



WAYNE SIEGEL CELEBRATION

1 Celebration (2014)
for robot-controlled pipe organ and weather satellite..... 60:18

Wayne Siegel (b. 1953) is a composer, professor of electronic music and director of DIEM (the Danish Institute for Electronic Music) in Aarhus. Siegel was born in Los Angeles and came to Denmark in 1974 to study composition with Per Nørgård. Since then Siegel has lived in Denmark, where from the beginning of the 1980s he has pioneered the development of electronic music and computer-based composition. His interest in the potentials and possibilities of technology was stimulated back in Siegel's childhood, of which he says the following:

"As an American I often tease my very Danish children by telling them that I grew up in the future. Of course the claim has to be supported by examples from the everyday life of my childhood: the cars all had automatic transmissions and some of them had pushbutton drive. Our refrigerator had a built-in ice maker, so there were always plentiful supplies of ice cubes and you didn't have to pour water into trays yourself. And the day our electric can-opener broke, my mother thought that we wouldn't be able to get anything to eat until the electrician had fixed it. That was life in California in the 1960s!" (Wayne Siegel in an interview in *Dansk Musik Tidsskrift*, 2001-2002).

Whether Siegel is still living in the future I can't say. But the fascination with and development of technological devices that he describes has accompanied him in his work as a composer. The organ work *Celebration* is no exception.

Site-specific abstraction

Celebration (2014) is a work for computer-controlled pipe organ commissioned by and created for the spectacular church Hallgrímskirkja in Reykjavík, which with its height of 73 metres is one of Iceland's tallest buildings. Construction on the church began in 1945 and was not completed until 41 years later in 1986. The church is named for the Icelandic poet and priest Hallgrímur Pétursson (1614-1674), who with his 50 'Passion Hymns' based on the Passion of Christ is internationally acclaimed and remembered as one of the greatest poets in the history of Iceland. It

was in connection with the quatercentenary of the birth of Hallgrímur that the work *Celebration* was commissioned and performed.

In the work Siegel integrates characteristics from this special place in several ways: firstly, the huge organ of the church is the only instrument we hear. The instrument, which is from 1992, has a height of 15 metres and a weight of 25 tons, four manuals, 72 stops and 5275 pipes. In the work we hear fragments of six Icelandic hymns with melodies known from Hallgrímur's 'Passion Hymns', all of which are in the regular musical repertoire at services or other rituals in the church. The recording we hear on the CD is of course also from the church. Siegel chose to record it at night so that the risk of interference from traffic noise or sounds from the visitors to the church would be as small as possible. In the present recording it is therefore not the place's specific social and functional characteristics that are integrated; instead the place is used in a music-historical context and as an instrument for the composition; a composition that may well refer to extramusical layers, but which in itself also cultivates and challenges the abstraction of the music. After the recording Siegel has explained: "But the work is very much also intended for public performance. The first performance was for example held in the daylight hours, the day after the recording. The two 'performances' were very different, as the music is composed anew each time. In this respect the CD release is a documentation of a single version or an example of a work that can have infinitely many versions."

A non-human musician and an unreliable composer

Listening to *Celebration*, what we hear directly is indeed the sound of a very large organ. The form of the music is built up of small fragments in a variety of styles – melodic fragments, minimally repeated processes, broken chords, dramatic drones etc. Each is manifested by its own characteristics, but after a short while is quickly broken down and transformed into a new structure. There is therefore something agitated about the form; something that leaves us in doubt about the creator's actual character and intention – and where he, she or it wants to take us. The musician too is hard to place. The four manuals of the organ are operated at the same time and make the execution a 'supra-human' action. The operations are gestural, but not physically possible for an organist, just as the formal progression is sensed but does not seem causally built up. Siegel has explained the background for the work as follows:



Wayne Siegel

"The four manuals of the organ are played by four independent, autonomous, virtual musicians. Each of them has a 'knowledge' of how one plays different types of music. There are also three 'umpires' which say when playing technique (algorithm), key and stopping are to be changed. The changes do not take place at the same time, since each progression must be concluded first. When the four virtual musicians are told by the umpires, for example, that they are to change the composition algorithm, they say, "Yes, yes, I will, but first I have to finish this one." So they do not change simultaneously. Each can with a certain independence play according to different algorithms, in different keys, with different dynamic instructions. but they will have a tendency gradually to agree and to play together until they move apart again. I have tried to create a system, almost an ecosystem, where these autonomous virtual musicians could express themselves."

The timbres in the work are in constant transformation, and along the way, with broadly conceived soundscapes and motifs played extremely quickly, they remind the listener of music played by an early analog synthesizer. The manifestation of the work therefore becomes an alternation between the church as a specific place on one hand and the abstract spatiality of the music on the other. It is an execution which is on one hand based on a human gesture, and on the other acts as an *automaton*, a machine which here stages building and organ as one mighty musical instrument which plays independently of human actions.

