

Tomba sonora is a site-specific musical project for the Emanuel Vigeland mausoleum where composer Kristin Bolstad, addressing the perception that silence is a precondition for sound, exploits to the full the mausoleum's extraordinary acoustic milieu. Broad swathes of sound experiment with consonance and dissonance. Music and space mirror and intensify each other with an exceptionally long reverberation that envelopes the listener, at times with an irresistible depth of feeling.

Tomba sonora er eit stadspesifikt prosjekt for Emanuel Vigelands mausoleum der komponisten Kristin Bolstad dveler rundt tanken om at stilla, eller ikkje-lyd, er ein føresetnad for lyd. Lange klangflater eksperimenterer med konsonans og dissonans. Musikk og rom speglar og forsterkar kvarandre i ein usedvanleg lang etterklang som legg seg ikring ein — til tider med ei overveldande kjensle.

- 1 Echoes & Shadows
- 2 Stilla
- 3 TRY
- 4 Mellom Skyene
- 5 Tomba sonora

Recorded in DXD 24bit/352.8kHz

■ 5.0 DTS HD MA 24/192kHz ■ 7.0.4 Dolby Atmos 48kHz

■ 2.0 LPCM 24/192kHz ■ 7.0.4 Auro-3D 96kHz

+ mShuttle MP3 and MQA



2L¹⁵⁵

EAN13: 7041888524823

pure
audio

Blu-ray Disc



dts-100
Master Audio

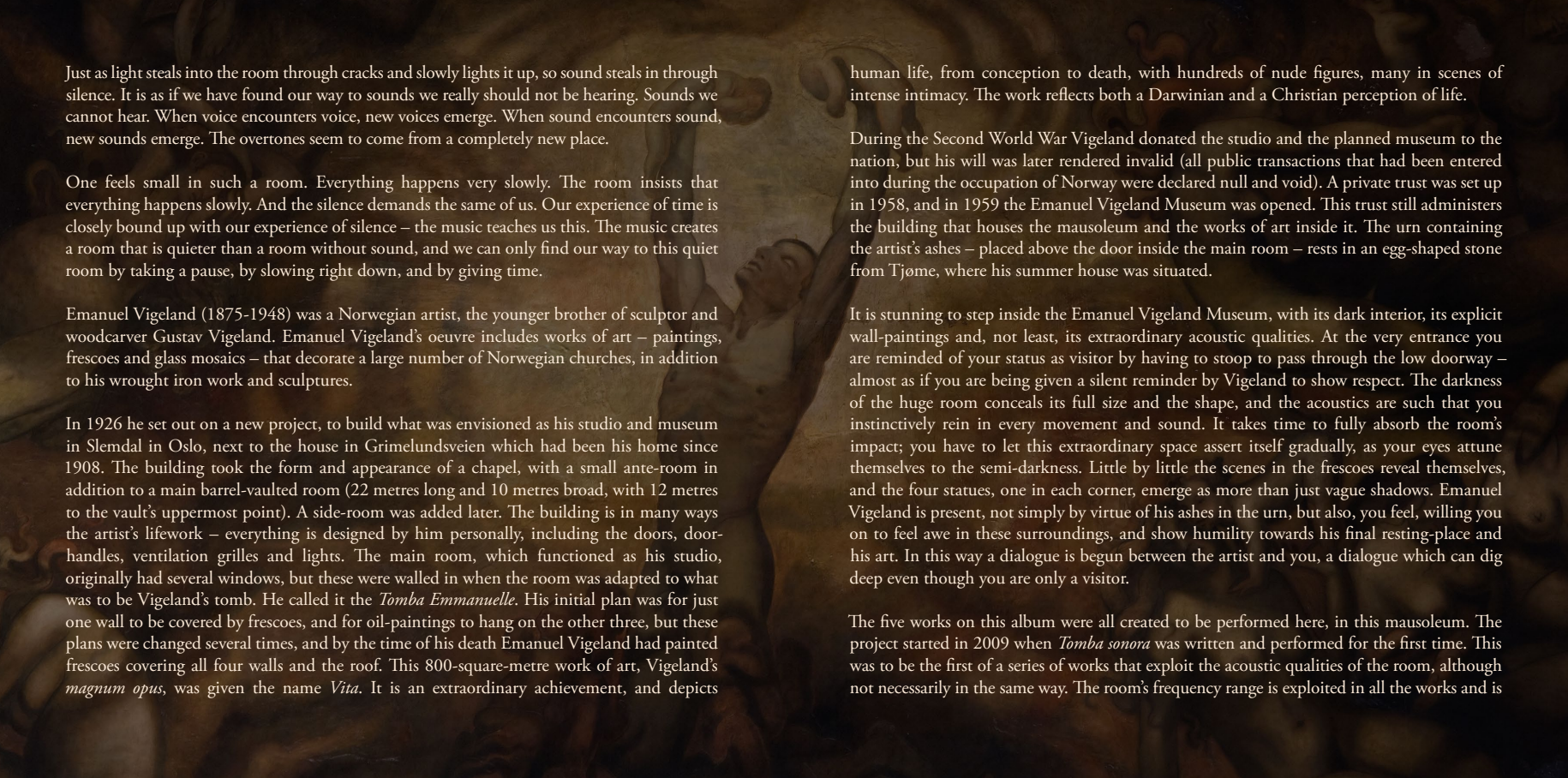
AURO 3D

DOLBY ATMOS

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Kristin Bolstad
Tomba sonora
STEMMEKLANG





Just as light steals into the room through cracks and slowly lights it up, so sound steals in through silence. It is as if we have found our way to sounds we really should not be hearing. Sounds we cannot hear. When voice encounters voice, new voices emerge. When sound encounters sound, new sounds emerge. The overtones seem to come from a completely new place.

