

Arne Nordheim

Arne Nordheim (1931 – 2010) is considered to be the most important Norwegian pioneer of electroacoustic music. Not because he was the first composer to make use of electronic sound, but because his works are interwoven so that a musical universe appears and because his music is frequently performed and thus familiar to many people. He combined elements from his timbral palette with great variation, and electronic timbral techniques are also found in his music for instruments and voices, often in combination with electronic means.

There are a few characteristics that give Nordheim's music its profile and identity, and he spoke in interviews and texts of the experiences and thoughts that shaped and influenced his music. The characteristics provide consistency in idea and sound, and Nordheim's lifework demonstrates unusual integrity and strength. From an electronic point of view, this strength is affirmed by the steady stream of new releases and increased attention from younger generations of composers and musicians that count Nordheim and his music as natural elements in their musical genealogy.

Background

Nordheim was born and raised in Larvik, a small coastal town about 120 kilometers south of Oslo. After WWII, he moved to Oslo and studied at the Music Conservatory, where he as early as 1949 decided to become a composer. At that time, no such education was available in Norway, so he studied through private lessons with Bjarne Brustad, Karl Andersen and Conrad Baden in Oslo, and later with Vagn Holmboe in Copenhagen and Ingvar Lidholm in Stockholm.¹ He wrote string quartets and works for voice, and was praised for his melodic sense that pointed toward a new romanticism. He was to sustain this sensibility throughout his life.

Nordheim was skeptical when he first encountered electronic music, and in 1955 he described the work being done in France, Germany, Sweden and to a limited extent in Norway as "barren experiments." He believed that music from "electrical engineer-composers" lacked human warmth, and he was critical to music constructed without a connection between the inner experience of timbre and the acoustic reality".² He found these types of problems also in instrumental music, and would throughout his career insist that music must be *experienced*, and not remain an intellectual construction. It is through the senses that experiences are formed, and music needed to be heard, not only read. His skepticism was not directed to the medium itself, but to the artistic ideas that were expressed.

Nordheim's interest in electronic music spurred him travel to Stockholm to hear music by Bengt Hambreus and Karlheinz Stockhausen. He studied electronic music in Paris in association with Pierre Schaeffer's center GRM in 1955, and in Gaudeamus' studio in Bilthoven in 1959. At home, he worked with other young composers with similar interests - Finn Mortensen, Egil Hovland and Knut Nystedt – in order to make the music better known.³ In the early 1960s, his own music began to take shape, first at the Norwegian Broadcasting Corporation (NRK), where he composed atmospheres and short compositions for the radio drama department. NRK did not have much suitable equipment, but Nordheim used electronic measurement apparatus, artificial reverb and tape machines, and became familiar with aspects of the analogue craft. A number of these works resurfaced and were published a few years ago.⁴ In these short works, Nordheim had not yet developed any particular signature, but elements from these early works can be traced in his later production.

Sounds and ideas

Use of music technology gradually increased in all areas of the music community, and in the early 1960s, Nordheim started to use recording technology also in conventional

¹ H. Aksnes in SNL. http://nbl.snl.no/Arne_Nordheim/utdypning. Accessed 7.7.2013.

² VG, October 2, 1956.

³ A. Bergsland (2011). Arne Nordheim og den tidlige elektroakustiske musikken i Norge. In P. Bäckström and B. Børset (ed.) *Norsk avantgarde*. Oslo:Novus. p. 231.

⁴ *The Nordheim Tapes*, Aurora CD ACD 5051.

theatre settings.⁵ However, the work that established Nordheim in the circle of composers that used electronics in their music was *Epitaffio* from 1963.⁶ This piece was commissioned by Swedish radio, and had its premiere in Stockholm in 1964. The work was subsequently performed numerous times internationally. During the Warsaw Autumn in 1965, Nordheim was invited by the director of *Studio Eksperymentalne* Josef Patkowski to visit and compose in the studio, which was part of the Polish radio. And when Nordheim was commissioned by Erling Stordal a few years later to make music for a center for the blind in Skjeberg, he accepted Patkowski's invitation and traveled to Warsaw. He knew the music of Polish composers Krzysztof Penderecki and Witold Lutoslawski, and this likely influenced his decision. At the time, *Studio Eksperymentalne* was one of the most advanced in the world, and it was first and foremost through the processing of recorded sound that Nordheim found his timbral universe. He travelled to Warsaw in 1967, and visited the studio several times until the middle of the 1970s.