If we include the context – the religious text, the church and the church organ – in this consideration, this device can be related to the medieval fascination with *automata*, where deterministic mechanical sequences were created and performed by machines to illustrate and understand universal questions, for example about life and death, or about the natural identity as opposed to the individuality of human beings. In Siegel's case something similar comes into play, but with the many formal ruptures and broken-off sequences caused by this non-deterministic automaton it is perhaps better understood as a conception of the world as being in flux and transformation, rather than as a more explanatory process of the kind known from the medieval automata.

Robot musician and weather-god conductor

If we look at the technological solutions underlying the work, such an interpretation accords well with the choices the composer has made throughout the composition process. *Celebration* is based on compositional ideas and techniques that Siegel developed in connection with the 12-hour installation *Everyone Talks about the Weather* (2013), created for the organ in the Symphonic Hall at The Concert Hall Aarhus. Thanks to an earlier acquaintance with the instrument during the creation of an organ concerto (2012), Siegel had learned that the Klais organ in this hall was somewhat special, since it was equipped with a kind of digital tape recorder that can play digital recordings of the organ-playing through the instrument itself. By 'hacking' into this unit Siegel was able to get the organ to play – not by getting the organist to press manuals, keyboard and pedals but with the aid of his computer. The same approach has been used for the organ in Hallgrímskirkja.

For both compositions Siegel has developed a program, an algorithm, which creates rhythms, melodies and harmonies through a special generative system where the computer helps to define details in the individual sequences. Part of this process was the above-mentioned six hymns. To the overall musical algorithm Siegel added data that were continuously taken from a weather satellite with which the DMI (Danish Meteorological Institute) had helped him to connect. Changes in cloud formations and wind conditions in northern Europe affected the music at the same moment as it was created during the actual performance. In this way each performance becomes unique, since it is affected both by the weather and by the composer's algorithm, which is based on controlled randomness: in other words the processes generated and developed by the computer's algorithm include random elements, just as the data taken from the weather system are of course also different from day to day. Siegel himself explains this as follows in his programme note to *Celebration*: "The rules are laid down by the composer, while the generative algorithms constantly and endlessly generate and transform the work without human intervention. Data from the weather satellite are fed directly into the computer program and used to control the algorithms. In short, the weather conducts the music, but it is the computer that composes it."

The work thus ranges between Siegel's inherent fascination with technology which, as the quote at the beginning of the text says, goes all the way back to his early childhood in LA, and a

fascination with the uncontrollable which is generated both through the composer's algorithms and by incorporating an unstable factor such as the weather.

My interpretation can perhaps be stretched so far as to say that Siegel's *automata* are an expression of the world in the anthropocene age in which nature, culture and thus also technology are no longer clearly separate phenomena, but are now considered as organic units where each factor has an effect on another. The composer has laid down the rules, but then withdraws and watches how the world he has designed, with all its random events, fortunate and unfortunate, behaves once the algorithm has been set in motion.

Sanne Krogh Groth holds a Ph.D. from the University of Copenhagen (2010). Currently she is a senior lecturer at Lund University researching in performative aspects of contemporary music and sound art of the 20th and 21st centuries. Since 2011, she is editor-in-chief of the online journal Seismograf.



Wayne Siegel (f. 1953) er komponist og professor i elektronisk musik og siden 1986 leder af DIEM (Dansk Institut for Elektronisk Musik) i Aarhus. Siegel er født i Los Angeles og kom i 1974 til Danmark for at studere komposition hos Per Nørgård. Siegel har siden boet i Danmark, hvor han fra begyndelsen af 1980'erne har været foregangsmand inden for udviklingen af elektronisk musik og computerbaseret komposition. Interessen for teknologiens potentialer og muligheder blev stimuleret tilbage i Siegels barndom, som han fortæller sådan her om:

"Som amerikaner plejer jeg at drille mine meget danske børn ved at fortælle dem, at jeg er vokset op i fremtiden. Påstanden skal selvfølgelig underbygges med eksempler fra min barndoms dagligdag: Bilerne havde alle automatgear og nogle havde trykknapper i stedet for en gearstang. Vores køleskab havde en indbygget isterningfabrik, så der altid var rige forsyninger af isterninger, uden at man selv skulle hælde vand op i bakker. Og den dag vores elektriske dåseåbner gik i stykker, troede min mor, at vi ikke ville kunne få noget at spise før elektrikeren havde ordnet den. Sådan var livet i Californien i 1960'erne!" (Wayne Siegel i et interview til *Dansk Musik Tidsskrift*, 2001-2002).

