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**TIME, TIMBRE AND TEXT:  
TECHNIQUES AND ARTISTIC CONCEPTS  
IN ARNE NORDHEIM'S ELECTRONIC MUSIC**

The electronic music by Norwegian composer Arne Nordheim (1931–2010) is central to his artistic thinking, not only because of the large number of electronic works he wrote, but also in terms of its strong influence over his other compositional work. The regular work in electronic music studios gave Nordheim direct experiences with sound, which later materialised in his acoustic music. This is apparent in key aspects such as his work with time, timbre and text – aspects that recur in all Nordheim's works. To get a deeper understanding of Arne Nordheim's music in general, we must look at his electronic works produced in Polish Radio's Studio Eksperymentalne during the years 1967–1970.

STUDIO EKSPERYMENTALNE

Nordheim's earliest work with electronic music was connected with several radio plays produced for the Norwegian Broadcasting Corporation (NRK), in the period 1960–1973. Gradually Nordheim incorporated tape in major works, such as the orchestral *Epitaffio* (1963). In 1965, Nordheim was invited to the Warsaw Autumn International Festival of Contemporary Music for a performance of *Epitaffio*. There he contacted the director of Polish Radio, presented his electronic pieces and was immediately invited back to work in Polish Radio's Studio Eksperymentalne.<sup>1</sup>

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<sup>1</sup> Lornts Mørkved and Pål Aam, *Mitt liv: Arne Nordheim* [My life: Arne Nordheim], television series, NRK, Oslo, 2012.

It was there that Arne Nordheim's characteristic electronic music would begin to crystallise.

Nordheim was probably moved to work in Warsaw by his deep fascination with the new Polish composers, the good reputation of the Studio Eksperymentalne and the invitation from the Warsaw Autumn.

In his electronic music, the influences of Penderecki, Lutosławski and Ligeti are obvious. Those composers' large textures of sound, combined with the working methods of concrete music, are central to Nordheim's electronic music, and somewhere in the borderlands between the slowly evolving, nuanced timbres of Ligeti's *Atmosphères* and the materials of *musique concrète*, we can find much of the essence of Nordheim's electronic music.

#### WARSAWA

*Warszawa* [Warsaw], Nordheim's first pure electronic work written for concert use, was first performed at the Bergen International Festival on 28 May 1968. According to the composer, *Warszawa* consists of 'records on tape of the sounds I lived with in Studio Eksperymentalne'.<sup>2</sup> So this is a form of diary, and as in a diary the work was constantly changing as new sounds were discovered and added. According to the composer, this sonic diary was written 'with a certain respect for the chronology'. If we take him literally, we can hear the musical development from the time he arrived in Warsaw in 1966 until the piece was finished in the spring of 1968.

More than just a document of the work in the Studio Eksperymentalne, *Warszawa* bears traces of the time and place it was written. It is as if personal experiences were deposited in the work. Warsaw and Poland were strongly marked by the Second World War and the subsequent soviet-controlled communist regime. Many have read that political situation into this aggressive sounding work, but for Nordheim it is more about memories in sound. As he says, 'I merged all of these sounding events into a musical statement without urgent meaning.'

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<sup>2</sup> Arne Nordheim's own liner notes for the LP *Electronic Music by Arne Nordheim* (1974).

But Warsaw is there, I think, audible in the shock, the poetry and the silence.<sup>3</sup>

#### SLOWLY EVOLVING MASSES OF SOUND

*Warszawa* is clearly influenced by the *musique concrète* tradition, and the varied treatment of concrete sounds is the most prominent technique. Parallels to this music include Xenakis's various tape pieces from the same period. The large masses of concrete sounds in slow transformations found in the latter part of *Warszawa* are very similar to the slow metamorphoses of the material in Xenakis's *Concret PH*, for example.

Yet these slowly evolving masses of sound do not derive only from *musique concrète*. One can also find influences from contemporary timbre-oriented composers like Ligeti, Penderecki and Lutosławski. Such large orchestral timbres also found their way into Nordheim's electronic music, and it is this fusion of orchestral sound surfaces and methods from *musique concrète* that we hear for the first time in *Warszawa*.

The piece starts with a half-minute downward glissando, consisting of intense concrete sounds. The mass of descending tones, voices and broken glass gradually disappears into space and out of the sound field. It is at the end of this introductory section that the relationship with instrumental music really emerges. Out of the heavily distorted and intense mass of concrete sound, a B minor chord is presented. All four electronic works from the Warsaw period contain tonal elements, but nowhere are they as obvious as in *Warszawa*, where they are repeated throughout the composition and form one of the main formal principles.

These tonal elements dominate the composition until the middle of the piece. They are then followed by another element that will also recur in all the electronic works of the Warsaw period, namely the human voice. First in the form of short vocal fragments, then as filtered ring modulated voice-like sounds located far away in space, eventually to emerge as what it actually is: a nursery rhyme.

Simultaneously with this gradual unveiling of the voice material, a different situation that recurs in Nordheim's electronic output is presented:

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<sup>3</sup> Ibid.



small fragments of sound set against a large surface of sound. This is a technique that, in a more refined form, will be central to Nordheim's next electronic work, *Solitaire*.

#### WHERE MUSIC AND LANGUAGE MERGE

In *Solitaire*, the focus on the human voice is even stronger. The text is Charles Baudelaire's 'Les Bijoux', from *Les Fleurs du mal*. It was the line 'I passionately love all things in which sound is mingled with light' that initially inspired Nordheim.<sup>4</sup> With this as a starting point, Nordheim wanted to use the voice as raw material. At the same time, the different parameters of the voice were used as control mechanisms. In this way, he could create a whole new linguistic world, a meta-world where music and language merged.

