The Daily Journal.

INDIANAPOLIS:
WEDNESDAY MORNING. FEBRUARY 29, 1860.

Republican State Ticket.

FOR GOVERNOR,
HENRY S. LANE, of Montgomery.

FOR LIEUTENANT GOVERNOR,
OLIVER P. MORTON, of Wayne.

FOR SECRETARY OF STATE,
WILLIAM A. PEELLE, of Randolph.

FOR TREASURER OF STATE,
JONATHAN S. HARVEY, of Clarke.

FOR AUDITOR OF STATE,
ALBERT LANGE, of Vigo.

FOR ATTORNEY GENERAL,
JAMES G. JONES, of Vanderburgh.

FOR REPORTER OF SUPREME COURT,
BENJAMIN HARRISON, of Marion.

FOR CLERK OF SUPREME COURT,
JOHN P. JONES, of Lagrange.

FOR SUPERINTENDENT OF PUBLIC INSTRUCTION,
MILES J. FLETCHER, of Putnam.

☞ Copies of the Daily JOURNAL can be had at our Counting Room each morning, neatly envelopped for mailing, or loose for immediate reading.

Young Men's Republican Club.

The Young Men's Republican Club meets at the Court House on Wednesday evening of each week at 7 o'clock. Every body is invited to attend. A. H. CONNER, Pres't.

Report on the Introduction of a supply of Pure Water into the City of Indianapolis.

BY DANIEL MARSH, CIVIL ENGINEER.

President and Directors of the Indiana Central Canal and Water Works Co.:

GENTLEMEN—At your request I have recently made a survey and examination of the city of Indianapolis and its vicinity, with reference to the best mode of obtaining an abundant supply of pure water for that city, and herewith submit a plan and the estimated cost of the work.

This plan contemplates a supply of one million gallons per day to meet the present demands of the city for all purposes whatever, being at the rate of 40 gallons per day to each person in a population of 25,000; and the system of distributing pipe is of sufficient capacity and will be arranged with a view to a large future increase of the quantity of water supplied, which will be introduced into the city by water. The estimate embraces an item giving the cost of such service pipe.

Subjoined is a schedule of the main and distributing pipe; an estimate of the cost of water works for the city of Indianapolis, whether constructed with water pipe of wood or cast iron; an analysis of the water used in various cities and villages in this country; and an estimate of the probable income which may be anticipated from the introduction of a full supply of water into this city.

The estimate of income is two fold. The first is based upon an actual enumeration made while passing through all the streets of the city, of the whole number of all classes of probable water takers.

In the schedule which follows this report, such rates for the use of water have been set opposite the different classes as a comparison of the rates charged by all the water companies in the country would justify.

The income from the Croton Water Works is equal to nearly one dollar for each person of the population of the city of New York. The income of the water works in Boston is equal to one dollar and thirty cents for each person, and the aggregate income annually of all the water-works in the country is equal to one dollar for each person of the aggregate population of the places in which those works are situated

In this city there will be in addition to the ordinary demand for water the quantity required for the workshops and locomotives, of an unusual number of railroads, and the public buildings and Institutions of a State Capital.

Assuming the population of Indianapolis to be above twenty-five thousand, there can be little doubt that the income of the proposed water works will be above twenty five thousand dollars per annum.

Water obtained from wells in the midst of large towns is proverbially impure, and is constantly becoming more deteriorated as the population and growth of the place increase. The constant use of such water for domestic purposes, predisposes to and maintains various disorders in the human system, which cannot be removed while such water continues to be used.

The people of all large cities sooner or later are forced to resort to the introduction of water from beyond the limits of the inhabited districts, and probably few cities can be found where the expenditure required to supply an abundance of pure and wholesome water would contribute more speedily and certainly to the increase of the population, business and wealth of the place than in Indianapolis. The centre and Capital of a State of unsurpassed agricultural resources, intersected by numerous railroads, with a soil favorable to fruit growing, wine and horticulture, and a genial climate, this city needs but this additional element of prosperity to render it one of the most pleasant, healthful, and flourishing cities of the West.

