HISTORY OF ART

THE EVOLUTION OF TIMPANI GLISSANDO: FROM ACOUSTIC EFFECT TO MUSICAL DEVICE

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DOI: https://doi.org/10.30525/978-9934-26-720-8-17

The transformation of timpani from an instrument that long served exclusively the function of harmonic and metro-rhythmic support in the orchestra into a fully-fledged carrier of melodic and timbral expression represents one of the most indicative metamorphoses in the history of symphonic instruments. At the center of this organological and aesthetic evolution lies a specific technical device – the pedal glissando, which allows for smooth changes in pitch in real time. Initially perceived by composers and performers primarily as a coloristic effect, timpani glissando gradually acquired structural and intonational significance, expanding the understanding of composers and performers regarding the melodic and timbral possibilities of the instrument.

The emergence of glissando as a fully-fledged musical device would have been inconceivable without a radical change in the construction of the timpani. During the Baroque and Classical eras, tuning was done manually using screw mechanisms, which practically precluded the possibility of quickly changing the pitch while playing. A true revolution occurred at the end of the 19th century when the German engineer Carl Pittrich developed the first effective pedal mechanism (so called “Dresden system”). This allowed the function of changing membrane tension to be transferred to the timpanist's foot and created a fundamentally new performance situation: pitch could henceforth be changed in real time during sounding, and pedal movement became a direct factor in shaping intonation. Further refinement of the design, particularly in Günter Ringer's “Berlin system”, facilitated more precise control over pitch changes and expanded the technical capabilities of the instrument [1, p. 232–240; 2, p. 205–210].

It was at this stage that a fundamental change in the status of glissando occurred: it ceased to be merely a consequence of new mechanical capabilities and gradually became a consciously organized means of musical expression. While initially the effect attracted attention primarily due to the unusual pitch

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movement and specific timbral coloring, as composers mastered the technique, its function changed. Glissando began to participate in the formation of the intonational line, the exacerbation of dramatic tension, the connection of different registers, and the creation of specific sound plasticity. Thus, a technical possibility gradually turned into an element of compositional thinking, and timpani gained the ability to actively influence the unfolding of musical material.

Works written in the first half of the 20th century are indicative in this regard. The Danish composer Carl Nielsen, in his Symphony No. 4 "The Inextinguishable," first applied the glissando capabilities of the timpani in a dramatically heightened episode, assigning the timpani the role of aggressive antagonists [6]. In the work of Béla Bartók, this technique acquires structural significance. In "Music for Strings, Percussion and Celesta" and the "Sonata for Two Pianos and Percussion," glissando is integrated into the very structure of the sound process. Bartók made glissando the most important element of organic sound production. Particularly indicative is the combination of pitch change with a continuous tremolo, which requires extremely precise movement coordination from the performer and effectively blurs the line between a single stroke and an extended intonational process [4, p. 281, 291–293]. Timpani take on the characteristics of an instrument capable of shaping both rhythmic pulsation and a moving pitch line.

A true milestone that overturned perceptions of the potential of percussion was Elliott Carter's cycle "Eight Pieces for Four Timpani." Carter began to treat the timpani not as a single instrument, but as a polyphonic quartet of independent voices. In the aforementioned work, the composer implemented the revolutionary concept of resonance combined with glissando, and also challenged the physics of the instrument by combining pedal glissando with the performance of harmonics. This demanded unprecedented control over the acoustics of the copper bowl from timpanists and turned Carter's cycle into a benchmark for modern soloists [3]. Glissando ceased to be perceived as an isolated effect and became one of the means of organizing the musical fabric.

In the second half of the 20th century, these tendencies manifested particularly clearly in the genre of the instrumental concerto, where glissando finally became entrenched as the main "building material" for thematic development. In the works of Werner Thärichen, Harold Farberman, William Kraft, and Philip Glass, timpani emerge as a solo instrument with a developed technical and intonational system, proving that they are capable of the same virtuosity and melodic agility as a solo violin. The parallel mastery of other extended techniques – playing on instrument with hands, using different types of mallets, harmonics, playing chords with four mallets – created a new performance environment in which pedal glissando technique became part of a

broader system of timbral-intonational means [5, p. 15]. Concurrently, in the work of Einojuhani Rautavaara, glissando acquired a distinct figurative-semantic function, forming mystical images and the sound atmosphere characteristic of his music.

Thus, the evolution of timpani glissando demonstrates the expansion of the performer's technical arsenal and consistent change in the status of the instrument itself within the system of musical expressive means. From a mechanically complex and acoustically unusual effect, it has traveled the path to becoming a means of shaping intonational movement, dramatic tension, thematic development, and the individual stylistic idiom of the composer. Accordingly, changes in the construction of timpani opened up to new technical possibilities, and also up to a new type of interaction between *compositional intent* and *performance practice*. A modern timpanist must control the precision of the pedal movement and also the correlation of pitch, timbre, resonance, dynamics, and the character of the sound gesture. The history of timpani glissando is a striking example of how a technical innovation gradually becomes a factor in renewing performance practice and, ultimately, transforms into an independent stylistic device of the musical language.

Today, successful performance demands from the musician an absolute pitch, coordination, a deep physiological understanding of the instrument's acoustics, control over overtones, and meticulous mastery of resonance. The transformation of timpani due to the glissando technique is one of the most vivid examples of how engineering thought and compositional imagination can completely redefine the aesthetic function of a traditional instrument.

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