One feels small in such a room. Everything happens very slowly. The room insists that everything happens slowly. And the silence demands the same of us. Our experience of time is closely bound up with our experience of silence – the music teaches us this. The music creates a room that is quieter than a room without sound, and we can only find our way to this quiet room by taking a pause, by slowing right down, and by giving time.

Emanuel Vigeland (1875-1948) was a Norwegian artist, the younger brother of sculptor and woodcarver Gustav Vigeland. Emanuel Vigeland's oeuvre includes works of art – paintings, frescoes and glass mosaics – that decorate a large number of Norwegian churches, in addition to his wrought iron work and sculptures.

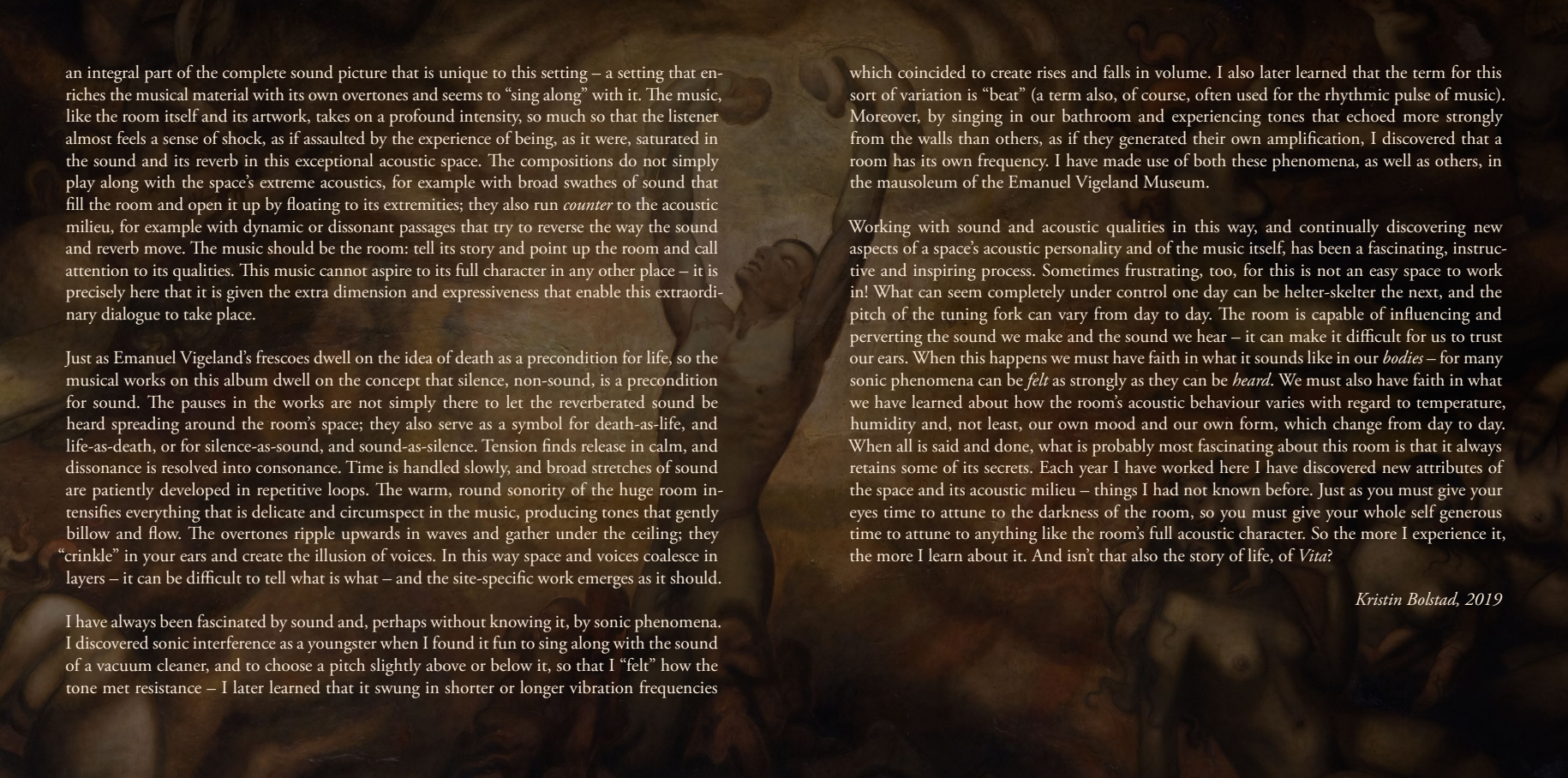
In 1926 he set out on a new project, to build what was envisioned as his studio and museum in Slemdal in Oslo, next to the house in Grimelundsveien which had been his home since 1908. The building took the form and appearance of a chapel, with a small ante-room in addition to a main barrel-vaulted room (22 metres long and 10 metres broad, with 12 metres to the vault's uppermost point). A side-room was added later. The building is in many ways the artist's lifework – everything is designed by him personally, including the doors, door-handles, ventilation grilles and lights. The main room, which functioned as his studio, originally had several windows, but these were walled in when the room was adapted to what was to be Vigeland's tomb. He called it the *Tomba Emmanuelle*. His initial plan was for just one wall to be covered by frescoes, and for oil-paintings to hang on the other three, but these plans were changed several times, and by the time of his death Emanuel Vigeland had painted frescoes covering all four walls and the roof. This 800-square-metre work of art, Vigeland's *magnum opus*, was given the name *Vita*. It is an extraordinary achievement, and depicts

human life, from conception to death, with hundreds of nude figures, many in scenes of intense intimacy. The work reflects both a Darwinian and a Christian perception of life.