Rochester, N. Y., Dec. 24, '59.

ESTIMATED COST OF WATER WORKS FOR THE CITY OF INDIANAPOLIS, STATE OF INDIANA.

Items.	*Amounts.*
Main and distributing pipe	$83,814 00
Excavating and refilling pipe trenches	20,000 00
Fire hydrants	3,000 00
Gates and stop cocks	2,400 00

work.

This plan contemplates a supply of one million gallons per day to meet the present demands of the city for all purposes whatever, being at the rate of 40 gallons per day to each person in a population of 25,000; and the system of distributing pipe is of sufficient capacity and will be arranged with a view to a large future increase of the quantity of water supplied, which will be introduced into the city by means of an additional main pipe.

For the purpose of securing an abundant supply of water at all times without any contingency, and also the best condition of the water which this source can afford, it is proposed to take the water from the Indiana Central Canal at a point about four miles north of the city. This location is further north than any point where a draught of water is now made, or is proposed to be made, from the Canal for hydraulic purposes, and where no contamination of the water can be apprehended from the approach thitherward of the population or the improvements of the city.

During, and for a few days subsequent to, any considerable rise of the water of White River, the water of the Canal at this point is much more transparent and pure than that of the river itself, the moderate velocity of the water in the Canal permitting its channel to operate as a storing and settling reservoir.

From the level of the Canal the water is to be elevated by water power to a reservoir to be constructed about one third of a mile distant and on the highest point to be found in that vicinity, which presents a surface of ground sufficiently elevated for that purpose.

Here a distributing reservoir of two or three acres of water surface and fifteen feet in depth can be formed at a very reasonable cost. These dimensions are sufficient to insure a pure and wholesome condition of the water, and a quantity in reserve sufficient to meet the demands of the city, during any necessary repair of the pumping machinery.

Whenever the elevation of the source from which water is to be taken is insufficient for the purposes of distribution, it has been found that hydraulic power is much less expensive than steam power. Water, for the purpose of propelling pumping machinery, is here available to any extent, and at an elevation above the river which will permit the use of the most economical and water saving machinery.

The plan proposed embraces a pump house of adequate dimensions, and substantial character with two overshot wheels of fifteen feet in diameter and four direct acting pumps. The two wheels to be so arranged that they may be attached together, and whether moving singly or together, no two pistons, after passing a point of rest, shall again commence their direct action, and the movement of the column of water, at the same time.

This arrangement of the pumping machinery together with ample capacity of air chambers will, it is believed, produce a uniform flow and pressure, of the water in the pipes from the pumps to the reservoir.

For the purpose of allowing the reservoir to be from time to time thoroughly cleansed, a division wall of about six feet in height is to be constructed across the bottom of the reservoir in the direction of its width, and both the rising and descending main pipes are to be connected with each division. The inner slopes of the embankment, the bottom of the reservoir, and, also, the faces and the top of the division

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Main and distributing pipe	$83,814 00
Excavating and refilling pipe trenches	20,000 00
Fire hydrants	3,000 00
Gates and stop cocks	2,400 00
Air chambers and valves	3,000 00
Elbows, branches, &c	500 00
Transporting pipe	2,500 00
Removing earth from streets	1,250 00
Railroad and creek crossings	1,250 00
Distributing reservoir	8,500 00
Pump house and pumps	12,000 00
Service pipe within limits of streets	4,000 00
For superintendence and contingencies	3,786 00
	$146,090 00

COST OF WATER WORKS FOR INDIANAPOLIS WITH PIPES OF CAST IRON.

