The Stove Industry in 1874: A Statistical Portrait

In 1874 *Wiley's American Iron Trade*, John Dunlap, ed., was published. Amongst other things, it contained a detailed report on the American stove industry, reporting for every firm its name, location(s), annual average capacity expressed in tons and/or units of production (stoves – approximately ten per ton[1]), and for some companies the value of their product and the size of their labor force too.

How did the compilers succeed in persuading hundreds of proprietary, competitive enterprises to share this information? Answers must be largely speculative – no explanation about data sources was provided – but it seems likely that the report was a by-product of the stove industry's attempts to form a national organization for the purpose of controlling competition. The leaders of this organizing process, notably John Perry of Albany and Giles Filley of St. Louis, believed firmly in the value of statistical information as a basis for intelligent common action. Filley, the largest stove foundryman in the country, with wide connections and a formidable reputation among his peers, employed a statistician, at his own expense, to gather data. It is my guess that he or more probably Perry passed this information on (the report contains a long and laudatory report on Perry and his firm, while all of his competitors are dealt with in a standard brief reporting format. It is reasonable to assume that this 'puff' was Perry's reward for his generosity with Filley's data). A reason why companies may not have been reluctant to share this information is that it was not commercially sensitive, and it wasn't very private either: firms reported their annual average capacity, not their actual production or sales, which would have been much more

[1] In the original data, for some companies the tonnage figure is missing, and for others the number of stoves. These gaps have been filled by using the average figure for stoves per ton provided by companies supplying both pieces of data. There were not enough reports on output value and employment, and the range of results was too wide, to make the same procedure safe for gap-filling in those cases. But '10 to the ton' was the industry's rule of thumb as well as the message in the data it provided. The term "stoves" covers everything from small, light room heaters to enormous hotel kitchen ranges – thus a company's product mix would obviously affect the average number of units of output per ton, in its case.

problematical; and, given that stove founders all relied on the same labor-intensive production process, it was easy for companies or their rivals to produce good estimates for capacity simply by counting the number of 'floors' – individual molders' workspaces – in a plant. This was public knowledge.

Whatever the accuracy of this guess, the result of the process of data-collection and publication is that we have an unusually revealing snapshot of the industry at the end of the post-Civil War boom, and at almost its peak of development. Alternative fuels which would soon cut into its market – gas, manufactured and natural, and petroleum (kerosene) – were only beginning to make their impact. And the movement of markets, followed by production, into the midwest and then the South, had not yet eliminated the dominant position of the east-coast manufacturing centers where the industry had emerged between the 1830s and 1850s. (In the early 1870s, pioneering inventors and business-founding entrepreneurs were still alive to tell the tale.)

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First of all, what was the size-distribution of firms and output within the industry?

Average Annual Capacity, Tons	Firms	Tonnage	Share	Cumulative
5,000-6,000	4	21,000	8.3%	
2,500-4,999	10	31,350	12.4%	20.6%
2,000-2,499	16	34,950	13.8%	34.4%
1,500-1,999	25	44,500	17.5%	52.0%
1,000-1,499	29	38,500	15.2%	67.1%
500-999	87	66,976	26.4%	93.6%
Less than 500	41	16,342	6.4%	100.0%
Total	**210**	**253,618**		

As we can see, the industry was not simply characterized by many firms, it was also one where the larger players – rarely other than single-plant manufacturing operations themselves, though the larger ones also maintained 'branch houses' (showrooms and warehouses) in major urban market and distribution centers, particularly New York and Chicago – did not possess a dominant market share. This was an industry with low barriers to entry and, if we can extrapolate early 1920s data backwards, no clear or strong economies of scale. Companies producing less than a thousand tons of stoves a year could compete in national markets alongside those several times larger than themselves; companies producing less than 500 tons could compete in local markets, or via specialization.

The competitive structure of the industry depended, not just on low barriers to entry, weak and uncertain returns to scale, and many players, with none dominant. It was reinforced by the regional dispersion of the industry. By 1874, all of the northern and border states, as far west as Wisconsin, Iowa, Missouri, and Kansas, and two southern states, Virginia and Georgia, had stove foundries within them. (There were probably many other local general foundries that turned out some stoves for nearby customers; these data are for companies specializing in stove manufacture.) There was a considerable amount of geographical concentration – New York, Pennsylvania, and Ohio, the states where the industry had emerged in the 1830s, had almost two-thirds of production capacity – but this early-1870s snapshot disguises the fact that the industry, like its markets, was moving west, and that midwestern river and lake cities (particularly Detroit and St. Louis) were home to well-established, comparatively large firms, which were already major regional and even national players.