During the Second World War Vigeland donated the studio and the planned museum to the nation, but his will was later rendered invalid (all public transactions that had been entered into during the occupation of Norway were declared null and void). A private trust was set up in 1958, and in 1959 the Emanuel Vigeland Museum was opened. This trust still administers the building that houses the mausoleum and the works of art inside it. The urn containing the artist's ashes – placed above the door inside the main room – rests in an egg-shaped stone from Tjøme, where his summer house was situated.

It is stunning to step inside the Emanuel Vigeland Museum, with its dark interior, its explicit wall-paintings and, not least, its extraordinary acoustic qualities. At the very entrance you are reminded of your status as visitor by having to stoop to pass through the low doorway – almost as if you are being given a silent reminder by Vigeland to show respect. The darkness of the huge room conceals its full size and the shape, and the acoustics are such that you instinctively rein in every movement and sound. It takes time to fully absorb the room's impact; you have to let this extraordinary space assert itself gradually, as your eyes attune themselves to the semi-darkness. Little by little the scenes in the frescoes reveal themselves, and the four statues, one in each corner, emerge as more than just vague shadows. Emanuel Vigeland is present, not simply by virtue of his ashes in the urn, but also, you feel, willing you on to feel awe in these surroundings, and show humility towards his final resting-place and his art. In this way a dialogue is begun between the artist and you, a dialogue which can dig deep even though you are only a visitor.

The five works on this album were all created to be performed here, in this mausoleum. The project started in 2009 when *Tomba sonora* was written and performed for the first time. This was to be the first of a series of works that exploit the acoustic qualities of the room, although not necessarily in the same way. The room's frequency range is exploited in all the works and is



an integral part of the complete sound picture that is unique to this setting – a setting that enriches the musical material with its own overtones and seems to “sing along” with it. The music, like the room itself and its artwork, takes on a profound intensity, so much so that the listener almost feels a sense of shock, as if assaulted by the experience of being, as it were, saturated in the sound and its reverb in this exceptional acoustic space. The compositions do not simply play along with the space’s extreme acoustics, for example with broad swathes of sound that fill the room and open it up by floating to its extremities; they also run *counter* to the acoustic milieu, for example with dynamic or dissonant passages that try to reverse the way the sound and reverb move. The music should be the room: tell its story and point up the room and call attention to its qualities. This music cannot aspire to its full character in any other place – it is precisely here that it is given the extra dimension and expressiveness that enable this extraordinary dialogue to take place.

Just as Emanuel Vigeland’s frescoes dwell on the idea of death as a precondition for life, so the musical works on this album dwell on the concept that silence, non-sound, is a precondition for sound. The pauses in the works are not simply there to let the reverberated sound be heard spreading around the room’s space; they also serve as a symbol for death-as-life, and life-as-death, or for silence-as-sound, and sound-as-silence. Tension finds release in calm, and dissonance is resolved into consonance. Time is handled slowly, and broad stretches of sound are patiently developed in repetitive loops. The warm, round sonority of the huge room intensifies everything that is delicate and circumspect in the music, producing tones that gently billow and flow. The overtones ripple upwards in waves and gather under the ceiling; they “crinkle” in your ears and create the illusion of voices. In this way space and voices coalesce in layers – it can be difficult to tell what is what – and the site-specific work emerges as it should.

I have always been fascinated by sound and, perhaps without knowing it, by sonic phenomena. I discovered sonic interference as a youngster when I found it fun to sing along with the sound of a vacuum cleaner, and to choose a pitch slightly above or below it, so that I “felt” how the tone met resistance – I later learned that it swung in shorter or longer vibration frequencies

which coincided to create rises and falls in volume. I also later learned that the term for this sort of variation is “beat” (a term also, of course, often used for the rhythmic pulse of music). Moreover, by singing in our bathroom and experiencing tones that echoed more strongly from the walls than others, as if they generated their own amplification, I discovered that a room has its own frequency. I have made use of both these phenomena, as well as others, in the mausoleum of the Emanuel Vigeland Museum.

Working with sound and acoustic qualities in this way, and continually discovering new aspects of a space’s acoustic personality and of the music itself, has been a fascinating, instructive and inspiring process. Sometimes frustrating, too, for this is not an easy space to work in! What can seem completely under control one day can be helter-skelter the next, and the pitch of the tuning fork can vary from day to day. The room is capable of influencing and perverting the sound we make and the sound we hear – it can make it difficult for us to trust our ears. When this happens we must have faith in what it sounds like in our *bodies* – for many sonic phenomena can be *felt* as strongly as they can be *heard*. We must also have faith in what we have learned about how the room’s acoustic behaviour varies with regard to temperature, humidity and, not least, our own mood and our own form, which change from day to day. When all is said and done, what is probably most fascinating about this room is that it always retains some of its secrets. Each year I have worked here I have discovered new attributes of the space and its acoustic milieu – things I had not known before. Just as you must give your eyes time to attune to the darkness of the room, so you must give your whole self generous time to attune to anything like the room’s full acoustic character. So the more I experience it, the more I learn about it. And isn’t that also the story of life, of *Vita*?

