METHODOLOGICAL PROBLEMS OF SOLO TIMPANI PIECES

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ABSTRACT

Timpani, which have been known for centuries, found their way to orchestras gradually. Over time, timpani construction and performance have gone through substantial transformation. Timpani have evolved from military drums to become an accepted solo instrument, an important percussion addition to various ensembles, and the only tuned membranophone. Centuries of technical advancement have allowed faster timpani performance and tuning, which has inspired composers to employ the instrument increasingly. Elliott Carter’s *Eight Pieces for Four Timpani* provide an excellent introduction to and summary of the capabilities of the instrument at the time, making use of different playing areas, diverse resonance, glissando, and mallets of varying softness. Carter could hardly imagine how significant his series would become for percussionists and composers, and how much the untapped potential of the instrument would be unlocked by the pieces, which had originally started as a study of metric modulation and were later revised and expanded to eight movements.

Keywords: ***timpani, Carter, stroke, metric modulation, choice of mallets***

Timpani and trumpets have been in use at court festivals and in military music for several centuries. Timpani, which have become one of the most important instruments in symphony orchestras over the centuries, are the only tuned membranophone instruments.

Nakers, as the small predecessors to timpani were called in the Middle Ages, are instruments of Arabic or Saracen origin. The word "naker" comes from the Arabic "naqqara". It was already known to the Arabs in the 12th century, and in the 13th century the instrument appeared in Europe due to the crusades. Other sources, such as Marco Polo, also mentioned it.

The records describing the development of performance on small timpani highlight the major role of Germany. For instance, one account tells that in 1384 the duke of Burgundy sent one of his drummers to Germany to acquire the knowledge of the players there.[1]

There used to be two sizes of the instrument. One was a fist-sized drum and used in small chamber ensembles, the other was larger, one foot (about 30 centimetres) in diameter, used during military events. The larger instruments were used by the cavalry, which contributed to their diffusion in the 15th century. These great cavalry drums were first observed in Western Europe in 1457, when the King of Hungary sent a legation for a bride to France. At this parade, the instrument was still considered completely unknown. In his book *Orchésographie* (1589), Thoinot Arbeau writes about Persian drums, including the timpani, described as a hemisphere covered with strong parchment. The skin was tightened with a rope. This rope was later stretched onto the bowl using a hoop secured with wires, and subsequently, screws.

Over time, the use of timpani became increasingly accepted. Numerous accounts describe how horses moved in battles to the sounds of trumpets and timpani. Although several records mention the simultaneous use of trumpets and timpani, we know very little about the musical material. For a long time, battle signals were not recorded. Soldiers passed on their knowledge personally, and students had to master the music of the court and the military through long and arduous work. Practicing musicians sometimes encountered pieces which they did not know or could not play from memory, so they improvised or decorated the music based on the pieces in their repertoire.[2]

The connection between the trumpet and timpani was so close that the names of the main percussion patterns at that time were named after tongue movements.[3] This is also evidenced by a variety of playing techniques. In addition to the normal sound, it was also necessary to use a muffled, muted technique so that the enemy could not hear the signal instructing the operation. There are also accounts of an echo effect, whereby loud sounds played in the middle of the drum were followed by the soft and light notes played near the edge of the instrument. The muffled drum was also used at funerals, but there was general consensus over the heroic character of the instrument.

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[1] James Blades, *Percussion Instruments and their History*, The Bold Strummer, Ltd., Westport, 1992, pp. 223-224.

[2] Larry S. Spivack, „Kettledrums: A European Change in Attitude 1500-1700" (Part 1), in *Percussive Notes*, 36/6 (December 1998), p. 57.

[3] James Blades, *op. cit.*, p. 58.

In the early days of the timpani, which were still attached to the horse's neck then, they were often adorned with decorated drapery to achieve an elegant appearance. Of course, the mallets were also decorated, often with expensive gemstones. During this period, however, efforts were already being made to make the sound softer. Wooden mallets began to enjoy widespread use to become the most accepted mallets by the end of the 17th century. In his book *Les Travaux de Mars*, A. M. Mallet mentions wooden mallets which are 8-9 inch long and have a small disc-shaped head.[4]

In the 18th century, it became necessary to use even softer mallets to align with the musical material, especially for playing piano tremolos. In the 19th century, Hector Berlioz was the first to instruct players to have at least three types of mallets, namely a pair each with wooden, leather, and felt heads. He considered their use in the works of Haydn, Mozart, and Beethoven essential.

Starting from the 16th century, the drum head was stretched onto the frame by about 10 handles, which, when rotated, could tune the timpani. Their use was difficult, which hindered the development of the instrument. To overcome this, more instruments were gradually involved in performances, which meant that orchestras began to feature third and fourth timpani.

