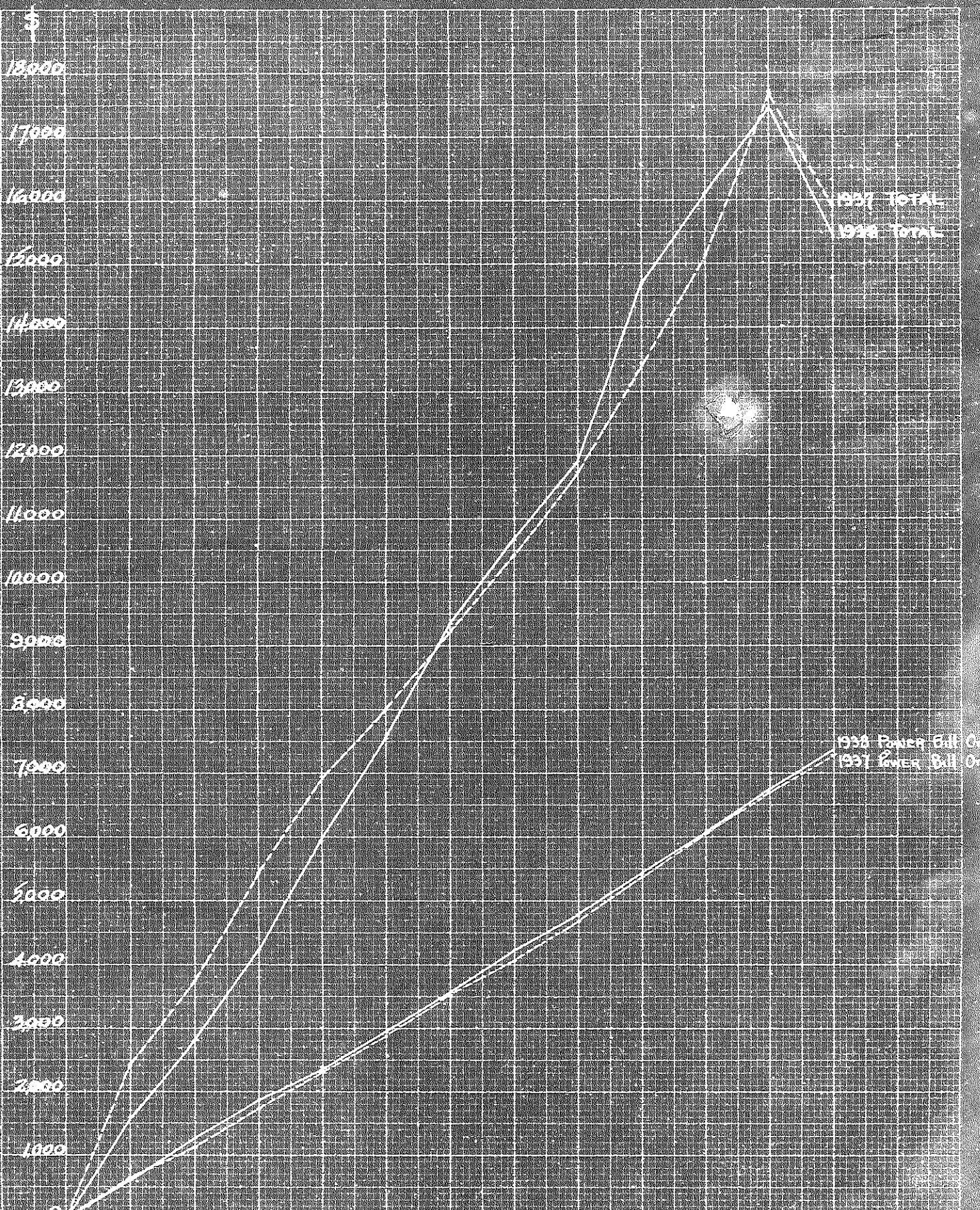
* This total cost of \$26,138.53 does not include the amount spent in water installations and charged to the capital account expenditure of \$9419.54.

All these preceding costs shown under water pumping station and water ordinary do not include the costs of billing and collecting of water bills or any other overhead charges included in city government costs, nor do they include bond payments or sinking fund charges.

The following chart gives a graphic comparison of water pumping station costs for the year 1937 and 1938.

ENGRAVING 134 - 2 INCH BY ONE-HALF INCH.