Om Siegel stadig befinder sig i fremtiden, skal jeg ikke kunne sige. Men den fascination og udvikling af teknologiske virkemidler, som han her beskriver, er flyttet med ind i hans arbejde som komponist. Orgelværket *Celebration* er ingen undtagelse.

Stedsspecifik abstraktion

Celebration (2014) er et værk for computerstyret kirkeorgel, bestilt af og skabt til den spektakulære Hallgrímskirkja i Reykjavík, der med sin højde på 73 meter er blandt Islands største bygninger. Byggeriet af kirken påbegyndtes i 1945 og blev først endeligt færdiggjort 41 år efter i 1986. Kirken er opkaldt efter den islandske digter og præst Hallgrímur Pétursson (1614-1674), der med sine 50 'Passionsalmer' over Jesus' lidelseshistorie er internationalt anerkendt og

huskes som en af de største digtere i Islands historie. Det var i forbindelse med 400-året for Halgríms fødsel, at værket *Celebration* blev bestilt og opført.

I værket integrerer Siegel karakteristika fra dette særlige sted på flere måder: For det første er kirkens enorme orgel det eneste instrument, vi hører. Instrumentet, der er fra 1992, har en højde på 15 meter og en vægt på 25 tons, fire manualer, 72 registre og 5275 piber. I værket høres brudstykker af seks islandske salmer med melodier kendt fra Hallgríms 'Passionsalmer', som alle er på kirkens faste musikalske repertoire ved gudstjenester eller ved andre af kirkens ritualer. Optagelsen, vi hører på CD'en, er naturligvis også fra kirken. Siegel valgte at lade den finde sted i nattetimerne, så risikoen for trafikstøj eller lyde fra kirkens besøgende blev mindst mulig. I nærværende indspilning er det derfor ikke stedets konkrete, sociale og funktionelle karakteristika, der integreres, men i stedet anvendes stedet i en musikhistorisk kontekst og som et instrument for kompositionen. En komposition, der nok refererer til ekstramusikalske lag, men som i sig selv også dyrker og udfordrer musikkens abstraktion. Siegel har efter indspilningen forklaret: "Men værket er i høj grad også beregnet til offentlig fremførelse. Uopførelsen skete eksempelvis i dagtimerne dagen efter indspilningen. De to 'opførelser' blev vidt forskellige, da musikken komponeres på ny hver gang. I denne sammenhæng er CD-udgivelsen dokumentation af en enkelt version eller et eksempel på et værk, som kan have et uendeligt antal versioner."

En umenneskelig musiker og en upålidelig komponist

Lytter vi til *Celebration*, høres umiddelbart også lyden af et meget stort orgel. Musikkens form er bygget op af små fragmenter i forskellige stilarter – fragmenterede melodistumper, minimalistiske gentagne forløb, brudte akkorder, dramatiske droner m.m. Alle manifesteres de af hver deres karakteristika, men bliver efter kort tid hurtigt nedbrudt og forvandlet til nye strukturer. Der optræder derfor noget uroligt over formen. Noget, som gør os i tvivl om skaberens egentlige karakter og hensigt – og hvor det er, at han, hun eller det vil have os hen. Også musikeren bliver svær at placere. Orglets fire manualer betjenes samtidig, hvilket gør udførelsen til en *overmenneskelig* handling. Handlingerne er gestiske, men ikke fysisk mulige for en organist, ligesom formforløbet fornemmes men ikke virker kausalt opbygget. Siegel har forklaret baggrunden for værket således:

"Orglets fire manualer spilles af fire selvstændige autonome virtuelle musikere. De har hver især en 'viden' om, hvordan man spiller forskellige typer musik. Der findes også tre 'overdommere', som fortæller, hvornår der skal skiftes spillemåde (algoritme), toneart og registrering. Skiftene sker ikke samtidigt, da hvert forløb skal afsluttes først. Når de fire virtuelle musikere får at vide fra overdommerne, at de for eksempel skal skifte kompositionsalgoritme, siger de "ja ja, det skal jeg nok, men jeg skal lige spille færdig først". Derfor skifter de ikke samtidigt. De kan med en vis selvstændighed hver især spille efter forskellige algoritmer, i forskellige tonearter, med forskellige dynamiske angivelser, men de vil have en tendens til efterhånden at blive enige og spille sammen, inden de kommer væk fra hinanden igen. Jeg har forsøgt at skabe et system, nærmest et økosystem, hvor disse autonome virtuelle musikere kunne udfolde sig."