Items.	*Amounts.*
Main and distributing pipe	$182,084 00
Excavating, &c	20,000 00
Hydrants, gates and stop cock	5,400 00
Elbows, branches and transportation	6,000 00
Railroad and other crossing, and removing earth	2,500 00
Distributing reservoir	8,500 00
Pumps house and pumps	12,000 00
Service pipe within limits of streets	12,500 00
For superintendence and contingencies	6,016 00
	$255,000 00

COST OF WATER PIPES WHEN OF WOOD.

Sizes.	*Extent.*	*Rates.*	*Amount.*
14 inches	24,700	$1 32	$34,604
10 inches	3,500	0 75	2,625
8 inches	10,000	0 60	6,000
6 inches	64,300	0 45	28,935
4 inches	43,500	0 30	13,050
3 inches	4,000	0 15	600
			$83,814
1¼ inch service pipe within the limits of streets	50,000	0 08	4,000
			$87,814

COST OF WATER PIPES WHEN OF CAST IRON.

Sizes.	*Extent.*	*Rates.*	*Amount.*
14 inches	24,700	$2 72	$67,184
10 inches	3,500	1 76	6,160
8 inches	10,000	1 46	14,600
6 inches	64,300	1 00	64,300
4 inches	43,500	0 64	27,840
3 inches	4,000	0 50	2,000
			$182,084
¾ or 1 inch service pipe within the limits of streets	50,000	0 25	12,500
			$194,584

SCHEDULE OF WATER PIPE—LENGTH AND DIMENSIONS.

	Dimensions of pipe.					
Inches	14	10	8	6	4	3
Name of street.						
Rising main	3200					
Distributing	21000					
North street		1000	1000	1800	1000	
Michigan			2000	1000	2000	
Vermont				1000	1000	
New York			1000	2000	3300	
Ohio				2000	3300	
Market				2000	3700	
Washington		1000	4000	2000	3200	
Maryland				2000	2000	
W. Georgia				2000	2000	
Mississippi	500		1000	2000	2000	
Tennessee		1500		1500	3000	
Illinois			1000	4500		
Meridian				5000	1500	
Pennsylvania				5000	1000	
Delaware				6000	1500	
Alabama				2000	1000	
New Jersey				2000	1000	
East				1000	2000	

be from time to time thoroughly cleansed, a division wall of about six feet in height is to be constructed across the bottom of the reservoir in the direction of its width, and both the rising and descending main pipes are to be connected with each division. The inner slopes of the embankment, the bottom of the reservoir, and, also, the faces and the top of the division wall are to be lined with brick laid in hydraulic cement.

Although water taken from this Canal, after being elevated to and standing in this Reservoir will not require filtration, yet to prevent the entrance into the distributing pipes of any foreign matter the head of the distributing main is to be laid in a filtering well, and covered with gravel and clean washed sand.

From the distributing reservoir the required supply of water will be conveyed into the city in a main pipe of fourteen inches in diameter, which will pass one million of gallons in twenty four hours without any material loss of elevation, and may pass a much larger quantity in any emergency, if such quantity should be drawn from the distributing pipe in the city.

Every street having a population so large as to warrant the expenditure will be supplied with a pipe of appropriate diameter, and the whole system will be so arranged and connected together as to secure to any and every quarter of the city a full supply of water in the event of any unusual or contingent demand.

From the point where the distributing main from the Reservoir shall intersect the streets of the city, the full capacity of the main will be extended sufficiently far into the city by means of enlarged dimensions to be given to the various street pipe beyond what would be required for street service only.

A population of from thirty to forty thousand may be adequately supplied by the proposed main pipe. Whenever the population of the city shall approximate fifty thousand, this plan contemplates the laying of an additional pipe from the reservoir to the city. The system of distributing pipes in the various streets of the city is of a capacity amply adequate to the wants of a largely increased business and population beyond that of the present time Some modification of the schedule of pipe now proposed may, in the progress of constructing the work, be for particular streets or some localities advisable.

Connected with the street pipe is the usual plan and arrangement of fire hydrants, gates and stopcocks.