There was thus no simple or static picture of geographical concentration of production, or relatively stable, isolated markets. Stove producers sold very vigorously into national markets from at least the 1850s, and invaded one another's home territories with impunity. The weight of their products does not seem to have stood in the way of long-distance selling, given the efficiency of the American transportation system. Well into the post-Civil War period, stove manufacturers depended on cheap water transportation for their non-perishable goods rather than the railroads, if possible; hence the locational advantage of Albany and Troy, at the head of tidal navigation on the Hudson, and the start of the Erie and Champlain canals, with the Delaware & Hudson to bring pig iron and coal from Pennsylvania's mines and

furnaces; hence, too, the prominence of river and lake ports among the rising Midwestern manufacturing centers.

	Average Annual Capacity, Tons	Stoves	Share	Cumul.
New York	75,247	743,615	29.6%	
Pennsylvania	44,360	439,165	17.5%	47.0%
Ohio	43,480	431,512	17.2%	64.2%
Massachusetts	14,650	145,035	5.8%	70.0%
Missouri	13,731	127,335	5.1%	75.0%
Illinois	12,161	123,485	4.9%	79.9%
Rhode Island	7,255	71,825	2.9%	82.8%
Kentucky	7,050	69,795	2.8%	85.6%
West Virginia	5,475	54,203	2.2%	87.7%
Michigan	5,350	52,965	2.1%	89.8%
New Hampshire	4,750	47,025	1.9%	91.7%
Wisconsin	4,595	54,987	2.2%	93.9%
Indiana	4,550	45,195	1.8%	95.7%
Connecticut	2,250	22,275	0.9%	96.6%
New Jersey	1,850	18,315	0.7%	97.3%
Maryland	1,800	17,820	0.7%	98.0%
Virginia	1,300	12,870	0.5%	98.5%
Georgia	900	8,910	0.4%	98.9%
Iowa	900	8,910	0.4%	99.2%
Maine	725	7,178	0.3%	99.5%
Delaware	480	4,752	0.2%	99.7%

Kansas	480	4,752	0.2%	99.9%
Vermont	280	2,772	0.1%	100.0 %
Total	**253,618**	**2,514,693**		

Looking a little more closely, we can see that stove production was still concentrated, within these states, in a few major and some minor (Troy, Albany) cities.

	AVAC	**STOVES**	%	**Cumul**
Troy	26,580	259,512	10.3 %	
Philadelphia	21,150	209,385	8.3%	18.6%
Albany	19,772	198,042	7.9%	26.5%
Cincinnati	18,700	185,130	7.4%	33.9%
New York	13,525	133,898	5.3%	39.2%
St Louis	13,731	127,335	5.1%	44.3%
Pittsburg	12,150	120,285	4.8%	49.1%
Boston	8,550	84,645	3.4%	52.4%
Cleveland	8,350	82,665	3.3%	55.7%
TOTAL	**253,618**	**2,514,693**		

Troy and Albany, together with other smaller (Buffalo, Utica, Peekskill) cities along the Hudson-Mohawk corridor, remained the industry's largest production center. This strong position, which had been established as the industry came into being in the 1830s-1850s, was about to collapse, as their first-mover and locational advantages were eroded by changes in transportation (from waterborne to railroad), movement west in the center of gravity of the rural population, the establishment of new, larger Midwestern competitors, and, crucially, the crippling burden of high labor costs imposed by their strongly-unionized iron molders.

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Reports on Individual Firms

NAME	CITY	STATE	Tonnage	STOVES
G. A. Abert.	Milwaukee	WI	650	6,435
American Stove & Hollow Ware Co.	Philadelphia	PA	1,800	17,820
American Stove Works.	Peekskill & New York	NY	1,450	14,355
Anshultz & Co.	Pittsburg	PA	1,400	13,860
Armstrong & Co.	Port Deposit	MD	900	8,910
N. Austin & Co.	Norwalk	CT	650	6,435
Backus, Button & Co.	Albany	NY	450	4,455
A. N. Bain & Co.	Charleston	IL	700	6,930
H. Bakewell & Son.	St Louis	MO	81	800
R. L. Ball.	Terre Haute	IN	500	4,950
Barstow Stove Co.	Providence	RI	2,800	27,720
Baxter, Kyle & Co.	Louisville	KY	975	9,653
J. Bell & Co.	Wheeling	WV	875	8,663
Beyer & McMaster.	Dayton	OH	500	4,950
Bissel & Co.	Pittsburg	PA	1,800	17,820
Blackwells & Burr.	New York	NY	475	4,703
Bloomington Stove Mfg. Co.	Bloomington	IL	700	6,930
Bonnett & Duffy.	Quincy	IL	1,000	9,900
Boston & Maine Foundry Co.	Boston	MA	1,800	17,820
A. Bradley & Co.	Pittsburg	PA	1,900	18,810
Brand & Corsen.	Milwaukee	WI	680	6,732