Klangfarverne i værket er under konstant forvandling og henleder undervejs, med bredt favnende klangflader og ekstremt hurtigt spillede motiver, lytterens tanker til musik fremført af en tidlig analog synthesizer. Værkets fremtrædelse bliver derfor en penduleren mellem kirken, som et konkret sted på den ene side, og musikkens abstrakte rumlighed på den anden. Det er en fremførelse, som på den ene side er baseret på en menneskelig gestus og på den anden som et *automaton*, en maskine, der her sætter hus og instrument i scene som et almægtigt musikinstrument, der spiller uafhængigt af menneskelige handlinger.

Tager vi konteksten – det religiøse tekstforlæg, kirken og kirkeorglet – med i denne betragtning, kan dette greb ses i relation til middelalderens fascination af *automata*, hvor deterministiske maskinelle forløb blev opført af mekaniske maskiner for at illustrere og begribe almenkyldige spørgsmål om eksempelvis liv og død eller om menneskets naturlige identitet over for dets individualitet. I Siegels tilfælde kommer der noget lignende i spil, men det er med sine mange formbrud og afbrudte forløb, forårsaget af dette ikke-deterministiske automaton, måske nærmere en begribelse af verden som værende i fluks og forandring, frem for en mere forklarende gengivelse, som det kendes fra middelalderens *automata*.

Musikerrobot og vejrgudsdirigent

Ser vi på de teknologiske løsninger, der ligger til grund for værket, ligger en sådan tolkning i tråd med de valg, komponisten har taget gennem kompositionsprocessen. *Celebration* er baseret på kompositoriske idéer og teknikker, som Siegel udviklede i forbindelse med 12-timers installationen *Everyone Talks about the Weather* (2013), skabt til orglet i Symfonisk Sal i Musikhuset Aarhus. Gennem et tidligere bekendtskab med instrumentet under udarbejdelsen af en orgelkoncert (2012) havde Siegel erfaret, at Klais-orglet i denne sal var noget særligt, idet det er udstyret med en slags digital båndoptager, som kan spille digitale optagelser af orgelspillet gennem instrumentet selv. Ved at 'hacke' sig ind i denne enhed kunne Siegel få orglet til at spille – ikke ved at sætte organisten til at trykke på manualer, tastaturer og pedaler, men ved hjælp af sin computer. Samme tilgang er gældende for orglet i Hallgrímskirkja.

Siegel har til begge kompositioner udviklet et program, en algoritme, der skaber både rytmer, melodier og harmonier gennem et særligt generativt system, hvor computeren er med til at definere detaljer i de enkelte forløb. En del af dette forløb var de allerede omtalte seks salmer. Til den overordnede musikalske algoritme knyttede Siegel data, der løbende blev hentet ind fra en vejrsatellit, som DMI (Dansk Meteorologisk Institut) havde hjulpet ham med at komme i forbindelse med. Forandringer i skyformationer og vindforhold i Nordeuropa var således med til at påvirke musikken i samme øjeblik, den blev skabt under selve opførelsen. Hver opførelse bliver på denne måde unik, idet den både påvirkes af vejret og af komponistens algoritme, der er baseret på "styret tilfældighed". Med andre ord: Forløbene, der genereres og udvikles ved computerens algoritme, indeholder ukontrollerbare elementer, ligesom de data, der hentes ind fra vejrsystemet, naturligvis også er forskellige fra dag til dag. Siegel selv forklarer det således i sin programnote til *Celebration*: "Reglerne sættes af komponisten, mens de generative algoritmer konstant og endeløst genererer og transformerer værket uden menneskelig intervention. Data fra vejrsatellitten bliver fodret direkte ind i computerprogrammet og brugt til at styre algoritmerne. Kort sagt: Vejret diriger musikken, mens det er computeren, der komponerer den."

Værket spænder derfor mellem Siegels indgroede teknologifascination, der, som citatet i tekstens begyndelse fortæller, peger helt tilbage til den tidlige barndom i LA, og til en fascination af det ukontrollerbare, som både genereres gennem komponistens algoritmer og ved at tage en ustabil faktor ind som vejret.

Min tolkning kan måske strækkes så langt, at Siegels *automata* er et udtryk for verden i den antropocæne tidsalder, hvor natur, kultur og dermed også teknologi ikke længere er skarpt adskilte fænomener, men nu betragtes som organiske enheder, hvor hver en faktor har indvirkning på den anden. Komponisten har sat reglerne, men trækker sig herefter tilbage og ser til, hvorledes verden, som han har designet den med alle dens tilfældigheder, ulykker og lykketræf, arter sig, når algoritmen er sat i gang.

Sanne Krogh Groth er ph.d. i musikvidenskab fra Københavns Universitet (2010). Hun er for tiden lektor i musikvidenskab ved Lunds Universitet, hvor hun ud over at undervise forsker i performative aspekter af kunstmusik- og lydkunstpraksisser i det 20. og 21. århundrede. Hun er derudover siden 2011 ansvarshavende redaktør for onlinemediet Seismograf.org.

DDD

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