Timpani went through a technical revolution in Dresden in the 1870s. Carl Pittrich introduced a system which is still in use on timpani. He connected the tuning lever to a pedal mechanism to retune the instrument. Later, to help and control the tuning, a tuning gauge was attached to the pedal structure, which made it easier for players to determine the interval, but only as an indication. This new design made it possible for the first time to tune timpani during performance, and enabled the subsequent discovery that glissando could also be played on timpani. To this day, state-of-the-art timpani are made based on this operating principle, with constant improvements.

The technical renewal of the pieces written exclusively or in part for timpani has been a long process. In their works, composers have often turned to expanding the use of percussion instruments and to novel techniques in developing their specific musical language. In the mid- 20th century, pieces written for solo timpani appeared quite frequently. The first solo works followed the traditions of timpani arrangement in orchestras of the time, but later solo timpani pieces were characterised by innovation and experimentation. Sergei Prokofiev's *Virtuoso Etude* was published in 1948. The author was the first to ask for five timpani to be included in the performance of his piece. Prior to that, Alexander Tcherepnin's *Sonatina*, composed of four short movements and intended for four timpani, was published in 1940 and revised by the composer in 1951. At that time, two American composers also wrote for the four-piece timpani set commonly in use: Daniel Jones's piece was published in 1953 and Alan Ridout's in 1967.

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[4] Larry S. Spivack, *op. cit.*, p. 55.

The most significant musical and technical summary in the timpani literature is Elliott Carter's[5] series titled *Eight Pieces for Four Timpani*[6]. The title of the series was originally *Six Pieces for Four Kettledrums*. From that manuscript, Associated Music Publishers published two movements, *Recitative* and *Improvisation*, in 1960.

Carter explained in an interview that he had composed the six-part series as early as 1949 (most likely, this is when the work began and the first pieces were completed), but the score and other interviews refer to the year 1950.[7] He originally composed these pieces as a rhythmic study for his first string quartet, which was published in 1951. Elliott Carter also reported in an interview that after writing the six movements, he gave them to percussionists from New York, but was not content with the sound. The pieces were then revised in 1966.[8]

Carter, together with the young Jan Williams, began experimenting with revising the sound and score of the *Recitative* and *Improvisation* movements, and prepared the other four pieces for publishing. We know from Williams's account that the instrument on which Carter and Williams experimented was of the novel Ludwig Professional Symphonic Timpani series, owned by the Buffalo Philharmonic Orchestra. The drum head was made of plastic as opposed to animal skin.[9] This information is crucial for today's performers to replicate the sound, although one of Carter's later interviews did praise the sound of skin heads.[10]

The end result exceeded all expectations. Carter's series summarised and exceeded contemporary composers' and percussionists' expectations about sounding timpani. The composer was probably aware of the novelty of his pieces because he provided special performance instructions and explanations to the performers in the complete edition. In particular, the author specified the location of the playing areas on the timpani, performance techniques for certain movements, and the interpretation of specific graphical instructions in the score.

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[5] Elliott Carter (1908-2012), american composer.

[6] Elliott Carter, *Eight Pieces for Four Timpani*, Associated Music Publishers New York/London, 1968.

[7] Patrick Wilson, „Elliott Carter: Eight Pieces for Four Timpani", in *Percussive Notes*, 23/1 (October 1984), p. 63.

[8] *Idem*, p. 65.

[9] Jan Williams, „Elliott Carter's Eight Pieces for Timpani – The 1966 Revisions", in *Percussion Notes*, 38/6 (December 2000), p. 9.

[10] Wilson, *op. cit.*, p. 64.

Carter was motivated by the emphasis on the characters and the intelligibility of the phrases when he entrusted the performer with the selection of mallets in movements I, III, IV, V, and VII. He probably understood that in many cases the character of the sound depends not only on the mallet, but also on the size and acoustics of the room, among other things. In movements where he wanted to create special sound effects, he did not leave it to the performer to select the mallet. For the final movement, *March*, he suggested a medium-head mallet to achieve two different sounds in parallel. These two sounds can be created with the soft head of the mallet (HEAD) and its shaft (BUTT), which is why the softness of the mallet is of particular importance. Using well-chosen mallets, it is possible to apply the simultaneous virtuoso performance of the two types of sound according to Carter's instructions.

In a similar way to *March*, Carter also prescribed the use of the head and wooden shaft of timpani mallets in the first movement (*Saëta*), in which he did not combine tones but rather alternated them. In the sixth movement, *Canto*, the sound produced by the reed shaft of the mallet was not suitable for the composer, who instead instructed performers to use snare drum sticks to produce the desired effect.