Nordheim had a strong relationship to poetry, and often used poems when developing his works. This is also the case in his electroacoustic music. Language was important not only in the semantic sense, but also for the sound. Nordheim stated that "sound sets the words free".⁷ The spoken or sung language brings the subtext to our attention – it is here that we hear the emotional content in what is being expressed. The sound of language becomes an articulation of the meaning, and necessary for the musical content to emerge.

Assisted by Eugeniusz Rudnik and Bohdan Mazurek at *Studio Eksperymentalne*, Nordheim developed methods for bringing human expression directly into the music, and it was in Warsaw that he developed what was to become his electronic signature. Texts were read aloud and recorded, and through various processes Nordheim removed large portions of the voice so that only parts remained.⁸ These parts either controlled or were controlled by articulations in other recordings, and the listener easily hears language patterns, words or fragments of words. Another technique that Nordheim used was ring modulation. Simply explained, ring modulation leaves newly generated material with a clear imprint of its origin – articulation remains in an altered and alien shape. These methods allowed Nordheim to extract time- and frequency aspects from the human voice. Nordheim likened the use of language particles to the creation of a meta-world;⁹ a language about language. The traces of this approach can be found in almost all of his electronic music.

Through the use of filters that can be tuned so that only a few frequency ranges pass through, Nordheim could build tones and timbres from the bottom up, creating a sense of tonality in the recorded sounds that was independent of their sources. In this way, he created metallic, bell-like timbres¹⁰ with spectra that are not strictly harmonic. Often these sounds were also spectrally dampened in the upper partials, creating the effect of distance. Bell-like timbres, together with the articulation of recorded texts discussed above, are the most important elements in Nordheim's electronic works.

Nordheim did not limit himself to using only this material. In several works, he used a huge palette. *Warszawa* is a long collage of sounds that he found in the studio archive, which he then intertwined into a personal narrative about the city. He used this huge source of recorded material in other works as well, such as *Ode to the Light* and *Poly Poly*. In this manner, he investigated the rich associations of concrete music. *Warszawa* is most likely the closest Nordheim ever came to program music, since he did not feel comfortable with the simplification that program clarity often requires. He wanted to

⁵ *Aftenposten*, April 26, 1960.

⁶ This was not Nordheim's first integration of electronic sounds and acoustic instruments - *Katharsis* was written in 1962, and was a huge success with outstanding reviews, also from the performance in Denmark. Still, it is *Epitaffio* that has been standing as his breakthrough as composer of electroacoustic music.

⁷ Daliot, Y. (Ed.) (2001). *Klingende ord: Samtaler med Arne Nordheim* p. 28.. Oslo: Aschehoug.

⁸ For a detailed description of these processes see Asbjørn Flø: <http://lydskrift.no/story/memorabler—om-arne-nordheims-elektroniske-musikk>. Accessed July 7, 2013.

⁹ Daliot, op.cit. p. 89.

¹⁰ Flø, *ibid*.

focus on the experience – always complex, with elements that change over time, in balance and conflict, harmony and disharmony.

Nordheim did not let the material itself direct the form of the music, as is often found in later electronic music, where analyses of timbres provide data for structuring compositions.¹¹ In the French spectral school, for example, analyses are used for chord construction. Nordheim nonetheless expressed interest in the musical potential of such new methods.