An important part of the poem are the references to sound. The second stanza reads:

When it dances and flings its lively, mocking sound,  
This radiant world of metal and of gems  
Transports me with delight; I passionately love  
All things in which sound is mingled with light.

Nordheim wanted the music to reflect the timbres in the text and made a systematic overview of the sound properties. Concrete metal sounds as they are described in the poem were exactly what he used as the starting point for *Solitaire*. They are complemented by the processed female voice reading the poem.

*Solitaire* begins where *Warszawa* ends, with small fragments of sound set against a large sound surface. The timbre is intensified toward the end of the first section, and is then replaced by a low frequency noise spectrum with a steady pulse. Eventually, fragments of human voice timbres appear with the same phrasing as the pulsating noise spectrum, and we understand that the phrasing has been created by the voice all along. These voices remain in the form of linguistic fragments. Here we can

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<sup>4</sup> Yisrael Daliot, *Klingende ord: samtaler med Arne Nordheim* [Sounding words: conversations with Arne Nordheim] (Oslo, 2001), p. 88.

find obvious parallels with the series of electronic works centred around language and voices that were produced in the Studio di Fonologia Musicale di Radio Milano. Particularly evident is the parallel with Luciano Berio's systematic examination of a Joyce text that he conducted with Umberto Eco in the classic tape piece *Thema – omaggio a Joyce* (1958). Nordheim later expressed great admiration for Cathy Berberian's voice in this piece, and his composition *Aurora* (1983) for four vocal soloists, cro-tales and tape was dedicated to Berberian.

### THE VOICE AS STRUCTURAL MATERIAL

It would take two years for the completion of Nordheim's next work with tape, *Pace* [Peace], commissioned by Polish Radio, which was first performed in Warsaw on 21 September 1970. This time, Nordheim wanted to investigate 'the sonic singularities that lay hidden in the human voice',<sup>5</sup> something he had discovered together with his assistant Eugeniusz Rudnik during the work on *Solitaire*. Sonically, *Pace* seems better produced than the previous two works, and it may seem as if Nordheim and the engineers in the Studio Eksperymentalne had refined their studio craft over the intervening two years.

The textual basis is the second article of the UN Declaration of Human Rights. The text is read out by three different voices: a child, a woman and a man. In *Solitaire*, the voice took part in the piece as a sonic element, even if the listener was not able to extract semantic information from the material. In *Pace*, however, the voice is only present as structural material, and the treatments are so extensive that we no longer hear the original voice. But since the sonic qualities and phrasings of the voice control the musical processes in the piece, the text is still there, albeit in a less direct and more ambiguous manner. Inside the text, there is an area where sound and meaning converge. Nordheim compares this abstraction with the use of text in traditional polyphonic vocal music, as in Palestrina, Monteverdi, Bach and Schoenberg.<sup>6</sup>

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<sup>5</sup> See above, n.2

<sup>6</sup> Lorentz Reitan, 'Arne Nordheims *Eco* og *Floating*: En undersøkelse av det musikalske materialet og dets behandling, og en sammenligning av verkene' [Arne Nordheim's *Eco* and

## THE RANDOM ELEMENT

Prior to the first performance of *Pace*, Nordheim had completed another electronic work: the large-scale multimedia installation *Poly-Poly*. This work was made for the Scandinavian Pavilion at EXPO 70 in Osaka, Japan. Its starting point as an installation distinguishes this work from the three other electronic works of this period. The installation *Poly-Poly* consists of six repeated tracks of varying lengths. These six tracks were mixed together or split up and then played back over thirty-six different speakers facing in different directions; at the same time, a slide show of ‘man’s attack on the environment’ was shown.<sup>7</sup>

This piece is dedicated to John Cage, its ‘*conditio sine qua non*’,<sup>8</sup> and the parallel with Cage is perhaps more concrete than one might think. Both the random element and the working method are closely related to Cage, who produced a series of electronic works in which tapes of various lengths start at different times. Cage wanted to make his tape music less fixed, and he obviously departed further than Nordheim from traditional composition. For example, the tape piece *Fontana Mix* (1958) exists both as finished realised tapes and as ‘instructions’ in the form of sheets of paper and transparencies that together constitute possible strategies for combining sounds for a finished piece. Nordheim, however, chose the same path as Karlheinz Stockhausen and Pierre Boulez: a middle ground, where he opened up his music to chance, while at the same time leaving many of the artistic choices to the composer.

## TIME, TIMBRE AND TEXT

Electronic music was central to Arne Nordheim’s output, from the early encounters with *musique concrète* in the 1950s to the work done in Warsaw in the 1960s and 1970s.

Encounters with new Polish music made early impressions on his electronic music. Already in *Warszawa*, we find many of the key aspects

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*Floating*: an analysis of the musical material and its treatment, and a comparison of the works], master’s thesis, University of Oslo, 1975.

<sup>7</sup> See above, n.2

<sup>8</sup> Ibid.

of Nordheim's electronic music: tonality, contrasts, sound surfaces, language, text and human voices.

The work with text has a particularly central role in both the acoustic and electronic works. In *Solitaire* and *Pace*, a meta-world is formed; the semantic meaning has given way to an area where sound and meaning converge. In *Poly-Poly*, the boundaries of time collapse and an 'infinite time' based on random processes is experienced. All these ideas are concepts that Nordheim brings with him in his work with electronic and acoustic music. There is no doubt that the repeated visits to the Studio Eksperymentalne from 1967 and throughout the 1970s left a deep impression on the music of one of Norway's most important composers.

This text is based on the article 'Memorabler: Arne Nordheims elektroniske musikk' [Memoirs: Arne Nordheim's electronic music], originally published in the journal *Lydskrift*, 1 (2012).

