

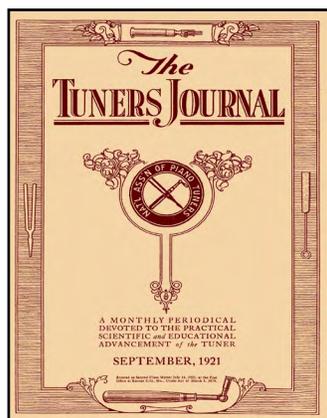
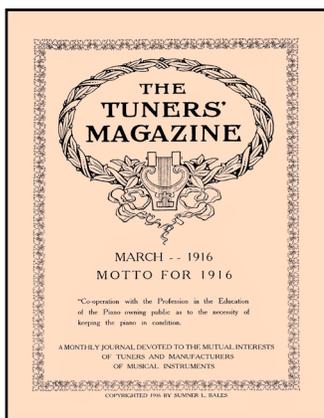


One Hundred Years Ago

By Norman Brickman

The history of the piano industry and our piano service work is varied and has undergone challenges since its beginning in roughly 1700. We have seen an evolving market of manufacturers and brands, improvements over time, such as the new uses of carbon fiber in actions, and the evolution of the tools and techniques of our tuning trade that we are always discussing.

This article looks back roughly 100 years to examine the history of piano servicing via articles that appeared in *The Tuners' Magazine* and in *The Tuners Journal* between 1916 and 1922. These publications illustrate the dynamics that marked our industry and profession then and continue to do so today.



As you probably already know, the Piano Technicians Guild offers a near-full set of *The Tuners Journal* issues online to let you drill into piano history going back to the very first publication in 1913. As various topics are discussed here, I hope that you will use the references included in each section to quickly bring up from the PTG web-based archive any detailed source materials that interest you.

Background

In 1910, 365,000 pianos were manufactured in one year within just the United States, where the total population at the time was 92 million,¹ an impressive quantity of pianos for one year. Considering that with an average of 4.54 people per household in 1910, there were about 20 million households in America.² Other countries' figures are likely also impressive. The piano was a particularly important source of musical entertainment in many households. Competition was to increase or to come later from records, movies ("talkies"), radio, television, and many more recent digital sources.

Enjoy the brief summaries in the following paragraphs of different relevant topics within our industry. As you think of corrections and additions to the topics based on your

experiences or on your research, consider submitting them to the Journal for potential future inclusion or corrections.

Equal Temperament

A common theme of articles 100 years ago was the discussion of the universal use of equal temperament (ET) in the tuning of pianos. A musical instrument with 12 fixed notes per octave can be tuned in different ways. However, even before the 19th century, historic temperaments such as meantone and the various well-temperaments yielded to the ability of ET to allow modulation to any musical key signature and maintain an equal quality of musical sound. By 1921, the industry had standardized on ET that we still predominantly use and hear today.³

Of course, all piano tuning at the time was done aurally. One article in *The Tuners Journal* in 1921 titled "The Tuner and The Tempered Fifth"⁴ starts with a review of the Pythagorean comma and the roughly one-fourth of a mean semitone inconsistency over seven octaves. It then goes into detail, quantifying the beating one expected from a tempered fifth, for example the G3-D4 fifth being one vibration (i.e., beat) every three seconds. Another article in the same issue, "Fundamentals Every Tuner Should Know," was the first in a multi-issue series on the difference between ET and other temperaments and explained why ET was established. At one point the author explains, "The equal tempered scale may be termed as a compromise between the demands of true musical intonation and the limitation of keyed musical instruments." For one of the non-ET temperaments, called meantone, he goes on to state: "The only safe scales to play in were C, A, E, F, G, B-flat, and D. All others involved dissonances often too great to be used."

As indicated above, the "Fundamentals" article is continued in many subsequent monthly issues of *The Tuners Journal*. The October 1921 issue details "the semitone factor" and how it is based on an "equally distant semitone." The article in the November 1921 issue drills into the characteristics of a vibrating string, with its fundamentals, partials, tone characteristics, quality of sound, and so on.

