

FIRST ANNUAL ISSUE.

The Manual
OF
American Water-Works

COMPILED FROM SPECIAL RETURNS.

Containing the History, Details of Construction, Source and Mode of Water Supply,
Pumping Machinery, Distribution, Consumption, Pressure, Hydrant Rental,
Revenue and Expenses, Cost and Debt, etc., etc., of Every Water-
Works in the United States and Canada,

WITH SUMMARIES
For Each State and Group of States;

AND DIRECTORY
Of Water-Works Officials, Engineers and Contractors.

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THE WATER-WORKS OF THE UNITED STATES AND CANADA.

The summaries for the whole United States of the statistics which have been so far given for the various groups of States separately appear in the following tables and are in a sense the most interesting of all. To facilitate comparison and save space, the statistics for Canada

TABLE 1-8.

UNITED STATES AND CANADIAN WATER-WORKS.—SUMMARY OF DATES OF CONSTRUCTION BY GROUPS OF STATES.

(Date of completion taken when construction extended over more than one year.)

YEAR.	Water-Works Built.									
	N. E.	Mid.	So. Atl.	So. C.	No. C.	N. W.	S. W.	Pac.	Total U. S.	Canada.
Before 1800	1	3	1	.....	.....	.....	.....	.....	5	.....
1800 10	2	6	.....	.....	.....	.....	.....	.....	8	1
1811-20	2	1	.....	.....	1	.....	.....	.....	4	.....
1821-30	1	5	3	1	1	.....	1	1	13	.....
1831-40	3	3	3	6	3	.....	.....	1	19	1
1841-50	3	12	1	1	2	.....	.....	.....	19	4
1851	1	3	.....	.....	.....	.....	.....	.....	4	.....
1852	1	4	.....	.....	.....	.....	.....	.....	5	.....
1853	.....	2	.....	.....	.....	.....	.....	2	4	1
1854	(1) 2	3	1	.....	.....	.....	.....	.....	(1) 6	.....
1855	4	2	.....	.....	.....	.....	.....	.....	6	.....
1856	1	3	1	.....	1	.....	.....	.....	6	1
1857	2	(1) 5	.....	.....	.....	.....	.....	1	(1) 8	.....
1858	.....	2	2	.....	.....	.....	.....	1	5	.....
1859	1	5	.....	.....	.....	.....	.....	.....	8	1
1860	(1) 2	4	.....	1	2	.....	.....	.....	(1) 9	1
1861	1	2	.....	.....	.....	.....	.....	1	4	.....
1862	3	.....	.....	.....	1	.....	.....	3	7	.....
1863	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
1864	1	1	.....	1	.....	.....	.....	1	4	.....
1865	1	2	.....	.....	.....	.....	.....	5	8	.....
1866	1	3	.....	.....	1	.....	.....	.....	7	.....
1867	(1) 2	5	.....	1	.....	1	.....	2	(1) 10	.....
1868	(1) 4	6	.....	1	1	.....	.....	2	(1) 14	.....
1869	(1) 9	4	.....	.....	5	.....	.....	2	(1) 20	.....
1870	(3) 4	10	.....	1	9	2	.....	2	(3) 28	1
1871	(1) 2	16	1	.....	5	2	1	7	(1) 34	.....
1872	7	12	1	2	8	.....	1	1	32	1
1873	14	12	1	2	13	.....	1	4	47	3
1874	7	(1) 12	1	.....	9	2	1	5	(1) 37	2
1875	8	(2) 13	2	.....	9	2	3	4	(2) 41	2
1876	(1) 10	(1) 12	2	1	11	(1) 5	1	5	(3) 47	3
1877	3	(1) 4	1	.....	4	1	.....	(1) 2	(2) 15	1
1878	(1) 6	11	2	.....	(1) 4	4	2	(1) 2	(3) 31	2
1879	(1) 8	13	.....	2	10	3	6	(1) 1	(2) 43	2
1880	(1) 6	8	2	1	6	4	5	5	(1) 39	(1) 2
1881	(1) 8	10	2	1	7	6	4	2	(1) 40	2
1882	(3) 9	(6) 14	4	.....	(1) 22	13	9	8	(10) 79	4
1883	(1) 9	(3) 22	2	2	15	19	14	4	(4) 87	4
1884	(1) 21	(3) 23	1	1	18	20	16	6	(4) 106	(1) 4
1885	(3) 16	(1) 24	5	1	24	9	12	3	(4) 94	.....
1886	(2) 16	(2) 28	7	6	(1) 35	22	11	5	(5) 130	4
1887	(6) 24	(1) 33	8	4	(1) 32	39	14	10	(8) 164	6
1888	(2) 20	(3) 28	17	18	64	62	(1) 29	21	(6) 259	(1) 11
Unknown.	8	(2) 15	2	1	2	8	4	4	(2) 44	3
Total	(32)254	(27)406	73	55	(4)325	(1)224	(1)135	(3)126	(68)1598	(3) 68