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WATER PUMPING STATION COSTS 1937 AND 1938

Table compiled from Daily Pumping Station Charts
Year 1938, showing water pumped and material
and machinery used in pumping.

| Total Hours Month | Month | Gals. Water Pumped | Coal Lbs. | K.W.H. | Hours power supplied by Marl-Oil time | Fuel and lubricants Pts. Eng. Oil | Gals. Eng. Used | Low Lift pump hrs. run | | Service Pumps Hrs. run | |
|-------------------------|-----------|--------------------------|--------------|--------|------------------------------------------------|-----------------------------------------------|-----------------------|------------------------------|-------------|---------------------------|-------------|
| | | | | | | | | #1 Motor | #2 Motor | #1 Motor | #2 Motor |
| 744 | Dec. | 13,960,000 | 47,100 | 26210 | 744 | - | 46½ | 530 | 5·35 | 744 | 744 |
| 744 | Jan. / 38 | 14,965,000 | 70,300 | 29450 | 744 | 46½ | 42 | 578½ | 435·50 | 240·40 | 240 |
| 672 | Feb. | 13,160,000 | 66,000 | 25574 | 672 | 46½ | 42 | 497½ | 744 | 270 | 270 |
| 744 | March | 14,510,000 | 52,800 | 20856 | 744 | 45 | 45 | 557½ | 718 | 545 | 545 |
| 720 | April | 14,380,000 | 23,100 | 26342 | 720 | 45 | 45 | 588 | 480·50 | 264·25 | 264 |
| 744 | May | 16,270,000 | 17,400 | 26168 | 744 | 45 | 45 | 580 | 572 | 720 | 720 |
| 720 | June | 16,605,000 | 24,000 | 29412 | 720 | 45 | 45 | 570½ | 3·20 | 743 | 743 |
| 744 | July | 15,340,000 | 24,000 | 25037 | 744 | 46½ | 46½ | 598 | 2·3 | 742 | 742 |
| 720 | Aug. | 15,845,000 | 0 | 28061 | 744 | 46½ | 50¾ | 566 | 566 | 696 | 696 |
| 744 | Sept. | 16,430,000 | 11,900 | 27889 | 720 | 45 | 45 | 562½ | 3·4 | 408 | 408 |
| 720 | Oct. | 15,690,000 | 27,700 | 28175 | 744 | 45 | 45 | 562½ | 337·1 | 720 | 720 |
| 744 | Nov. | 14,400,000 | 34,400 | 28506 | 720 | 45 | 45 | 528½ | 11½ | | |
| | | | | | | | | | | | |