Kristin Bolstad, 2019

01 Echoes & Shadows 7:38

Composer: Kristin Bolstad, 2011

Vocals: Kristin Bolstad and Linnéa Sundfær Haug

02 Stilla (Silence) 7:30

Composer/Lyrics: Kristin Bolstad, 2011

Vocals: Linnéa Sundfær Haug, Julie Kleive and Karoline Dahl Gullberg

*Stilla,
og blikket ditt kviler i mitt.
Stilla,
så skøyr og var at den ikkje har ord.
Berre augo dine fortel.
Mellom oss,
stilla.*

Silence,
and your gaze rests in mine.
Silence,
so fragile and tender, without words.
Only your eyes confide.
Between us,
silence.

03 TRY 10:26

Composer: Kristin Bolstad, 2017

Vocals: Karoline Dahl Gullberg, Gabrielle Sørensen, Julie Kleive,
Linnéa Sundfær Haug and Kristin Bolstad

04 Mellom Skyene (Between the clouds) 5:45

Composer/Lyrics: Kristin Bolstad, 2011

Vocals: Kristin Bolstad, Julie Kleive and Karoline Dahl Gullberg

*Og hausten gret sine tårer,
frå utsida,
sjølv om der var ljøs.
Berre fuglane såg
kor mørkeret samla seg
mellom skyene.
Lufia kjendest klår
og det anga av vår,
men lauvet drog seg i møter.
Det funkla
og spraka,
rundt og rundt.*

And autumn wept her tears,
from the outside,
although it was light.
Only the birds saw
where the darkness assembled
between the clouds.
The air seemed clear,
springlike,
but the leaves were scurrying about.
Glittering
and crackling,
round and round.

05 Tomba sonora 18:25

Composer: Kristin Bolstad, 2009

Vocals: Karoline Dahl Gullberg, Gabrielle Sørensen, Julie Kleive,
Linnéa Sundfær Haug and Kristin Bolstad

Cello: Erlend Habbestad, Dag Øystein Berger, Vilde Alme and Katrine Pedersen

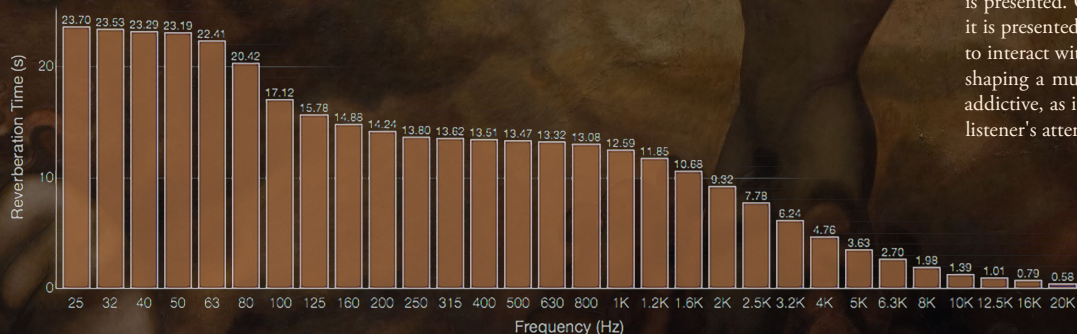
Our gratitude to Yvonne, Kjartan and everyone at the Emanuel Vigeland Museum for excellent assistance and for always being ready to accommodate my requests all these years. Thank you to everyone who came to our concerts year after year. A big thank you to all who have given the financial support that has made the whole project possible. Thanks to Bjørn Morten Christophersen for sowing the seed of the project. Finally, a special thanks to Emanuel Vigeland – without you, there would have been nothing.



The stage layout for **Tomba sonora** is an example of how voices and instruments are distributed in the room surrounding the listener. Each composition in this recording has a dedicated layout as an integral part of its composition.

Acoustics are a significant part of the multisensory immersive experience of visitors to Vigeland mausoleum. The darkness, low temperature and high humidity enhance our sensitivity to sound. The hard surfaces of the stone walls, unrelieved by any windows, reflect sound from all directions and we feel enveloped by it – at times it has an irresistible depth of feeling. The sound waves meet little resistance and only gradually decay between the hard surfaces – this gives a long and rich reverberation.

All surfaces inside are thick and hard, reflecting the sound without absorbing it. The walls and the ceiling are covered with frescoes and depict the cycle of human life, from birth, through love, to death. One has the impression that inside the mausoleum sound lives longer, sustained by the favourable acoustics. A sound in the mausoleum reverberates on average for more than 15 seconds, and up to 25 seconds at low frequencies, until its acoustic energy is fully depleted.



Perceived reverberance is measured in seconds as an acoustic parameter called *Early Decay Time* (EDT). The typical range is 1 – 3 seconds. In the Vigeland mausoleum the EDT parameter measured 13 seconds. The energy of direct sound and the early reflections that follow closely behind in time are responsible for the perceived clarity and intelligibility of sound. In the mausoleum this early energy is overpowered and masked by the persisting reverberation, making normal conversation impossible. We may even experience the sensation of drowning in sound because of the strength and omnipresence of reverberation. A typical range of the acoustical parameter called *Clarity80* is between -5dB and +5dB. In the Vigeland mausoleum it measures -10dB, with 1dB being a just noticeable difference. This loss of speech clarity is highly noticeable.

Communication between performers is directly affected by reverberation for it is difficult for them to hear themselves and each other. Long reverberation makes it challenging in other ways for musicians, and they must usually choose slower tempi, reduced dynamics and gentler articulation, as well as engage in the patient listening that this space demands.