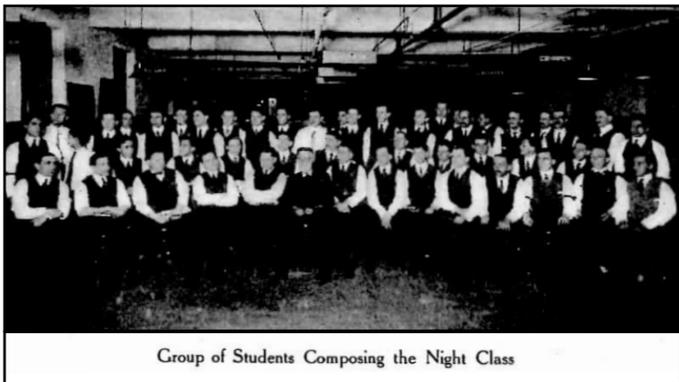
Player Pianos

Discussion on providing service to player pianos (also known as Pianolas) and advertisements from the manufacturers of them and their action mechanisms was a major portion of the content of the journals of the early 1920s. This was an early time for home media entertainment, and the player piano occupied a significant role. Most of us have serviced old player pianos, but in most cases the actual player mechanism is long gone or

has deteriorated. The player piano, however, is still with us today, mostly in the form of digital and electronic pianos.

The inventions necessary to support a player piano industry coalesced around 1896, at which point the industry took off.⁵ The 1910s and early 1920s were a peak of activity, with 1919 being the year that player piano sales exceeded those of “standard” (non-player) acoustic pianos.⁶ Player sales peaked in 1924. The phonograph and radio matured, and when the Great Depression occurred in 1929, the popularity of the player piano hit major roadblocks.

A piano tuner-technician going into a home to service a piano back in the day often had to be versed in pneumatic player mechanisms. Many schools were established to train technicians to service the player mechanisms. One such school, the Danquard Player School⁷ in New York City, had students from across the country. In 1916 it had 40 “day scholars” and 55 “night students.” See Figure 1. Service support today for pneumatic player and reproducing pianos is a specialized offering.



Group of Students Composing the Night Class

Figure 1: Danquard Player School night class.

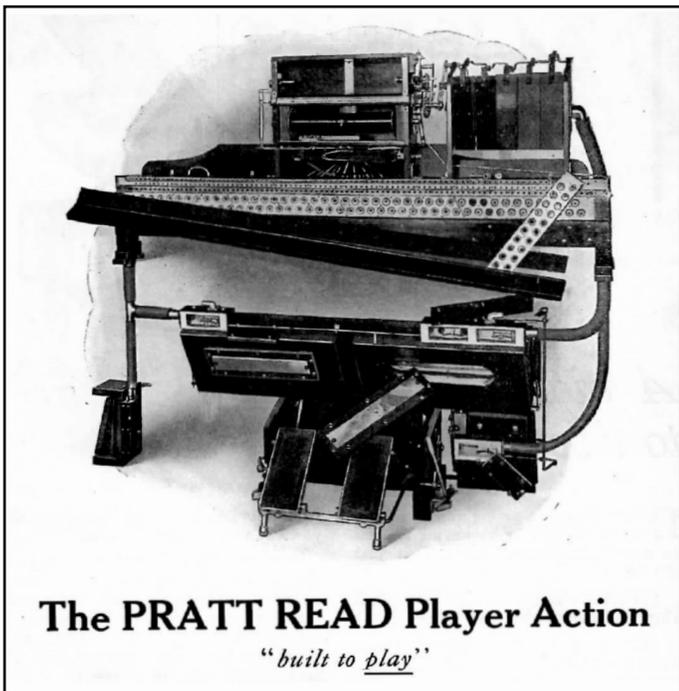


Figure 2: Player piano mechanism.

Figure 2 provides a cursory look at the added technical complexity that the player mechanism introduced to the piano.⁸ The player parts are replicated across 65 to 88 keys.

In the early years of the 20th century there were many manufacturers of player mechanisms for pianos. Some of the companies were Adapto Player Action, Simplex Player Action Company, Artrola Player Company, Pratt Read Player Action Company, and Standard Pneumatic Action Company, as well as player actions custom-made by individual piano manufacturers for exclusive use in their pianos, such as Baldwin’s Manualo player. For example, in 1921, 102 piano manufacturers installed the Standard Pneumatic Action Company’s player action for sale and use in their pianos.⁹ Standardization on supporting the full range of 88 notes (versus some earlier 65-note versions) and a universal format for the paper rolls helped sustain the growth of the player industry.

Many Piano Manufacturers

Looking into the issues of *The Tuners Journal* from the 1920s, particularly the advertisements, it is easy to appreciate the magnitude and viability of the piano manufacturing industry at that time. While the industry today has consolidated to 40 companies worldwide,¹⁰ at one time there were many hundreds of such companies. One list of discontinued brands and their various “stencil” names has 1,174 entries.

The Reproducing Piano

The next step up from the player piano was the reproducing piano. This was oriented around a paper roll, just as the player piano, but it expanded capabilities to allow the foremost composers and pianists of the time to record their performances on a piano roll. The homeowner could recreate music just as an artist had performed it.