At the conclusion of this report I am inserting
the following table:-

TABLE SHOWING
PRINCIPAL PURCHASES OF MATERIAL USED BY DEPARTMENTS HERE BEFORE MENTIONED

| Material | Amount Purchased 1938 | Average Price f.o.b. Fredericton | Amount in Stock Dec. 31/38 |
|---------------------------|-----------------------|-------------------------------------|-------------------------------|
| 4" Soil Pipe | 155 feet | 45¢ | |
| 4" Terra Cotta Pipe | 0 | | |
| 5" Terra Cotta Pipe | 2162½ feet | 27½¢ | 22 joints |
| 6" Terra Cotta Pipe | 0 | | |
| 8" Terra Cotta Pipe | 850 feet | 41¢ | 101 joints |
| 10" Terra Cotta Pipe | 550 feet | 55¢ | 115 joints |
| 12" Terra Cotta Pipe | 800 feet | 72¢ | |
| 15" Terra Cotta Pipe | 0 | | |
| 20" Terra Cotta Pipe | 0 | | |
| 24" Terra Cotta Pipe | 550 feet | \$2.54 | 5 joints |
| 24" Corrugated Iron Pipe | 18 feet | \$3.50 | |
| Portland Cement | 7344 bags | 70¢-72¢ per bag | |
| Dynamite 50% | 3400 lbs. | \$25.00 per 100 lbs. | |
| Brick | 25050 | \$16.00 per 1000 | |
| Stone (Trap rock) | 10541 tons | 5¢ ton royalty | 7179 |
| Gravel (River (Pit | 3500 cu. yds. | 45¢ delivered on pile | |
| Calcium Chloride | 1872½ cu. yds. | 90¢ delivered on job | |
| 7' Road Machine Blades | 750 bags | \$2.00 per bag | |
| Lime | 24 | \$7.77 | 3 |
| | 5700 lbs. | \$5.18 f.o.b. F'ton | 7 drums (2100#) |
| Alum | 78400 lbs. | \$1.44 f.o.b. F'ton | 18 tons |
| Coal | 583.265 tons | \$5.00 per ton in bins | |
| Colas | 9236 gallons | 13¢-18¢ per gal. | |
| Tarvia X | 25051 gals. | 16.5¢ per Gal. | 400 |
| Asphalt Primer | 5037 gallons | 10¢ per gal. f.o.b. F'Ton | 600 |
| 5/8 Copper Tubing | 2520 feet | 12.25¢-12.96¢ per foot | 240 ft. |
| ½ Copper Tubing | 330 feet | 17.50¢ per foot | 120 ft. |
| 8" C.I. Pipe | 156920# | \$61.80 per ton | 9 joints |
| 6" C.I. Pipe | 42200# | \$61.80 per ton | 19 joints |
| 4" C.I. Pipe | 1150# | \$61.80 per ton | 4 joints |
| Fitting for above | | | |
| 8-6-4 C.I. Pipe | 6650# | \$ 6.35 per ton | |
| 1" Galv. Pipe | 636½' | 13¢ per foot | |
| 1½" Galv. Pipe | 731'-8" | \$17.97 per 100' | |
| Lumber | 19984 | \$22.00-\$30.00 per M. | |
| Lead | 5785 lbs. | \$6.50 per 100 lbs. | 50 lbs. |

All of which is respectfully submitted.

J D MacKay
City Engineer.
31st Dec. 1938

WATER SERVICES for Year 1938.