The second movement, *Moto Perpetuo*, calls for the use of a two-tone mallet created as a result of experimentation. The composer provided explicit instructions on how to manufacture the mallet to ensure the sound he had envisioned. Carter borrowed the idea from American percussionist Michael Colgrass on the advice of Jan Williams. Colgrass achieved novel sound effects in his own piece written for a snare drum when using cloth-coated sticks. For the timpani, Carter and Williams did not use snare drum sticks as a basis, but a thin rattan shaft, which was then covered in cloth. When striking with the tip of such mallets, the sound is louder, whereas it is softer when using the sides.[11]

In his series, Carter took special care in creating and providing adequate notation for different types of strokes. Besides the conventional normal stroke (NS), he also required the use of the dead stroke (DS), which is a way of sounding the instrument when the performer does not allow the mallets to spring back from the head but leaves them pressed hard to it.

Even in the first edition, Carter did not leave the technique of dampening notes to the performer; instead, he wrote a general explanation of the related notation and implementation. He meant this to apply to all movements in the series except the last, *March*. In each case where he notated it with a designated small sign, he expected performers to muffle the sound by hand. In other cases, players would need to consider and adjust the dampening to the lengths of notes and rests. Carter used a similar notation in the sixth movement, *Canto*, where a small sign in the penultimate beat instructs performers to strike the rim of the instrument. Carter also denoted *rim shots*, the simultaneous stroke on the rim and the head, in a similar but not identical way.

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[11] Williams, *op. cit.*, p. 12.

Carter paid special attention to and explained the playing areas on the timpani. In the musical literature, this was not unprecedented as two different playing areas had already been featured in the *Dances of Galánta* by Zoltán Kodály (1933). The use of the conventional playing area (normal – N) and the one in the centre (centre – C) served the musical interpretation and assisted the *verbunkos* character in Kodály's work. Carter went one step further by supplementing these two options with a third one, striking near the rim (rim – R). This stroke is similar to the *rim shot* in the *Canto* movement of Carter's series, only in this case the playing area is less close to the edge. With this technique, the result is a high yet non-metallic sound. This is how the three basic playing areas are struck on the drum head stretched over the timpani. In addition to the normal sound, it is possible to produce a drier but deeper midrange timbre as well as a brighter and higher one. Carter also addressed the glissando-like sound of switching between playing areas. This request was indicated in each case by a dashed line between the two playing areas. The different tones created as a result of the defined playing areas play an important role in the performance of the pieces from the perspective of both articulation and rhythm.

Carter also used and explained special notations in his series. In the *Moto Perpetuo* movement, he made use of the special mallet he had designed for articulation. He specified which part of the mallet to strike with using the notation (Tp) for the tip and (Hd) for the conventional playing spot, the head. He also provided an explanation on the articulation of the movement and the corresponding notations. He attached great importance to the correct performance of accents and emphases. So, he instructed the performer to emphasise starting strokes and marked notes without an emphasis separately.

The two movements composed the latest are *Adagio* and *Canto*. The former is the third, the latter the sixth in the complete eight-part series. These are the two movements in which changing the pitch using the pedal is required. Performing these presupposes significant technical expertise from the performer.

The *Adagio* movement features a musical and technical solution that had not been observed on timpani previously. There had been examples of glissando on timpani in the music literature, but not combined with harmonics. Simultaneously performing these two effects requires a novel technique and substantial practice from the player. To create harmonics, players need to touch the timpani head between the rim and the centre of the instrument with one or two fingers. Touching the head needs to occur at the same time as the stroke, otherwise the natural reverberation of the skin might be muffled.

In this movement, Carter also explained how to perform the notes on the small staff below the main theme: they are not alternatives to the normal notes but an integral part of the performance. This is how Carter took advantage of the simultaneous resonance of identically tuned instruments. He incorporated the resulting acoustic effect into the movement, creating a glissando with the sympathetic resonance notated on the small staff.

The composer also had an acoustic remark in relation to the *Canto* movement, explaining the importance of the *sneak entrance*, which is indicated by text below the theme. According to Carter's instructions, the tremolo should be started in a way that takes advantage of the ring of previous loud and dynamic beat.

The regulation of the resonance of the instrument in an acoustic or musical sense can be found in almost every movement. Only in connection with the *March* movement could it be argued that Carter did not address separately the resonance and duration of notes, but this is refuted by the last part of the movement, where he deliberately contrasted the resonant and muted instruments acoustically. In this movement, the composer asked performers to use a *coperto*, which is a silencer tool, instead of the hand dampening which was otherwise requested. The *coperto* is a piece of leather or different material, which Carter instructed to be placed on the instruments.

Elliott Carter's series for four timpani was also influential in the field of rhythmic modulation. In this respect, Carter followed two principles. First, he interpreted the rhythm while maintaining a given tempo or rearranged it according to another rhythmic unit. Second, he kept the beat and changed the density of the rhythm within that. When reinterpreting, he rearranged the rhythm while maintaining the new tempo. This results in a new beat and tempo after the modulation. Perhaps the most difficult rhythmic modulation in the series is in the *Canaries* movement.