N. Brayer (Co-operative Foundry Co.).	Rochester	NY	920	9,108
Bridge, Beach & Co.	St Louis	MO	2,200	21,780
Bridgeford & Co.	Louisville	KY	1,900	18,810
Brown & Irwin.	Dayton	OH	950	9,405
Browneller, Grayville & Co.	Evansville	IN	600	5,940
Buck & Wright.	St Louis	MO	2,350	23,265
G. B. Bull.	Buffalo	NY	1,400	13,860
Burtis & Graff.	New York	NY	700	6,930
G. B. Burton.	Cleveland	OH	450	4,455
Bussey, McLeod & Co.	Troy & Chicago	NY	2,300	22,770
Carbon Stove Co.	Burlington	NJ	900	8,910
Chamberlain & Co.	Cincinnati	OH	900	8,910
Chicago Stove Works	Chicago	IL	2,000	19,800
H. & H. S. Church.	Troy	NY	900	8,910
Cleveland Co-operative Stove Co.	Cleveland	OH	1,800	17,820
Cleveland Stove Co.	Cleveland	OH	1,800	17,820
Cochran, Bozeman & Co.	McConnellsville	OH	480	4,752
Cole, Bugbee & Co.	Lebanon	NH	450	4,455
B. J. Cole & Co.	Lakeville	NH	425	4,208
Collins & Burgie.	Chicago	IL	900	12,000
Comstock Bros. & Co.	Keokuk	IA	900	8,910
Comstock Foundry Co.	Providence	RI	1,300	12,870
Continental Stove & Variety Works	Royer's Ford	PA	1,200	11,880
Co-operative Foundry Co.	Troy	NY	900	8,910

Co-operative Stove Co.	Beaver Falls	PA	200	1,980
Coulter & Proctor.	Peoria	IL	975	9,653
Cove Foundry	Providence	RI	700	6,930
Cox, Whiteman & Cox.	Philadelphia	PA	2,000	19,800
Culbertson & Fisher.	Wheeling	WV	900	8,910
Curtis Stove Mfg. Co.	St Louis	MO	900	8,910
W. C. Davis & Co.	Cincinnati	OH	1,400	13,860
Geo. Davis & Co.	Charleston	WV	600	5,940
Dayton Stove & Hollow Ware Foundry	Dayton	OH	400	3,960
De Haven & Son.	Pittsburg	PA	1,400	13,860
Defiance Stove Co.	Defiance	OH	450	4,455
O. S. Despard & Co.	Parkersburg	WV	600	5,940
Detroit Stove Works	Detroit	MI	3,000	29,700
Dighton Furnace Co.	Dighton & Boston	MA	1,450	14,355
Wm. Doyle.	Albany	NY	1,400	13,860
J. Droge & Co.	Covington	KY	950	9,405
Dutcher, Vose & Adams.	Milwaukee	WI	1,800	17,820
Economy Stove Works	Beaver Falls	PA	900	8,910
G. W. Eddy.	Troy	NY	1,900	18,810
Ely & Ramsay.	New York	NY	250	2,475
H. Everhart & Co.	Portsmouth	OH	675	6,683
Excelsior Mfg. Co. (Filley)	St Louis	MO	6,000	50,000
Excelsior Stove Works (Sheppard) [picture, 1900]	Philadelphia	PA	5,000	49,500
Excelsior Stove Works.	Quincy	IL	900	8,910
Filley & Lyman.	Troy & New York	NY	900	8,910