| | | | | |
|--------------------|-------|---------------------------------|------------------------|----------|
| Dec. 2 - 4 | 1937, | Delong, Geo. | University Ave. | New - |
| " 16 - 17 | " | Miller, Sam | Brunswick St. | Relaid ✓ |
| Apr. 18 | 1938, | Goodspeed, C. N. | Brunswick St, | Relaid ✓ |
| " 19 - 20 | " | Keenan, | 182 George St. | Relaid ✓ |
| " 19 - 20 | " | Keenan, | 562 Brunswick St, | Relaid ✓ |
| " 21 | " | Monahan, Thos. | 617 Campbell St. | Relaid ✓ |
| " 22 - 24 | " | Wilson, Hedley | 746 George St. | Relaid ✓ |
| " 22 - 24 | " | White, Harry | 759 George St. | Relaid ✓ |
| " 22 - 24 | " | Hanson, Ed. | St. John St. | Relaid ✓ |
| " 25 - 27 | " | Bank of Nova Scotia | Queen St. | Relaid ✓ |
| " 25 - 26 | " | Colter, Royden | Alexandra St | New - |
| " 27 - 28 | " | Loughlin, R. | Alexandra St. | New - |
| " 28 - 29 | " | Boyle, | North'land St. | New - |
| " 29 - 30 | " | Clark, Clara | 777 George St. | Relaid ✓ |
| May 2 | " | King, Mrs. E. | 784 George St. | Relaid ✓ |
| " 2 | " | Scott, W. J. | 205 Church St. | Relaid ✓ |
| " 3 | " | Neill, Stewart | Grey St, (Garden | New - |
| " 6 - 19 | " | Water Main, 8" | North'land St. | |
| " 12 | " | Saunders, Jas. | " " | |
| " 14 | " | Mitchell, | 182 North'land St. | Relaid ✓ |
| " 14 | " | Webb, Mrs. | 225 " Copper to Box | X |
| " | " | Cameron, | 668 George St. | Relaid ✓ |
| " | " | Biggs, D. | 198 Regent St. | Relaid ✓ |
| " | " | Jewett, | 665 George St. | Relaid ✓ |
| " | " | McIntosh, | 687 George St. | Relaid ✓ |
| " | " | Sloat, | 197 St. John St. | Relaid ✓ |
| May 26 - 27 | " | Neill, John | 838 Brunswick St. | Relaid ✓ |
| " 26 - 27 | " | Leslie, | 279 " " | Relaid ✓ |
| " 27 - 28 | " | Dewar, H. E. | Regent St. | Relaid ✓ |
| (2 Water Services | | | | |
| May 28 | " | Water Main 8" | Waverley Hotel | |
| " 31 | " | Coyle, Harold | Smythe St. | |
| June 1 | " | Moore, Hugh | Beaverbrook St. | New - |
| " 3 - 4 | " | West, W. J. | Albert St. | New - |
| " 4 - 6 | " | Ross, Mrs. Chas. | Waterloo Row | New - |
| " 6 | " | Kitchen, W. | Regent St. | New - |
| " 8 - 11 | " | Fleet, Chas. Jr. | Campbell St. | New - |
| " 15 | " | Horsnell, Alfred | Regent St. | New - |
| " 16 | " | Modern Builders, Ltd., | King St. | New - |
| " 17 | " | Parker, Manley | Grey St. | New - |
| " 18 | " | Kitchen, H. G. | North'land St. | New - |
| June 22 - 24 | " | Vaughan's, Service Sta. | 220 Saunders St. | Relaid ✓ |
| " 7 | " | Ubsdall, S. G. | from Street Line | |
| June 27 - 28 | " | Andrews, Hugh | Campbell St. | New - |
| " 28 | " | Beardsley, | Beaverbrook St. | New - |
| July 5 | " | Ames, Frank | Woodstock Road | New - |
| " 11 - 12 | " | Bailey, Mrs. | Charlotte St. | New - |
| " 17 | " | Munro, | Beaverbrook St, | New - |
| " | " | | Lansdowne St. | New - |
| July 5 - 23 | " | Water Main on North'land St. | Scully St. | New - |
| " 28 - 29 | " | Wetmore, F. H. | Argyle to Victoria St. | New - |
| Aug. 8 | " | Bank of Nova Scotia | Grey St. | New - |
| " 8 | " | Dobblesteyn, Jos. | Waterloo Row | New - |
| Aug. 31 - Sep. 1st | 1938 | Water Ext. Gerow, Miss A. | Aberdeen St. | New - |
| Sep. 12 | 1938 | Lyons, Hartley | Woodstock Road | New - |
| " 12 | " | Tufts, Arthur | Beaverbrook St. | New - |
| " 14 | " | Partington, John | Tweedsmuir St. | New - |
| " 15 | " | Crockett, Dr. | Church St. | Rela |
| Sep. 20 - 21 | " | Grant, Clifford | Woodstock Rd. | New |
| " 22 | " | Prov. Gov't, | King St. | New |
| " 29 | " | Wood, Clara | Charlotte St. | Re |
| Oct. 7 - 10 | " | Delong, George | University Ave | N |
| " 17 - 18 | " | Ferris, Chester | 336 Campbell St. | |
| " 25 - 28 | " | Clark, W. G. | University Ave. | |
| " 28 - 29 | " | Gorman, David | O'dell Ave. | |
| Nov 8 - 9 | " | Hawkins Mrs. C. R. | Winslow St. | |
| " 9 - 11 | " | MacDonald, E. O. (Skating Rink, | | |
| 17 | " | Van Waer | | |
| 18 | " | Colpene | | |
| 19 | " | Fitzgerald | | |

December 9, 1938,

STEAM THAWING MACHINE

| | <u>Water Services</u> | <u>Ordinary Water Acct.</u> |
|---------------|-------------------------------------------------------------------------------------------------------------|-----------------------------|
| Feb. 26, 1938 | | |
| | Wm. Hancock, North'land St. Lemonts, North(land & George St. | 9.54 |
| March 1, " | Wm. Hancock North(land St. | 7.50 |
| March 2 " | Wm. Hancock " " | 7.50 |
| " 3 " | Wm. Hancock " " | 6.00 |
| March 9 " | R. C. Church Court House Service Station } Court House Service Station } VanWart, George St. }.... | 2.30 3.40 3.20 |
| March 10 " | Todds, Etc. Brunswick St. | 11.60 |
| March 12 " | Peter Hughes, George St. | |
| March 14 " | Shaws, Etc. George St. | |
| " 15 " | Hardleys, George St. | |
| " 15 " | Sweed's, St. John St. | 8.60 |
| March 16 " | Jonah's Queen Hotel Alley }... " 16 " Estebrooks Charlotte St. | 8.70 |
| March 17 " | John Wilson Rockwood Ave | 5.80 |
| | Total | 84.14 |