Time and controlled coincidence

A large part of Nordheim's signature is the way in which the timbres develop and finish, and how he allows time for spatial development – both in the electroacoustic space and the physical space. This creates a calm pace to the articulation of even quick passages in the music, and we can hear this already in his early works from NRK. In combination with easily distinguishable melodic elements, this articulation can be listened to as part of a longer musical tradition, from before the invention of concrete and electronic music in the 1940s and 50s. There is time for contemplation and melancholy, emotions that are rarely called upon in modern electronic music. Nordheim often quoted a passage from Salvatore Quasimodo that he used in *Epitaffio* from 1963 to describe the emotional basis for much of his work: "each of us stands alone on the heart of the earth, penetrated by a ray of light - and suddenly, it is evening".¹² Several of the other texts Nordheim used lean in the same direction – that life is a revelation, and that the presence of death gives it meaning.¹³

Nordheim also controls time in open, non-linear works. One example is *Poly Poly*, which was made for the Scandinavian pavilion for the World's Fair in Osaka in 1970. Six loops of magnetic tape of different lengths were played back simultaneously, and it would take approximately 102 years for them to meet. Naturally, this is beyond a human horizon, but Nordheim created a constant stream of new, surprising combinations with this fixed material. The composition held together through the sounds and their associative qualities. Nordheim used the same composition method for the installation pieces *Ode to the Light* (1968, modernized in 1995), and the more recent *Gilde på Gløshaugen* (2000) and *Dråpen* (2001).

Nordheim did not incorporate arbitrary events in his music in the same way as John Cage, but he allowed his composed sounds to be played and controlled by events with an underlying logic. *Ode to the Light* is controlled by sunshine, and the preprogrammed timbres are played from a monumental sculpture. The sounding material in *Gilde på Gløshaugen* is controlled by wind and rainfall, as well as students' passing through volumes in the building where the installation is mounted. *Dråpen (The Drop)* is located in Bekkelaget sewage treatment plant in Oslo, and the sounds are controlled by the amount of wastewater flowing into the plant. In *Dråpen* and *Gilde på Gløshaugen*, human movement and the rhythms of the day control the music – and yet again it is something organically human that releases music into the spaces. Nordheim was careful to not be too literal, and the sounds do not point to anything specific, instead directing focus to the timbral material and articulation. Personal experience rather than logic dominates the situations.

About the works

Nordheim used the same elements in several works, and he said that he always brought material from earlier works with him into new compositions. However, the word *version* is not fitting. Rather, the listener discovers new views onto the sonic world of the composer – views that change with angle and approach. This may be seen as an extension of his early tape technique, where sounds and technical methods appear in constantly new combinations, changing the associations made by the listener.

¹¹ See for example Rudi, J. (1995) *When Timbre Comes Apart*. The piece is largely an homage, with influences evident from Nordheim's *Solitaire*, among others.

¹² Y. Daliot (ed.) (2001): *Klingende ord: Samtaler med Arne Nordheim*. Oslo, Aschehoug. p. 88. (Author's translation.)

¹³ Daliot, op.cit. p. 14.

The installation works *Ode to the Light* and *Poly Poly* were both created with several tape loops that run in parallel. In *Poly Poly* there are six loops that would meet in 102 years time, but we will never know this precisely, because some of the material has disappeared. In *Ode to the Light*, the playback is controlled by a light sensor, and the sounds and technical components of the installation were modernized and revised in 1995. According to researcher Ola Nordal,¹⁴ the idea for the music came from the artist Arnold Haukeland, who was responsible for the sculpture where the music is performed. The version on the CD is a constructed example from Studio Eksperymentalne, exemplifying how the music could sound.

Poly Poly was originally created for the World's Fair in Osaka 1970, for the Scandinavian pavilion. This particular fair included several pavilions where the content was conveyed using multimedia and music technology, and the Scandinavian pavilion was located next to the German, where Karlheinz Stockhausen had the responsibility for the music. Both composers worked with placing sound in space, and large numbers of speakers were mounted in both buildings. Nordheim installed tape loops and Stockhausen played music in linear fashion. On the CD we find *Lux et Tenebrae (Light and Darkness)*, which is the concert version of the installation.