Subsidiary water-works, viz.: those which derive their supply from the mains of some other adjacent works, but are otherwise independent systems are enumerated above in parentheses. There are but 4 in the North Central States. Canada in this and the following tables includes 3 Newfoundland Works.

have been given in the same tables after the totals for the United States. In comparing them it needs to be remembered that the population of Canada was only 9.4 per cent. of that of the United States in 1870, 8.6 per cent in 1880, and is probably now not over 7.7 per cent, as much, or 5 million against 65 million, if indeed so much. Moreover, the urban population, in towns of over 4,000 inhabitants, was only 0.72 against 12.94 millions, or 5.6 per cent, as much.

Tables 1 and 2 show that the total number of works in Canada (excluding 3 in Newfoundland) is 68, against 1,666 in the United States, or 4.75 per cent., the total capital invested being 21 against 432 millions, or 4.95 per cent., and the miles of mains (Table 4) 5.65 per cent. This and other data given, shows that Canada is somewhat behind the average of the United States in its water supply conditions, but not materially.

TABLE 2-S.
UNITED STATES AND CANADIAN WATER-WORKS—SUMMARY OF CONSTRUCTION BY STATES AND HALF DECADES.
[Date given is that of completion of works.]

DATE.	N. E.	Mid.	So.A.	So.C.	No. C.	N. W.	S. W.	Pac.	Total U. S.	Can-ada.
Before 1880	1	3	1	.....	.....	.....	.....	.....	5	.....
1801-10	2	6	.....	.....	.....	.....	.....	.....	8	1
1811-20	2	1	.....	.....	1	.....	.....	.....	4	.....
1821-30	1	5	3	1	1	.....	1	.....	13	.....
1831-40	3	3	3	6	3	.....	.....	1	19	1
1841-50	3	12	1	1	2	.....	.....	.....	19	4
1851-55 (1)	8	14	1	.....	.....	.....	.....	2 (1)	25	1
1856-60 (1)	6 (1)	19	3	1	3	.....	.....	4 (2)	35	3
1861-65	6	5	.....	1	1	.....	.....	10	23	1
1866-70 (6)	20	24	.....	3	16	3	.....	9 (6)	79	1
1871-75 (1)	38 (3)	65	6	4	44	6	7	21 (4)	191	8
1876-80 (4)	33 (2)	48	7	4	(1) 35	(1) 17	14	(3) 15 (11)	173	(1) 10
1881-85 (9)	63 (13)	93	14	5	(1) 86	67	55	23 (23)	406	(1) 14
1886-88 (10)	60 (6)	93	32	28	(2) 131	123	(1) 54	6 (19)	553	(1) 21
Unknown.	8	(2) 15	2	1	2	8	4	4 (2)	44	3
Total.	(32) 254	(27) 406	73	55	(4) 325	(1) 224	(1) 135	(3) 126	(68) 1698	(3) 68

The number of water-works at the end of each decennial period may be summarized from Tables 1 and 2 as follows:

	N. E.	Mid.	No. C.	E. of Miss. Riv.	W. of Miss. Riv.	Total U. S.	Can-ada
1800	1	3	—	5	—	5	—
1810	3	9	—	13	—	13	1
1820	5	10	1	17	—	17	1
1830	6	15	2	29	2	31	1
1840	9	18	5	46	3	49	2
1850	12	30	7	65	3	68	6
1860	28	64	10	123	9	132	10
1870	60	97	27	209	31	240	12
1880	136	215	107	514	115	629	31
1888	236	433	339	1,176	493	1,666	71
P. C. inc. } fr. 1860. }	111	101	208	129	326	165	129

Nothing except a diagram (which will shortly appear in the columns of ENGINEERING NEWS) could more vividly set forth than these figures the enormous recent growth of water-works as compared with past progress. It hardly admits of doubt that by 1890 there will be over 2,000 water-works in the United States, more than two-thirds of which will have been built since 1880, and *all but* 240 of which will have been built since 1870, when we were in the habit of looking on