The key invention was the Welte-Mignon reproducing piano of 1904. “It automatically replayed the phrasing, tempo, dynamics, and pedaling of a particular performance, and not just the notes of the music, as was the case with other player pianos of the time.”¹¹ A good summary of the operations of the Welte-Mignon system is available on the Web from the Pianola Institute.¹²

A first integration of the Welte-Mignon reproducing technology into acoustic pianos included that of Steinway & Sons in 1906, but its integration appears to have progressed much more slowly than the adoption of the player piano mechanism in general. The August 1922 issue of *The Tuners Journal* includes a presentation at the summer convention summarizing the operation of the Welte reproducing action and explaining its significance.¹³

The two major competitors to the Welte system were Ampico (from the American Piano Company), which achieved its full functionality in 1916, and Duo-Art (from Aeolian) in 1913.¹⁴ The Aeolian operations included a contract with Steinway, which installed the Duo-Art mechanism in some of its U.S.-made grands and upright pianos.

The Average Cost of a Tuning

Another common topic of articles in *The Tuners Journal* from 100 years ago, sampled from the 1921 and 1922 journals, dealt with the price of a tuning. There were company tuners

and independent tuners, and the tunings ranged over three levels of price.

At one extreme the piano industry included some dealers and manufacturers who promised their customers unlimited free tunings for a given period of time, such as for one year. For example, prior to October 1919, Hardman, Peck, & Co. had been giving their customers unlimited free tunings for a year. This resulted in some customers abusing the offer with six or eight tunings during the year, and others neglecting to take advantage of the offer and becoming unhappy when they later realized their loss. The company later changed to putting its tuning and repair department on a paying basis, but still provided a free tuning and service immediately within six months of delivery of the piano.¹⁵

For the independent tuner, prices were in the range of \$2.00 to \$4.00. (With inflation, \$4.00 in 1920 is equivalent to \$56.76 today.)¹⁶ In 1921 the Detroit branch of the National Association of Piano Tuners (NAPT) fixed a minimum price of \$3.50 for tuning upright pianos and \$4.00 for tuning grands and player pianos.¹⁷ In Chicago in 1922, the NAPT and local stores established a price scale for tunings of \$4.00 for uprights, \$4.50 for grands, and \$5.00 for players. They reported success in eliminating the practice of businesses offering free tunings. There was also an attempt, with an explanation of why, to discourage advertising one's tuning prices.¹⁸

Finally, there was a high end of the piano tuning price scale, where an offering of advanced services was established that justified charging a higher price. A gentleman in Oklahoma explained that he usually charged \$10.00 for the first tuning but less for subsequent tunings if they occurred within six months to a year after the first.¹⁹ Others also expressed establishing a price scale above the average due to providing enhanced services beyond just a basic tuning when they were at the customer's home.

The Need for a Professional Organization or Guild

A common fact of life as expressed in the piano tuner journals of 100 years ago was the need for a strong professional group to represent their interests, a role that the National Association of Piano Tuners was in the process of taking on. The NAPT took an active role in advocating for the elimination of free tuning arrangements, and in the ongoing process of educating piano owners of the need to regularly tune their pianos at least twice a year. They also promoted the need for reasonable charges for tuning and repairs.²⁰ The NAPT helped tuners to understand how their common concerns were best handled by a single organization that represented their interests.

The NAPT also published a pamphlet titled "Care of The Piano" that many piano tuner-technicians reported distributing to their customers. The pamphlet appears to have had an important impact on the piano-owning public.²¹

Industrial Manufacturing 100 Years Ago

The early part of the 20th century was a dynamic and creative time for manufacturing in the United States and elsewhere in the world. The large volume of pianos manufactured, and the substantial portion of those that were player pianos, was a significant sector of manufacturing worldwide.

Before the 1920s, the price of electric motors was significant compared to steam engines. A factory often had a single steam engine as its power source, distributing its output throughout a production facility via drive shafts and leather-belt-driven pulleys. See Figure 3.



Figure 3: Typical drive shaft plus pulley structure in a factory.²²

There was also a lot of creativity associated with piano manufacturing 100 years ago. A major example of this was Jonas Chickering and the factory that he put together in Boston, and which our PTG's James Kelly is in the process of documenting. James has explained that Chickering & Sons completed their massive factory in Boston in 1854. Jonas was known for his inventions (full iron plate, strings and stringing, and scale designs) and creativity in the production of pianos. His second large factory in the South End of Boston was built on reclaimed land. It used the latest techniques of the industrial revolution, with division of labor and specialization of tasks, as well as mill-style construction to produce a large number of quality pianos. The entire main factory was powered by a single 125-horsepower steam engine with six boilers, driving the factory using belt-driven machines built in Lowell and Lawrence, Massachusetts machine shops.