From its onset to the complete decay of reverberation, a full trajectory of the life of that sound is presented. One might wonder if there is a parallel between this “life” of sound and life as it is presented in the frescoes on the mausoleum walls. By creating sounds, we have a chance to interact with the room’s acoustics. Multiple onsets and long decays overlap simultaneously, shaping a multisensory experience. Listening to the beauty of decaying sound can even be addictive, as it offers a degree of sensory isolation. The vivid presence of reverberation draws listener’s attention and effectively masks any other sounds.



STEMMEKLANG



Kristin Bolstad



Julie Kleive



Linnéa Sundfær Haug



Karoline Dahl Gullberg



Gabrielle Sørensen

Slik lyset slepp inn gjennom sprekker og lyser opp rommet, slepp lydane inn gjennom stilla. Det er som om vi har fått tilgang til lydar vi eigentleg ikkje skal høyre. Lydar vi ikkje kan høyre. I møtet mellom røystene oppstår det nye røyster. I møtet mellom lydane oppstår det nye lydar. Overtonane kjem liksom frå ein heilt annan stad igjen.

Ein blir audmjuk i eit slikt rom. Alt tek tid. Rommet krev at alt tek tid. Det same krev stilla av oss. Vår oppleving av tid heng saman med vår oppleving av stilla. Det lærer denne musikken oss. Musikken skaper eit rom som er stillare enn eit rom utan lyd, og vi får tilgang til dette stille rommet ved å gi tid.

Emanuel Vigeland (1875-1948) er ein norsk biletkunstnar, og yngre bror av bilethoggar og treskjerar Gustav Vigeland. Emanuel har stått for utsmykking av ei rekkje norske kyrkjebygg med måleri, freskar og glasmåleri, i tillegg til verksemd innanfor smijarnsarbeid og skulptur.

I 1926 byrja han arbeidet med det som skulle vera hans atelier og tenkt museum på Slemdal i Oslo, ved sida av bustaden hans sidan 1908 i Grimelundsveien. Bygget stod ferdig etter eitt år og hadde form og utsjånad som eit kapell, med eit mindre forrom i tillegg til hovudrommet forma som ein tønnekelv sal (22 meter lang, 10 meter brei og 12 meter til toppen av kvelvinga). Eit siderom kom til seinare. Bygget er på mange måtar kunstnaren sitt livsverk der alt er utforma av han sjølv, til og med detaljar som dører, dørhandtak, ventilasjonsgitter og ljøs.

Hovudrommet og det som fungerte som atelier hadde opphavleg fleire vindauger, men desse vart mura att når rommet vart gjort om til det som skulle bli Emanuel sitt gravkammer. Han gav det namnet *Tomba Emmanuelle*. I utgangspunktet var det berre den eine vegg som var tenkt dekkja av freskar. Dei resterande tre skulle vera for staffelimåleri, men planane vart endra fleire gonger undervegs, og ved sin død i 1948 hadde han malt freskar som dekkja alle dei fire veggane og tak – til saman 800m² – eit verk han gav namnet *Vita* (livet). Vita skildrar mennesket frå det vert til, og til inn i døden, der hundrevis av nakne kroppar i djup intimitet viser både ei darwinistisk side ved livet så vel som ei kristen framstilling.

Under krigen donerte Emanuel Vigeland atelieret og det påtenkte museet til Den norske stat, men testamentet vart send i retur då alle offentlege transaksjonar som hadde funne stad under okkupasjonen vart ugyldiggjort. I 1958 sytte familien for at det vart oppretta ei privat stifting, og i 1959 opna Emanuel Vigelands Museum for publikum. Stiftinga driftar framleis bygninga som husar mausoleet og tilhøyrande kunstverk. Urna med Emanuel si oske i kviler i ein uthula stein forma som eit egg – henta frå Tjøme der han hadde sommarstaden sin – og har fått sin plass over døra i hovudrommet.

Emanuel Vigelands Museum er ei oppleving i seg sjølv med si dunkle framtoning, sine eksplisitte veggmåleri, og ikkje minst den heilt spesielle akustikken som er her. Allereie i inngangspartiet blir den vitjande var si rolle – som ei stille formaning frå Emanuel om å visa respekt – ved å måtte bøya seg i dei låge dørene for å stiga inn. Den sparsame lyssetjinga av rommet skjuler storleik og form, og akustikken gjer at ein tek både rørsle og stemme i akt. Det tek tid å oppleva dette rommet, her kan ein ikkje gå inn og sjå og oppleva alt på ein gong, tolmodig må ein venta til rommet trer fram etter kvart som augo blir vand i mørkeret. Litt etter litt vert ulike scener i freskane synlege og dei fire bronsestatuane, ein i kvart hjørne, meir enn vage skuggar. Emanuel er ikkje berre til stades i rommet som oske i ei urne, men også som ei usynleg vakt som passar på at den vitjande oppfører seg og viser respekt og audmjuke for kunstnaren sitt gravkammer og kunstverk. På denne måten vert det strekt trådar av dialog og samhandling mellom kunstnar og den som vitjar, vel vitande om at den vitjande berre er på besøk.