To prevent the casualties and injuries to which all kinds of water pipe are liable, in consequence of the irregular draught of water from the street pipe, particularly when required to supply fire hydrants and steam engines, a system of air chambers and self acting safety valves has been arranged for the water pipe contemplated in this report, which, it is believed, will fully protect it from injury.

For the purpose of encouraging the citizens generally to become water takers at an early period, and to ensure the substantial character of all the connections of service pipe with the street pipe, water works companies have often adopted the policy of laying down at their own expense that portion of the service pipe extending from the street main to the curb stone, or to the line of the street, for all such persons as will, during the progress of the work, complete their fixtures and arrangements for taking wa

W. Georgia...				2000	2000	
Mississippi.....	500		1000	2000	2000	
Tennessee.....		1500		1500	3000	
Illinois.....			1000	4500		
Meridian.....				5000	1500	
Pennsylvania.				5000	1000	
Delaware.....				6000	1500	
Alabama.....				2000	1000	
New Jersey..				2000	1000	
East.....				1000	2000	
Noble.....					3500	
Chatham.....					1500	
Diagonals....				2000	4000	
Branches.....						4000
	24700	3500	10000	64800	43500	4000

Service pipe, 1¼ inch, 50,000 feet.

ESTIMATE OF PROBABLE INCOME.

	Class.	No.	Rate.	Am't.
Dwellings.....	1st	120	$30	$3,600
"	2d	400	12	4,800
"	3d	400	6	2,400
Stores and shops.....	1st	95	10	950
" " "	2d	140	4	560
Hotels.....	1st	3	300	900
"	2d	3	75	225
"	3d	15	8	120
Boarding houses.....		20	10	200
Offices.....		50	5	250
Daguerrean rooms.....		7	5	35
Saloons.....		50	5	250
Banks.....		4	5	20
Public halls.....		3	50	150
Printing offices.....		8	50	400
Foundries.....		7	40	280
Steam Engines.....		10	25	250
Public and private gardens		6	20	120
Breweries.....		4	50	200
Bakeries		4	30	120
Livery stables.....		6	50	300
Private stables.....		100	3	300
Pork houses.....		3	25	75
Draymen.....		25	2	50
Express wagons.....		12	5	60
United States Court House and Post Office.....		1	100	100
Eight railroads, with 24 daily trains.....		24	200	4,800
City of Indianapolis, for Fire Department, and other public purposes...				7,000
State of Indiana, for all Public Offices and Institutions.....				3,000
				$31,515

TABLE OF ANALYSIS.

LOCALITIES AND DESIGNATION OF WATER.

	Grains of solid matter in one gallon
London, Thames River.....	28 00
" "	19 20
Paris, River Seine.....	12 00
" Artesian Well.....	9 86
Canada West, Grand River.....	12 66
" " " Burlington Bay.....	8 44
New York, Manhattan Well.....	125 00
" " Avg. City Wells.....	58 00
" " Croton Reservoir.....	6 99
Albany, Average several Wells.....	46 86
" " Hudson River.....	6 82
Brooklyn, Average several Wells.....	45 90
" " Long Island Ponds.....	2 86
Boston, Three Wells.....	44 46
" " Cochituate Lake.....	1 85
Rochester, N. Y., Average several Wells.....	30 00
" " " Genesee River.....	11 21
" " " Honeyoye Lake.....	4 00
" " " Lake Ontario.....	10 00
" " " Hemlock Lake.....	1 33
Philadelphia, Schuylkill River.....	5 50
Troy, Mohawk River.....	7 88
Bridgeport, Conn., ...	0 99
Indianapolis, Ind., Wells.....	64 00
Indiana Central Canal at Woolen Factory, Lower Tumble.....	16 00
Indiana Central Canal near proposed Reservoir,*	

* By a misapprehension no specimen of water was obtained from this locality, where, it is believed, the water is much more pure than at a point below the inhabited and manufacturing portions of the city