Carter's series has provided tremendous inspiration to composers and performers to create new pieces and new sounds.

It is also worth mentioning that timpani can also be solo instruments in concertos. In the 18th century, the increasingly virtuoso technique inspired composers to experiment with timpani as solo instruments. Johann Melchior Molter (1695–1765) used five timpani in his *Symphony No. 99*, composing a full cadence in the piece. It is also interesting to mention a composer, whose life is connected to Hungary. Georg Druschetzky (1745–1819), a composer of Czech descent, spent more than thirty years in Hungary in the service of various dignitaries. Among his works we find two pieces, a concerto and a partita, which are composed for six timpani with orchestral accompaniment. He composed for eight timpani in his concerto for oboe, timpani, and orchestra.

Even in the 20th century, several concertos were composed for timpani with orchestral accompaniment, such as *Capriccietto für vier Pauken und Streichorchester* by

Ottmar Gerster, *Konzertstück für Pauken und Orchester* by Mauricio Kagel (1990–1992), *Konzert für Pauke und Orchester* by Werner Tärichen (b. 1954), *Der Wald – Konzert für Pauke und Orchester* by Siegfried Matthus (b. 1984). It is not uncommon to come across solo timpani pieces with piano accompaniment, such as *Concerto pour timbales et piano* by Gabriel-Pierre Berlioz.[12]

The 20th century revolutionised the literature for timpani in other ways as well. In the middle of the century, the diameters of the timpani in the original four-part set were 23, 26, 29, and 32 inches. In addition to these, instruments corresponding to contemporary patterns and, as a novelty, five-instrument sets also emerged. The frequent changes in the size of timpani are explained by a diversity of needs and the modernisation of production technology. For example, the website of a major instrument manufacturer offers timpani in the following sizes to best meet customers' needs: 20, 23, 25, 26, 28, 29, 30, and 32 inches.[13] From these, individualised sets can be purchased to suit special needs and usage. As a result, there is a recent trend to freely select the number and composition of timpani. An example of this is the *Concerto Fantasy for Two Timpanists* (2000) by Philip Glass (b. 1937), in which two performers playing on fourteen timpani are contrasted with a full orchestra. Between the second and third movements of the three-movement work, a virtuoso timpani cadence is performed. Another example is *The Grand Encounter* (2005) by William Kraft (b. 1923), with the subtitle *Concerto No. 2 for Timpani and Orchestra*. As the subtitle reveals, the concerto is not the composer's first piece for timpani and orchestra, which in turn was composed in 1983 and was first performed a year later. The more recent piece, in addition to the six-piece standard set, requires nine additional tenor timpani, which are to be around the base set using a console, enabling the players to access them. The suspended instruments include four 18-inch, three 16-inch, and two very small 14-inch timpani. The use of these small instruments is in fact quite rare.[14]

Musicians and composers have experimented with a myriad of interesting sound effects using timpani. An interesting acoustic application of the instrument should also be mentioned, whereby cymbals or sounding bowls are placed above or on the timpani head, and are struck using a soft mallet or a double bass bow, which is often complemented with the use of the pedal to change the tension of the drum head. The sustained sound of the instruments is amplified by the timpani and interacts with the drum head in an interesting way. This solution can be found, for example, in Yoshihisa Taira's great sextet titled *Hiérophonie V*, composed in 1974.

Another possibility to achieve novel sound effects, favoured by percussion composers, is to introduce more variety to the sticks used to strike the timpani.

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[12] Blades, *op. cit.*, p. 431, and Percussion Katalog, www.percussion-brandt.de.

[13] www.adams.nl.

[14] Aaron T. Smith, „Genesis of a Concerto: «William Kraft's XIII The Grand Encounter and the Birth of Tenor Timpani»", in *Percussive Notes*, 45/5 (October, 2007), p. 19.

Thus, pieces sometimes prescribe the use of drum brushes, or less frequently, of metal sticks and triangle beaters. It is also a favoured tool among composers to instruct performers to play with their hands or fingertips, as evidenced in the beginning of the sextet titled *Sisu* by Torbjörn Iwan Lundquist.

Another novel effect incorporates strokes on the bowl, which are often observed in pieces and etudes by Frédérique Macarez[15], for example. Striking timpani bowls of different sizes produces ringing sounds of varying pitch. This popular effect often sets a difficult challenge to performers as the angle to strike is different for the bowl and the drum head.

As the notations of these new sound effects follow the previous concept of graphical representation, skilled performers should have no trouble deciphering them.

Making use of the wide range of possibilities offered by timpani has made them suitable solo instruments on stage, inspiring contemporary composers to write new pieces.

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[15] Frédérique Macarez (born 1977), French percussionist, professor.