Dei fem verka på dette albumet er alle komponert spesielt og eksklusivt for mausoleet i Emanuel Vigelands Museum. Det heile starta i 2009 då verket *Tomba sonora* vart til og framført her. Sidan den tid har fleire verk kome til, der fellesnemnaren for dei alle er at dei akustiske høva i rommet blir nytta aktivt – om enn ulikt i kvart enkelt verk. Rommet sine eigenfrekvensar er sterkt gjeldande i alle verka og gjer rommet aktivt deltakande i det musikalske materialet og konsekvensen av verket, der rommet legg overtonar på og kan synast å «syngja med». På linje med opplevinga av rommet er også dei musikalske verka ei intens

oppleveling, der mettinga av lyd og klang i den veldige akustikken kan ha ein påtrengjande effekt for lyttaren. Verka både spelar på lag med og mot rommet sine fysiske høve, frå klangflater som flyt i lag med og «oppå» rommet, til dynamiske eller dissonerende parti som skapar motstand i korleis lyden og klangen bevegar seg i rommet. Intensjonen er at komposisjonen skal *vera* rommet, kunne fortelja det og uttrykkja det; framheva det. Men også ein intensjon om det motsette, at rommet skal *vera* komposisjonen, kunne fortelja den og uttrykkja den; framheva den. At komposisjonen er avhengig av rommet for å vera heil, gjev den ein ekstra dimensjon og uttrykk som skapar ei unik samhandling som berre kan finna stad akkurat her.

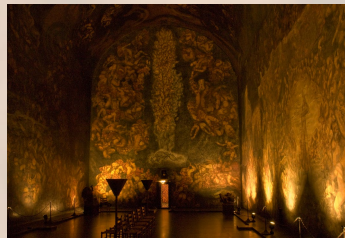
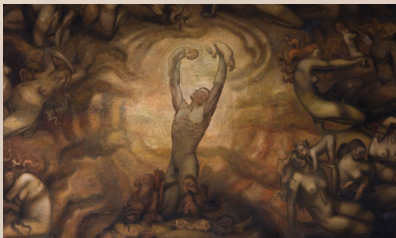
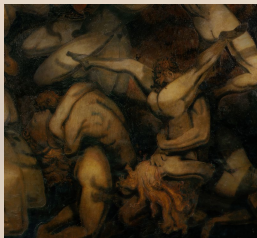
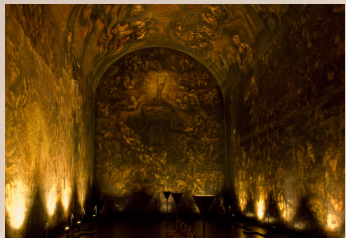
Slik Emanuel sine freskar, *Vita*, dveler rundt tanken om at døden er ein føresetnad for liv, dveler dei musikalske verka rundt tanken om at stilla, eller ikkje-lyd, er ein føresetnad for lyd. Pausane i verka er altså ikkje berre til for å la etterklangen kom til syne og få utvikla seg i rommet, men også gjeldande som symbol for døden som livet og livet som døden, eller stilla som lyd og lyd som stille. Spenning blir forløyst i avspenning, og dissonansar vert oppløyst i konsonans. Tid blir langsamt handsama, og lange klangflater vert tolmogig utvikla i repeterande sløyfer. Den varme og runde klangen i rommet forsterkar det såre og vare i musikken, og gjev tonane som audmjukt rører rommet ei bølgjande form. Overtonane legg seg i rekkjer oppover, samlar seg oppunder taket, «sprakar» i øyra og skapar illusjonen av stemmer som ikkje er der. Slik glir rom og stemmer saman for å skapa verket i lag – der det kan vera vanskeleg å skilja kva som er kva – og det romspesifikke verket oppstår.

Eg har alltid vore oppteiken av lyd, og kanskje utan å ha visst det sjølv: lydlege fenomen. Eg

oppdaga interferens i ung alder då eg tykte det var svært moro å syngja til lyden av støvsugaren og gli litt opp eller ned for den tonen den hadde, og på denne måten «kjenna» korleis tonen fekk motstand og svinga i kortare eller lengre bylgjer for å skapa det som eg seinare har lært meg heiter «beat», eller svevning. Og eigenfrekvensane til eit rom var lett å oppdaga når ein song på badet og brått treffe tonar som ljoma sterkare i veggane enn andre, som om desse forsterka seg sjølv. For mausoleet i Emanuel Vigelands Museum har eg nytta meg av begge desse fenomena, og fleire til, og like fasinerande som det har vore lærerikt har det også vore svært inspirerande.

Det å kunne leika seg på denne måten, med klang og akustikk, og stadig oppdaga nye sider ved rommet og ved verka har vore svært givande. Men til tider også frustrerande, for dette rommet er ikkje lett å arbeida i. Det som kan synast under kontroll ein dag, kan vera aldeles ute på tur den neste, og A'en på stemmegaffelen svingar jamt og trutt. Rommet kan forvirra og vrenja lyden og lyttinga vår undervegs, og gjera det vanskeleg å stola på det ein høyrer. I slike stunder må ein stola på korleis lyden kjennes i kroppen – for fleire av dei lydlege fenomena er følbare like mykje som høyrbare – sameleis som erfaringa ein har om at rommet oppfører seg ulikt reint lydleg, ut frå temperatur, luftfukt, og ikkje minst vår eigen dagsform. Og det er kanskje dette som er det mest interessante ved rommet, det at ein aldri synast å «finna ut» av det. For kvart år eg er der oppdagar eg stadig nye element ved rommet og akustikken eg ikkje visste om frå før. Like eins som ein må la augo venja seg til mørkeret for å sjå rommet, er det også ein tidkrevjande prosess å oppdaga det reint lydleg. Dess meir eg erfarer, dess meir er det å oppdaga og finna ut av. Og er ikkje det slik livet, *Vita*, også er?»

