

# HEATING A CITY BY STEAM.

## DETAILS OF THE PLAN BY WHICH MR. HOLLY WILL HEAT LOCKPORT.

We have heretofore alluded briefly to a plan devised by Mr. B. Holly, of Lockport, to heat that city by steam. The Lockport Union supplies a more extended account of the proposed experiment, and it is so curious that it will be read with general interest. It seems that a number of substantial citizens of Lockport have formed a company under the name of the "Holly Steam Combination Company, Limited," and have elected a board of directors, in which Samuel Rogers, D. F. Bishop, I. H. Babcock, F. N. Trevor, B. D. Hall and M. M. Southworth are associated with Mr. Holly, and the experiment is to be actually made under the following estimate:

Estimated present cost for coal, wood, kindling, labor, repair of stoves and furnaces for warming the following district, in the city of Lockport, being about one-half mile square, bounded as follows:

East by Washburn street, south by High street, west by Saxton street, north by Caledonia street, including the following:

475 dwellings at \$100 each (for fuel and labor).....	\$47,500
150 stores at \$125 each.....	18,700
250 offices and rooms (over and about the stores).....	12,000
12 churches at \$400 each (labor and fuel).....	4,800
10 hotels at \$700 each, & schools at \$600 each, 1 opera-house.....	10,900
Factories, shops, mill offices, &c.....	1,500
Lifetime of stoves and furnaces, for 10 years, at 10 per cent.....	5,000

**Total..... \$100,400**

First cost of works for warming the above district with steam:

18,480 feet of main pipe at \$1 per foot.....	\$18,480
Building and smoke-stack.....	3,000
Six steam boilers and fixtures.....	10,000
Lot for building and coal-yard.....	3,000
Incidentals.....	3,000

**Total..... \$37,480**

Mr. Holly has written a book in which he sets forth fully his plan for supplying steam for heating and doing all the various machine labor of cities and villages, domestic, mercantile, manufacturing, &c. He says that:

In cities or towns of from 3,000 to 8,000 inhabitants.

In cities or towns of from 3,000 to 8,000 inhabitants, where the main business portion does not exceed one-half mile square, one set of boilers, located near the centre of the place, with pipes leading out in four directions, will do all the work. If the city is one mile square, four sets of boilers will be necessary. The main pipes that leave the boilers will be 4-inch, and will diminish to 3, 2½, 2, 1½ and 1 inch at the extreme end away from the boilers; the mains of 4 inches continuing as the use along the lines may demand. The main pipes are placed about 4 feet below the surface of the earth. The iron pipes are first covered with asbestos and then put in wood pipes 2 inches thick, leaving a space for confined air between the asbestos and wood. This outside pipe keeps all water and moisture from the steam-pipe and prevents condensation. The pipes, both wood and iron, are put down in lengths of two feet, when they terminate in hollow, upright posts firmly secured in the earth. The upper part of this post is arranged as an expansion joint, so that the pipes can expand and contract without moving the post. The posts are also arranged so as to receive the ends of the service-pipes either with or without expansion joints. The service-pipes are not taken directly from the mains, but from the hollow supports, thus allowing them to be attached or detached from the support instead of passing through the outside wooden pipe to enter the steam-pipe, which could not be done, because the steam-pipe expands and contracts, while the wooden pipe does not. This overcomes one of the most important objections to the use of long lines of underground steam-pipes, when branch-pipes are to be taken off. Another objection has been condensation. This the asbestos reduces about three-fourths, and the air-space and wooden pipe will reduce it still further. Tests made during the month of July, with very small pipe, prove that steam may be carried through well-protected pipes for a mile, and then be more economical than any other system. But it is thought that 1,200 or 1,500 feet each way, making a half mile square, is about all that need be furnished from one location. This, even in a city with a population of 1,500, would include nearly all the business places, hotels, churches and schools. Buildings further out could be reached by a single line of small pipe. Steam can be manufactured on a large scale for one-fourth the cost that it is on a small scale, for warming a single dwelling or block. You can stop the expense at any time by turning the steam-cock in your house, whereas in the use of a private boiler, when you shut off the steam, combustion goes on just the same. There is about 150 cubic feet of hot air per minute lost through the chimney.