Fischer, LTa & Co. (?)	Louisville	KY	875	8,663
W. P. Ford & Co.	Concord	NH	600	5,940
Fuller, Warren & Co.	Troy, Cleveland, Chicago & NYC	NY	3,000	29,700
Chas. Gage & Co.	St Louis	MO	900	8,910
Norman H. Galusha.	Rochester	NY	700	6,930
Galway, Semple & Co.	Cincinnati	OH	2,400	23,760
Gardner Chilson.	Boston	MA	1,200	11,880
Garhart & Co.	Tunckhannock	PA	200	1,980
Geauga Stove Co.	Painesville	OH	675	6,683
S. W. Gibbs & Co.	Albany & New York	NY	900	8,910
G. W. Gill.	Columbus	OH	600	7,000
John A. Goewey.	Albany	NY	192	1,900
Graff, Hughes & Co.	Pittsburg	PA	1,800	17,820
J. W. Gray & Co.	Martin's Ferry	OH	400	3,960
Great Western Mfg. Co.	Leavenworth	KS	480	4,752
Greenwood Stove Co.	Cincinnati	OH	1,750	17,325
Greer & King.	Dayton	OH	1,400	13,860
Hackett Mfg. Co.	Louisville	KY	900	8,910
D. Harris.	Columbus	GA	450	4,455
Harrison Eaton.	Amherst	NH	275	2,723
J. B. Herron & Co.	Pittsburg	PA	2,000	19,800
Hicks & Wolfe.	Troy & Chicago	NY	3,500	34,650
Hinkley & Rollins.	Bangor	ME	450	4,455
Hitchcock & Carter.	Cleveland	OH	1,400	13,860
Hubbell Bros.	Buffalo	NY	900	8,910

Hunt & Miller.	Hudson	NY	900	8,910
Jewett & Root.	Buffalo & Chicago	NY	5,000	49,500
Johnson, Black & Co.	Erie	PA	1,300	12,870
Jones & Abbott.	Zanesville	OH	650	6,435
Kellenger & Co.	Massillon	OH	680	6,732
J. H. Keyser & Co.	New York	NY	650	6,435
M. G. Knox & Co.	(?) larmar	OH	400	3,960
Lehigh Stove Co.	Lehiton (sic)	PA	700	6,930
Leibrandt & McDowell Stove Co.	Philadelphia	PA	2,750	27,225
L. M. Leonard.	Taunton	MA	700	6,930
Liberty Stove Works	Philadelphia	PA	2,400	23,760
J. S. Lithgow & Co.	Louisville	KY	1,450	14,355
Littlefield Stove Mfg. Co.	Albany	NY	1,500	14,850
Low, CrowELl & Co.	Cleveland	OH	1,400	13,860
D. Lynn & Co.	Wheeling	WV	900	8,910
Magee Furnace Co.	Boston	MA	1,750	17,325
March, Sisler & Co.	Limerick Bridge	PA	475	4,703
Martin, Henderson & Co.	Hanging Rock	OH	950	9,405
Matt, Ellis & Co.	South Carver	MA	850	8,415
B. McCoy.	Albany	NY	1,350	13,365
J. B. McDavidson & Co.	Albany	NY	500	4,950
Meeres, Olhaber & Co.	Cincinnati	OH	3,800	37,620
Miami Stove Works	Cincinnati	OH	1,800	17,820
Michigan Stove Co.'s Works	Detroit	MI	1,900	18,810
Miles, Pratt & Co.	Boston	MA	2,000	19,800

J.O. Miller.	New Cumberland	WV	650	6,435
J. D. Miller, Agent.	Wyandotte	MI	450	4,455
Mitchell, Stevenson & Co.	Pittsburg	PA	1,850	18,315
Montrose, Lent & Co.	Peekskill & New York	NY	950	9,405
William N. Moore.	Joliet	IL	680	6,732
Mothershead & Morris.	Indianapolis	IN	1,500	15,000
J. L. Mott Iron Works.	New York	NY	2,700	26,730
Munsell & Thompson.	New York	NY	2,250	22,275
Myers, Rouse & Co.	Cleveland	OH	1,500	14,850
National Stove & Hollow Ware Foundry	New Albany	IN	500	4,950
Neenah Stove Works	Neenah	WI	505	5,000
A. T. Nye & Son.	Marietta	OH	450	4,455
Ohio Stove Co.	Tiffin	OH	850	8,415
Oriental & American Stove Works (Perry)	Albany	NY	5,000	49,500
Orr, Painter & Co.	Reading	PA	1,400	13,860
Palmer & Hicks.	Troy	NY	900	8,910
D. E. Paris & Co.	Troy	NY	1,450	14,355
J. S. & I. Peckham.	Utica	NY	1,800	17,820
Peckham & Kruger.	Neenah	WI	455	4,500
Perry Stove Co.	Salem	OH	680	6,732
Stuart Peterson & Co.	Philadelphia	PA	1,900	18,810
G. H. Phillips & Co.	Troy	NY	1,450	14,355
Phillipsburg Stove Works.	Phillipsburg	NJ	950	9,405
Phoenix Stove Works	Quincy	IL	2,000	19,800
H.F. Pickles	Wilmington	DE	480	4,752