Kristin Bolstad, 2019



01 **Echoes & Shadows** 7:38

Komponist: Kristin Bolstad, 2011

Vokal: Kristin Bolstad og Linnéa Sundfær Haug

02 **Stilla** 7:30

Komponist/tekst: Kristin Bolstad, 2011

Vokal: Linnéa Sundfær Haug, Julie Kleive og Karoline Dahl Gullberg

*Stilla,
og blikket ditt kviler i mitt.
Stilla,
så skøyr og var at den ikkje har ord.
Berre augo dine fortel.
Mellom oss,
stilla.*

03 **TRY** 10:26

Komponist: Kristin Bolstad, 2017

Vokal: Karoline Dahl Gullberg, Gabrielle Sørensen, Julie Kleive,
Linnéa Sundfær Haug og Kristin Bolstad

04 **Mellom Skyene** 5:45

Komponist/tekst: Kristin Bolstad, 2011

Vokal: Kristin Bolstad, Julie Kleive og Karoline Dahl Gullberg

*Og hausten gret sine tårer,
frå utsida,
sjølv om der var ljøs.
Berre fuglane såg*

*kor mørkeret samla seg
mellom skyene.
Lufia kjendest klår
og det anga av vår,
men lauvet drog seg i møter.
Det funkla
og spraka,
rundt og rundt.*

05 **Tomba sonora** 18:25

Komponist: Kristin Bolstad, 2009

Vokal: Karoline Dahl Gullberg,
Gabrielle Sørensen, Julie Kleive,
Linnéa Sundfær Haug
og Kristin Bolstad
Cello: Erlend Habbestad, Dag Øystein
Berger, Vilde Alme og Katrine Pedersen

Takk til Yvonne, Kjartan og alle andre ved Emanuels Vigeland Museum for god tilrettelegging, og for alltid å vera imøtekomande i alle desse åra. Takk til alle som har kome på konsertane våre år etter år. Takk til alle tilskotsytarar som har gjort prosjektet mogleg. Takk til Bjørn Morten Christophersen for å så frøet om dette prosjektet. Ekstra takk til Emanuel, utan deg hadde det ikkje vore noko.





2L (Lindberg Lyd) records in spacious acoustic venues; large concert halls, churches and cathedrals. This is actually where we can make the most intimate recordings. The qualities we seek in large rooms are not necessarily a big reverb, but openness due to the absence of close reflecting walls. Making an ambient and beautiful recording is the way of least resistance. Searching the fine edge between direct contact and openness; that's the real challenge! A really good recording should be able to bodily move the listener. This core quality of audio production is made by choosing the right venue for the repertoire, and balancing the image in the placement of microphones and musicians relative to each other in that venue. There is no method available today to reproduce the exact perception of attending a live performance. That leaves us with the art of illusion when it comes to recording music. As recording engineers and producers we need to do exactly the same as any good musician; interpret the music and the composer's intentions and adapt to the media where we perform.

Immersive Sound is a completely new conception of the musical experience. Recorded music is no longer a matter of a fixed one-dimensional setting, but rather of a three-dimensional enveloping situation. Stereo can be described as a flat canvas and Surround Sound as a field, but Immersive Audio is a sculpture that you can literally move around and relate to spatially; surrounded by music you can move about in the aural space and choose angles, vantage points and positions.

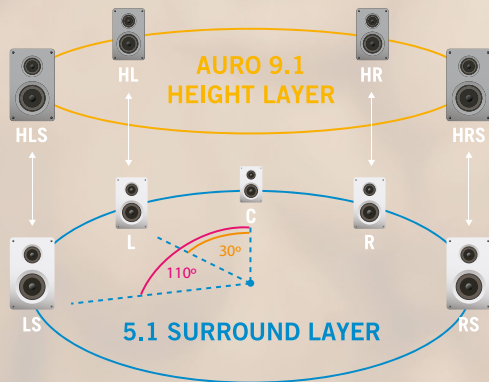
Morten Lindberg balance engineer and recording producer

Auro-3D® is the next generation three-dimensional audio standard. It provides a realistic sound experience unlike anything before. By fully immersing the listener in a cocoon of life-like sound, Auro-3D® creates the sensation of actually 'being there'. Thanks to a unique 'Height' channel configuration, acoustic reflections are generated and heard naturally due to the fact that sounds originate from around as well as above the listener.

To achieve 'true sound in 3D', Auro-3D® adds the crucial third and final dimension in the evolution of sound reproduction. While 5.1/7.1 Surround configurations fail to include height channels (z-axis), Auro-3D® realizes its life-like effect with a HEIGHT-based sound hemisphere capable of thoroughly immersing the listener. Depending on the size of the room, either 1 or 2 additional layers (HEIGHT and TOP) are mounted above the existing Surround layer at ear-level to produce Auro-3D®'s defining 'vertical stereo field' (see image). This field is the key to creating the most natural and immersive sound experience possible. The optional (third) TOP Layer placed overhead is a supplementary channel that is not critical for natural audio reproduction. As people are less sensitive to sounds originating from above, the TOP Layer is primarily used for 'fly-overs' and other special effects - most sound sources and their chief initial reflections are located between the Surround Layer and Auro-3D®'s unique Height Layer.

