The Interrelationship of Musical Excellence and Acoustical Excellence:
A Case Study of the Gewandhaus, Leipzig, 1880-1900

Pamela Clements

Abstract: The Neues Gewandhaus in Leipzig was built for the repertoire of the late 1870s and early 1880s, which was dominated by Beethoven, Mendelssohn and Schumann. The hall’s acoustics were ideal for the performance practices of the orchestra at that time. Yet the orchestra and hall were even more highly acclaimed when late Romantic works were performed in the broad, brilliant, interpretive style of Arthur Nikisch, who became Gewandhaus conductor in 1895. Thus the hall’s acoustics were excellent for more than one period and style of musical performance. An explanation may be sought in the way music and acoustics interrelate.

BACKGROUND

The original (Altes) Gewandhaus, built in 1781, was the first purpose-built hall for a permanent orchestra giving regular subscription concerts of symphonic music. It was built for an audience of 400, and was regarded from the beginning as acoustically excellent. In Mendelssohn’s time upper galleries were added, increasing the seating to 570. The RT (occupied) at mid frequencies was around 1.1 seconds. Audience pressure continued to grow and in the 1860s and 1870s a number of renovations coupled adjacent corridors and spaces to the main hall. These were called “the chicken coop” and “the institution for the blind” because from there one could hear but not see. One thousand people regularly crowded in, and the stage that was designed for 65 musicians sometimes accommodated 70 or more (the strings were still standing at that time). Such acoustical conditions are unimaginable to us, yet the hall retained its acoustical reputation. In fact, the decision to build a new hall was postponed for many years for fear that the new hall may not be good acoustically; the design competition for the new hall recommended that the architecture of the old hall be imitated in the hope that this would guarantee a good acoustical result.

THREE EXAMPLES OF MUSICAL AND ACOUSTICAL EXCELLENCE

Three vignettes have been chosen to characterize musical and acoustical excellence at the Gewandhaus: in both old and new hall under conductor Carl Reinecke, and in the new hall under conductor Arthur Nikisch after 1895.

1880: In 1880 the famous Gewandhaus Orchestra was still performing in the original Gewandhaus. The repertoire was dominated by Beethoven’s symphonies; the music of Mendelssohn and Schumann was also prominent, followed by Schubert, Mozart and Haydn. Brahms was just becoming accepted; that year Dvorak was heard at the Gewandhaus for the first time. Oratorios were popular, but were done infrequently because of the loss of seats when the stage was extended. Solo vocal (lieder and opera arias, mostly) and instrumental items were usually on the program. Music of contemporary German composers was often performed; most of it has not endured.

This was the repertoire for which the new hall was designed. It is important acoustically that the hall was not designed for “late romantic” music. Very occasionally a Wagner overture or excerpt was performed; even less often a symphonic poem by Liszt. The Gewandhaus audience had yet to hear Bruckner, Smetana or Richard Strauss.

The performance style was not “classical” but neither was it “late romantic”. The orchestra now numbered 65-72, rather than 27 as in 1781, or ca. 50 as in Mendelssohn’s era. All sections of the orchestra had increased in size, particularly the strings; the volume of the orchestra, and its balance had greatly changed. Only some valved wind instruments were being used. The conductor, Carl Reinecke, was a “time-beater”, taking the music along at an even pace, often fast, and avoiding nuances or anything that could be called personal or interpretive.

1884: In 1884 the new hall opened and was found to have acoustics even better than the old hall. The architects Gropius and Schmieden had imitated or modified many characteristics of the original hall, and had introduced other elements. The hall was rectangular with rounded corners, and had one balcony, as before. But now the corners were more rounded; enormous ceiling coves framed clerestory windows; the ceilings were ornate and deeply coffered. The balcony, and the relationship of organ to stage is reminiscent of the Grosser Musikvereinssaal in Vienna. There was less wood than in the old hall. A study of the Trocadero in Paris resulted the paintings on canvas on the upper side.
walls, and rear curtains, designed to control echoes. The hall’s RT (occupied, mid-frequencies) is usually estimated at 1.55 seconds, though by adjusting absorption coefficients it is possible to calculate an RT of 1.75 seconds.

The orchestra took several years to adjust to the changed acoustics, and acquired a new, tender, veiled sound. In 1888 Tchaikovsky visited Leipzig and observed that the Gewandhaus orchestra performed much better playing Wagner at the opera under the conductor Arthur Nikisch than at Gewandhaus concerts under Reinecke. The difference in reverberation time alone was dramatic.

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In 1889 Arthur Nikisch became the Gewandhaus conductor in 1895, and the “Nikisch phenomenon” vaulted the Gewandhaus back to the preeminent reputation it had under Mendelssohn. Nikisch was an interpretive conductor, much influenced by Wagner. He also had been a violinist in the Vienna Philharmonic Orchestra in the Grosser Musikvereinssaal, and had been influenced by the quality of sound of that orchestra and hall. He was famous for generating extraordinary tension through grand pauses, controlled dynamics and rhythmic freedom, and for building a frenzy which called forth brilliant performances from the musicians. Within a broad, sweeping sense of the overall architecture of the music, he was also renowned for bringing out the inner voices, and for subtleties of timbre.

Nikisch rearranged the orchestra risers, bringing the winds forward in fours, surrounded by the cellos and violas, so that their sound emerged through the massed strings. The basses were at the rear (as in Vienna); the percussion were not on risers. The regular orchestra soon numbered 100. The instruments, particularly the winds, were upgraded.

The repertoire had expanded to include Bruckner, Richard Strauss; Mahler would soon be important. Beethoven, Schumann, and the others were now performed in an interpretive way by the large orchestra. The focus of the concert had now shifted to listening to the performance rather than listening to the music itself.

**WHY WAS THE NEUES GEWANDHAUS SO EXCELLENT ACOUSTICALLY?**

From the descriptions of Nikisch’s performances it’s clear that the hall could sustain a great dynamic range, and that it enhanced timbral color. It seems to have had great evenness of texture, and on-stage hearing was excellent both for hearing other players and for having a sense of the sound in the hall. The hall geometry indicates early and evenly-spaced side reflections, and good diffusion from highly-articulated surfaces. We can probably surmise that the IACC and other new acoustical parameters would have been in the excellent range. Yet none of these characteristics singly or together indicates why this hall was so excellent, with a reputation beyond that of other fine shoebox halls.

Most of these acoustical parameters support the orchestras and musical styles of Reinecke and Nikisch, but in differing degrees. For example, early lateral reflections, good on-stage hearing, and highly diffusive surfaces would support both the fast, clipped performances of Reinecke and the explorations of timbral color and rhythmic freedom of Nikisch. On the other hand, the relatively short reverberation time certainly supports the Reinecke style, but it is not clear how it supports the broad, late Romantic Nikisch sound unless our assumptions about an ideal RT of 2.0 seconds are misleading, or perhaps dated. The taste for a longer reverberation time changed in the late nineteenth century, and has changed again more than once in the twentieth.

It is possible that if all other acoustical parameters are excellent, a relatively shorter reverberation time may not be a deficiency. It may in fact give the flexibility to span musical styles that was characteristic of the Neues Gewandhaus. After all, Severance Hall in Cleveland has an RT of 1.5 seconds; Symphony Hall in Boston, 1.8.

It is also possible that further exploration of the interrelationship of music and acoustics may reveal other acoustical parameters that have not yet been identified. Breaking out of the romantic/classic dichotomy and seeing nineteenth century music as a (non-sequential) series of different combinations of musical elements, and looking at the orchestra and performance practices, may enable us to see other ways in which music and acoustics interrelate.

**REFERENCES**