Plymouth Iron Foundry Co.	Plymouth	MA	700	6,930
I. H. Poelker & Co.	Evansville	IN	500	4,950
Pomeroy, Peckover & Co.	Cincinnati	OH	1,900	18,810
Potter & Co.	Troy	NY	700	6,930
Pratt & Wentworth.	Boston	MA	1,800	17,820
John H. Quackenbush.	Troy	NY	950	9,405
Quakertown Stove Works	Philadelphia	PA	1,200	11,880
H. Ransom & Co.	Albany & Chicago	NY	2,800	27,720
Rathbone Stove Works	Albany, Detroit, & Chicago	NY	4,000	40,000
Redway & Burton.	Cincinnati	OH	2,400	23,760
Wm. Resor & Co.	Cincinnati	OH	2,350	23,265
Rhode Island Stove Works.	Pawtucket	RI	680	6,732
Richardson, Boynton & Co.	New York	NY	800	7,920
Richmond Architectural Works.	Richmond	VA	1,300	12,870
Richmond Stove Company.	Norwich	CT	700	6,930
W PF. Robertson & Co.	Beverly	OH	480	4,752
Rock Island Stove Co.	Rock Island	IL	606	6,000
John J. Roeper.	Philadelphia	PA	800	7,920
P. Rollhaus & Co.	New York	NY	600	5,940
Rome Mfg. Co.	Rome	GA	450	4,455
Delos Root & Co.	Indianapolis	IN	950	9,405
Rosenbeyer, Light & Co.	Lebanon	PA	480	4,752
Salem Stove Works	Salem	OH	680	6,732
Sampson, Perkins & Co.	Taunton	MA	450	4,455
Sanford & Shute.	Schenectady	NY	450	4,455

J. Savery's Sons.	New York	NY	1,400	13,860
Scranton Stove Mfg. Co.	Scranton	PA	505	5,000
Sharp & Son.	Steubenville	OH	450	4,455
Sheldon & Greene.	Troy	NY	280	2,772
Isaac A. Sheppard & Co.	Baltimore	MD	900	8,910
O. E. Sheridan.	Highgate	VT	280	2,772
Shinnick, Woodside & Gibbons.	Zanesville	OH	500	4,950
Shuntz & Keeley.	Philadelphia	PA	1,300	12,870
H. O. Silr man.	Providence	PA	400	3,960
Silver Lake Foundry Co.	Olneyville	RI	900	8,910
Solar Stove Works	Neenah	WI	505	5,000
Somerset Co-operative Foundry.	Somerset	MA	450	4,455
Somerset Machine Co.	Great Falls	NH	3,000	29,700
South Erie Iron Works.	Erie	PA	450	4,455
Southard, Robertson & Co.	New York	NY	1,400	13,860
James Spear & Co.	Philadelphia	PA	2,000	19,800
Spicer & Peckham.	Providence	RI	875	8,663
Stamford Foundry Co.	Stamford	CT	900	8,910
Susquehanna Iron Works	Middletown	PA	400	3,960
Sweeneys & Co.	Wheeling	WV	950	9,405
Swett, Quimby & Perry.	Troy	NY	1,900	18,810
Taplin, Rice & Co.	Akron	OH	950	9,405
Taunton Iron Works Co.	Taunton	MA	800	7,920
Tibbals, Shirk & Whitehead.	Erie & Chicago	PA	2,000	19,800
Treadwell Stove Co.	Albany	NY	480	4,752

Troy Stove Works	Troy, Chicago, & Boston	NY	1,500	15,000
Union Furnace Co.	Taunton	MA	700	6,930
Union Stove Works.	New York	NY	2,300	22,770
Union Stove anufacturing Co.	Pittston	PA	450	4,455
Vail Avenue Foundry	Troy	NY	1,000	6,000
Van Wermer & McGarvey.	Albany	NY	1,200	11,880
Victor Foundry	Troy	NY	1,200	12,000
Victor Stove Co.	Salem	OH	650	6,435
James Wager.	Troy	NY	1,850	18,315
J. E. Wall & Co.	Barnesville	OH	400	3,960
H. Wells & Bro.	Martin's Ferry	OH	680	6,732
Western Stove Mfg. Co.	St Louis	MO	1,300	12,870
Russell Wheeler.	Utica	NY	900	8,910
Thomas White.	Quincy	IL	900	8,910
W. H. Whitehead.	Chicago	IL	800	7,920
Wood, Bishop & Co.	Bangor	ME	275	2,723
Woodcock & Bros.	Bridgeport	OH	450	4,455