Auro-3D® is based on a groundbreaking new technology that delivers uncompressed audio quality with an unrivaled level of flexibility. The height information, captured in recording or created during the mixing process, is mixed into a standard 5.1 PCM stream. Any device that contains the Auro-Codec® Decoder will be capable of decoding the original Auro-3D® mix, which will conveniently playback on any Auro-3D® compatible speaker system (Auro 9.1/Auro 10.1/Auro 11.1 etc.). Thanks to Auro-3D®'s backward compatibility, devices without the Auro-Codec® Decoder will produce the original 5.1 PCM mix without any loss in sound quality.

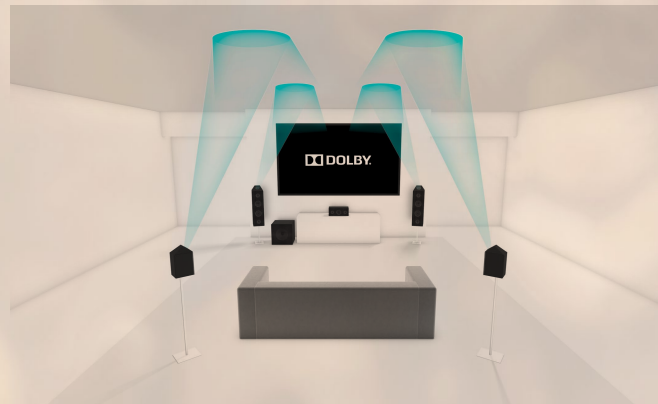
Auro 9.1 not only delivers an entirely new audio experience in 3D but also offers the most efficient 5.1 Surround format compatible speaker layout featuring the 'Height' dimension.



Dolby Atmos® is a revolutionary new audio technology that transports you into extraordinary entertainment experiences. Dolby Atmos has the amazing ability to have sounds come from above you.

With Dolby Atmos, you have amazing flexibility. Dolby Atmos-enabled speakers produce full, detailed overhead sound from speakers located where your conventional speakers are now. If you already have speakers that you love, you can choose an add-on, Dolby Atmos-enabled speaker module that complements your existing speakers. If you're willing and able to install speakers in your ceiling, there are great options for creating the ultimate Dolby Atmos experience. Combined with a Dolby Atmos enabled receiver, you'll be put in the middle of the action—like you have never experienced before. With the revolution in audio that is Dolby Atmos, sound designers are freed from channel restrictions. They can now precisely place and move sounds as independent objects in multidimensional space, including anywhere overhead, so you can hear them as you would naturally.

Dolby Atmos is not tied to any specific playback configuration. If you do not have a Dolby Atmos enabled surround sound system, Dolby Atmos will automatically play in the best possible way for your system. Dolby Atmos is compatible with current generation Blu-ray players. For Dolby Atmos playback, set your Blu-ray player to bitstream out and disable secondary audio.



Blu-ray is the first domestic format in history that unites theatre movies and music sound in equally high quality. The musical advantage is the high resolution for audio, and the convenience for the audience as one single player will handle music, films, DVD-collection and your old library of traditional CD.

Developed by Munich's msm-studios in co-operation with Lindberg Lyd, the Pure Audio Blu-ray combines the Blu-ray format's vast storage capacity and bandwidth necessary for high resolution sound (up to 192 kHz/24Bit) in surround and stereo with the easy and straight-forward handling of a CD. Pure Audio Blu-ray can be operated in two ways: by on-screen menu navigation or by remote control without a TV screen. Remote control operation is as easy as with a CD: besides the standard transport controls the numeric keys directly access the corresponding track number and the desired audio stream can be selected by the coloured keys on the remote control. For example, press the red button for 5.1 DTS HD Master or yellow for 2.0 LPCM. Pure Audio Blu-ray plays back on every Blu-ray player.

■ 5.0 DTS HD MA 24/192kHz ■ 7.0.4 Dolby Atmos 48kHz

■ 2.0 LPCM 24/192kHz ■ 7.0.4 Auro-3D 96kHz

This **Pure Audio Blu-ray** is equipped with **mShuttle** technology – the key to enjoying your music even when away from your Blu-ray player. Connecting your BD player to your home network will enable you to access portable copies of the songs residing on the disc: you may burn your own copy in CD quality or transfer MP3s of your favourite tracks to your mobile player. mShuttle provides a versatile listening experience of Pure Audio Blu-ray: in studio quality FLAC on your home entertainment system, in CD quality in car & kitchen, or as MP3 wherever you are.

1. Make sure that your BD player is connected to your computer network.
2. Insert the Pure Audio Blu-ray Disc into your BD player and press the mShuttle button after the disc is loaded.
3. Open the Internet browser of your computer and type in the IP address of your BD player. You will find this address in the setup menu of your Blu-ray Disc player.
4. Select booklet and audio files to download from the Blu-ray to your computer.



Blu-ray authoring **msm studio group**

Screen design and Blu-ray authoring **Michael Thomas Hoffmann**

Pure Audio Blu-ray concept development **Morten Lindberg** and **Stefan Bock**

Recorded in the mausoleum of Emanuel Vigeland Museum August 2018 by Lindberg Lyd AS

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This recording was made by Lindberg Lyd AS with DPA microphones and HORUS converters to a PYRAMIX workstation on Ravenna AoIP. Complete system on JMF Audio PCD302 power line conditioner. Digital eXtreme Definition is a professional audio format that brings analogue qualities in 24 bit at 352.8 kHz sampling rate.

MQA CD plays back on all CD players. When a conventional CD player is connected to an MQA-enabled device, the CD layer of the Hybrid SACD will reveal the original master quality. For more information visit www.mqa.co.uk