One of the criteria for establishing a piano factory was either to have your own iron foundry or to have a reliable source for the necessary iron plates. Again, from James Kelly's research, Chickering had two foundries that they depended on: South Boston Iron Works, a.k.a. Cyrus Alger Works, and H. E. Perkins in Bridgewater, Massachusetts. Alger perfected a process that produced cast iron that was purportedly three times the strength of the iron of other foundries, so good that it was used in cannons. Although it is not established fact, it is highly likely that Chickering chose Alger to make most of his plates to withstand the extreme tension required of increasingly larger and powerful pianos. The two men were friends, well-respected members of the community, and loved by their employees.

A Final Note

I hope that you enjoyed this introduction to the state of pianos and piano tuning that existed 100 years ago. I purposely provided a lot of references to make it easier for you to go to the PTG website and download the PDFs of the old journals and look through them on your own.

A major thank-you to Vincent Mrykalo, RPT, for his extensive suggestions and editing, to James Kelly, RPT, for his editing and his wealth of knowledge on the history of Jonas Chickering and his piano factory, and to Mary Wedgewood, Senior Music Cataloger at the Library of Congress, for her generous support and editing assistance. ■

Endnotes

¹“1910 United States Census.” en.wikipedia.org/wiki/1910_United_States_census.

²“Household in US Declines to Lowest Level Ever.” *New York Times*, April 15, 1987. nytimes.com/1987/04/15/us/average-size-of-household-in-us-declines-to-lowest-ever-recorded.html.

³“Natural Tuning versus Equal Temperament.” Southern Cross Flutes, www.southerncrossflutes.com/natural-tuning-vs-equal-temperament/.

⁴“Donelson, F. L., “The Tuner and the Tempered Fifth.” *The Tuners Journal*, September 1921, p. 8.

⁵“Player Piano.” en.wikipedia.org/wiki/Player_piano.

⁶“Day of the Player Piano.” www.americanheritage.com/day-player-piano#2.

⁷“The Danquard Player School.” *The Tuners’ Magazine*, March 1916, p. 10. See also “Record Enrollment”, p. 26.

⁸*The Tuners Journal*, January 1922, p. 1.

⁹*The Tuners Journal*, September 1921, pp. 20-21.

¹⁰“List of Piano Manufacturers.” en.wikipedia.org/wiki/List_of_piano_manufacturers.

¹¹“Welte-Mignon.” en.wikipedia.org/wiki/Welte-Mignon.

¹²“The Reproducing Piano – Welte-Mignon.” pianola.org/reproducing/reproducing_welte.cfm.

¹³Allen, Charles Duncan. “The Reproducing Piano.” *The Tuners Journal*, August 1922, p. 102.

¹⁴ For background on reproducing pianos, see: “The Reproducing Piano – Ampico,” www.pianola.org/reproducing/reproducing_ampico.cfm; “Player Piano,” en.wikipedia.org/wiki/Player_piano; and the previously referenced “Day of the Player Piano,” www.americanheritage.com/day-player-piano#4.

¹⁵ Purdy, C.T., “Pioneers in the Movement to Eliminate Free Tuning.” *The Tuners Journal*, October 1921, page 16. Also W. F. McClellan, “The Free Tuning Evil,” November 1921, p. 16.

¹⁶“Value of \$1 from 1920 to 2022”, www.in2013dollars.com/us/inflation/1920?amount=1.

¹⁷ *The Tuners Journal*, December 1921, page 32.

¹⁸ McClellan W. F., “The Piano Tuning Business and Prices.” *The Tuners Journal*, October 1921, p 9. See also William E. Medcalf, “The Independent Tuner and His Problems,” September 1921, p. 6.

¹⁹ Bishop, R. C., “Establishing a Successful Tuning Business.” *The Tuners Journal*, May 1922, p. 17

²⁰ The McClellan W. F. and William E. Medcalf articles previously referenced.

²¹ Van Fossen, E. C., “How I Am Making a Success of the Tuning Business?” *The Tuners Journal*, July 1922, p. 53.

²² “The American Device Company.” *The Tuners Journal*, July 1922, rear cover.

Norman Brickman was formally educated in piano tuning and technology by John Travis at Montgomery College, Gaithersburg, Maryland, 1975-76. (John was the first co-president of PTG in 1957.) Additional training in piano technology includes an apprenticeship under William Hupfer, chief tuner-technician of the Concert Department of Steinway & Sons, New York City, and an apprenticeship under Fred Hemry, a Registered Piano Technician in Bethesda, Maryland. The author is a member of Master Piano Technicians of America (MPT). Other higher education includes a master’s degree in computer science and a Ph.D. in physics. The author may be reached at PotomacPiano@verizon.net, or through his website, https://potomacpiano.com.