The sounds that Nordheim combined in *Poly Poly* trigger a wealth of associations. The piece is clearly molded in the same manner as *Warszawa*, which is also included on the CD. *Warszawa* is a strong and dramatic narrative, often described as Nordheim's sonic diary from the city, made with sounds from the studio archive. Fairly literal descriptions of the horrors in Warsaw during WWII are contrasted with calmer, dreaming sections, perhaps showing how the composer worked his way into the opportunities for complex narratives afforded by concrete music. Particularly interesting is perhaps how the sound of a singing child, approximately eight and a half minutes into the piece, is gradually replaced by a threatening and growing sound. This development is intensified by the addition of short sonic interruptions toward something easily associated with the sounds of weapons. The weapons are transformed, dissolved, and the piece ends.

The same slow increase in intensity opens *Solitaire*, and the piece almost imperceptibly establishes the sense of timbre before the development begins. The piece was written for the opening of the Henie Onstad Art Center near Oslo in 1968, with Charles Baudelaire's *Les Fleurs du mal* as the underlying material. There was especially one line in the poem *Les Bijou* that captured Nordheim's attention. The processing of diamonds makes possible the refraction of light in different angles, and the word *solitaire* points to the simplest possible mounting, where a diamond stands alone. *Solitaire* has been used very much as music for dance, and is Nordheim's most famous electroacoustic work. In this piece, we experience a tonality that is ambiguous because of the relationship between the two harmonic series' that the composer employed.¹⁵

One work must be mentioned in particular: *Pace*. Commissioned by Polish Radio, the work was first performed in 1970. In *Pace*, the human voice is the carrying element, and the text is a reading of the 2nd Article from the United Nation's Declaration of Human Rights. Through large transformations, the text is converted to frequencies, rhythms and bell-like sounds, and again, it is the articulation that is foregrounded. Placed at a distance and stretched in time, the sum becomes a constantly changing and deep texture in several layers. The piece has an exquisite production, and Nordheim has tuned the recordings through series' of filters, thus controlling the bell timbres in great detail. The organic quality is maintained until the piece abruptly ends. Parts of this material can be heard in Oslo Concert Hall every time the audience is called into the concert.

Nordheim brought both material and knowledge from Warsaw – it was there that he developed the sound palette that would later influence his compositions for orchestra and smaller ensembles. *Colorazione* is an early example of his layering technique with electronics in an ensemble setting, where the musicians play in parallel with a ring modulated and delayed version of their performance. In the recording on the CD, we hear Kåre Kolberg, also an important pioneer in Norwegian electroacoustic music,

¹⁴ O. Nordal (2013): Ode til Lyset. In Lars Mørch Finborud (Ed.) *Arne Nordheim*. Oslo: Orfeus.

¹⁵ Flø, *ibid*.

perform on the Hammond organ. Most of Nordheim's important electronic works have been published by Rune Grammofon on the CD *Electric*.¹⁶

The CD also contains four small pieces that became known only a few years ago. They were also composed in Warsaw, and belong to a collection of twelve that was published by Rune Grammofon under the title *Dodeka* (Greek for twelve, but also often used as a brief reference to the twelve disciples of Jesus). The titles are *Awaiting*, *Distance*, *Crossroad* and *Summa*, and the pieces were named when they were mastered for the CD in 1993. They have similar characteristics as Nordheim's other production from *Studio Experymentalne*, and can easily be thought of as snippets that he did not want to integrate in the works discussed above. However, the typical elements are there – inharmonic bell sounds, trickling processed voices, distance between the elements in space and time – and the pieces are in balance as complete, short extracts. *Summa* can be listened to as a short collection of essential threads in Nordheim's electronic material.¹⁷

As a representation of Nordheim's production from before he travelled to Warsaw, the short compositions *Dei kjenslelause* and *Vi på Alfabulator* that he made for NRK have been included.¹⁸ They are less complex than the Warsaw works, and the sounds that we find here rarely appear in the works that were made during and after his Warsaw period. Still, there is something in his use of reverb and delay that points forward, together with the slow development that allows also these early pieces to breathe in a particular way. However, the difference from the works made only ten years later is notable, and confirms that Nordheim was shaped as a composer of electroacoustic music during this period in Poland.

The three last pieces to mention are installation works. Nordheim's material for these works is mainly gathered from *Ode to the Light* and *Poly Poly*, but the sounds are now partly made from synthesis, with studio engineering assistance from Mats Claesson, and programming and installation assistance from Sigurd Saue.

Gilde på Gløshaugen was a commission from KORO¹⁹ for the new building for natural sciences at The Norwegian University of Science and Technology (NTNU), which opened to the public in 2000. The simulation *Alfa Alfa* is a possible excerpt from the installation, but concentrated to avoid large sections of silence. Nonetheless, the result gives an impression of how the sonic character changes through external control by wind and moisture. It is easy to hear the composer's signature, and here, as in the premiere of one of the *Response*-works in 1977 at Kunsternes Hus, he moves sounds in between rooms in the large volumes of the building. The sounds move between the spaces while activating the acoustics, letting us hear the dimensions. Nordheim returns here to one of his early ideas – *everything shall sing*.

Dråpen opened in 2001, and is located in the Bekkelaget sewage treatment plant in Oslo. The installation consists of single sounds, and playback is controlled by sensors that determine the amount of sewage that flows into the plant at all times. The plant has the capacity to handle a population of between 3 - 400,000 people, and the caverns that house the tanks are enormous. Nordheim is sonifying the sewage, and playing the sounds from several locations within this space. The high noise levels at the plant make it difficult to make good quality recordings, and the CD contains a stereo simulation made by Sigurd Saue.

Stille, Kepler tenker from 1987 was made for the exhibition *Portaler* by artist Ole Lislrud, as an installation in the National Museum in Oslo. The work consisted of two sound files played in two rooms over several speakers, from two cassette decks with auto-rewind. The sound elements were thus recombined throughout the piece. The CD contains a simulation of the first twenty minutes, made at NOTAM in August 2013.

¹⁶ *Electric* (RCD 2002) consists of *Solitaire*, *Pace*, *Warszawa*, *Poly Poly* and *Colorazione*.

¹⁷ In Nordheim's text for *Dodeka*, Rune Grammofon 2003, RCD 2030.

¹⁸ These and several other works from the same period were resurfaced by Tilman Hartenstein and published by NRK and the Society of Norwegian Composers on the CD *The Nordheim Tapes* in 2008. (ACD 5051).

¹⁹ *Kunst i offentlig rom* (KORO) is a public institution with responsibility for integration of art in public buildings. More information here: www.koro.no

Closing remarks

Early on, Arne Nordheim expressed skepticism to what he called "engineer music", and demanded a connection between the inner experience of the sounding music and its structural construction. Nordheim liked the resistance embedded in analog technology, and was not enthused by the effortlessness that often follows the digital domain. The analog technology that Nordheim used does not allow for much automatization of the composition process, and because the composer needed to constantly reconnect and adjust the equipment in the composition process, it became time consuming and work intensive. This created time for reflection and exact planning, and in a sense the opposite of the simplicity that Nordheim criticized in more recent technology-based music – one finger, one thought.

When digital technology increasingly became the norm in the 1990s, Nordheim was not particularly tempted to involve algorithmic processes in the compositional decision making; he liked to do things by hand, just as he was used to in the analog tradition. Neither did he let the music be weighted down by construction principles, and frequently stated in interviews that it was the personal expression that gave music its character. Together with his focus on craft, the reservation to programmed music becomes easy to understand. Nordheim insisted on the composer's role in the technological reality, and Nordheim's engineer for many years, Mats Claesson, often heard the expression "men in white (lab) coats" if Nordheim felt that something was technically clever, but not musically justified.

Arne Nordheim is an inspirational figure and without doubt a natural forefather for much of modern electronic music – a simple search on the Internet results in a long list of reviews of the releases from recent years, all positive. The increased interest in real time technology is also a sign that the performative control Nordheim demanded at the beginning of his life as a composer has now come back into focus. For Nordheim, experience formed the basis for reflection, and he welcomed it when artists wanted to use his music in new ways. This has made it possible also for his music to have a long life – of which we are only see the beginning.

- Jøran Rudi, July 2013

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