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**HARK /Music Planet**

**SOUNDINGS**

**Bodies, Pulses, Rhythm, Percussion.**

Programme & Notes

**10.00: Foyer: Welcome Michael Downes and Introduction from Huw and Bede.**

HARK events are about embodied experience and knowledge, how sound resonates in our bodies, how listening and responding to what we hear is itself generative of imaginative responses that can become art-work. We enter a sonic environment and we construct a sonic world. What we imagine when we listen speaks to how our world is given meaning by sound and particularly by here by how we punctuate it, divide it up, let it endure and interrupt it – that is, by its pulses and rhythms. It is also about how this feels when we gather in an event and do it with others in co-presence, when we know that there are both many perceptions and a kind of totality that surrounds us. It allows us also to notice our preconceptions and our preoccupations – what we want to happen and what we expect. We want to invite you to suspend some of these preconceptions and explore some new ways of listening. We might experience perceptual transfigurations as we allow ourselves to move with pulses and with a fluid sense of past, present and future…

So today is about listening as play!

Introduction of the contributors

The elements of the day are:

**Performance**: music, pitched and percussive, several pieces played by Bede Williams, Alexander Waber and Jessica

**Participation**: you will be working with Alexander on some percussion and also later with Steve Foreman in an interactive presentation on **Rhythm.**

A **Sermon of Stones** and geological time by Tony Prave and Richard Bates

**Improvisation**, sound-art made from these material elements, the Stones, sounded and interpreted by Alex Waber and Alistair Macdonald in an improvised sound conversation.

We will end the day in the exceptionally resonant acoustic of the Silo in Cupar.

These timings are indicative, but lunch is fixed.

10.10: Sound Meditation:

Sea Sound……………………………

Breathing……counting…………..listen to the pulse and rhythm of the tide…find your rhythm and pace within it. Come into the pulse of the tide and the rhythm of your breathing…breath in…1,2,3…breath out slowly thro the mouth..1,2,3……..

Give it your attention……… then let it be…….giving up, giving in,

Sound has, associations, images..

….so Imagine holding a stone, the heaviest stone you can hold, put your arms out and hold it in your imagination….. etc etc

At the end of the sound meditation Alexander will start to play quietly and build up some sounds for a minute or two and then introduce his Workshop.

10.20: Percussion Workshop. Alexander Waber

**11.15: Performance.**

**Alex Waber and Bede Williams play:**

**MacBeth and MacDonwald by David Jarvis.**

**A duet for Trumpet and Percussion.**

The work is scored for Bflat trumpet and percussion(bass drum, low and high tenor drums, snare drum and bongos). It is a musical depiction of the battle described in Act I Scene II of Shakespeare’s tragedy MacBeth. In this particular scene a soldier reports to King Duncan of the gory confrontation between brave MacBeth and the evil MacDonwald.

*Doubtful it stood .*

*As the two spent swimmers, that do cling together*

*And choke their art. The merciless MacDonwald*

*Worthy to be a rebel, for to that*

*The multiplying villainies of nature*

*Do swarm upon him– from the Western Isles*

*Of kerns and gollowglasses is supplied;*

*And fortune, on his damned quarrel smiling,*

*Show’d like a rebel’s whore. But all’s too weak;*

*For brave MacBeth– well he deserves that name,*

*Distaining Fortune, with his brandish’d steel,*

*Which smok’d with bloody execution,*

*Like valor’s minion carved out his passage*

*Till he fac’d the slave;*

*Which nev’r shook hands, nor bade farewell to him,*

*Till he unseem’d him from the nave to th’ chops,*

*And fixed his head upon our battlements.*

An intervallic analysis of the trumpet line reveals ‘golden mean’ symmetry by the application of the ‘Fibonacci series’. This compositional device has been used by many C20th composers – probably one of the mist famous uses can be found in Bartok’s *Music for Strings Percussion and `Celeste.* The Fibonacci series is an arithmetic series in which each number is the sum of the pervious two numbers, resulting in the following: 0,1,1,2,3,5,8,13…….Using intervals which correspond to the Fibonacci series numbers of half steps yields the following melodic language upon which the entire trumpet line is based: 1= minor 2nd ; 2= major 2nd; 3= minor 3rd; 5=perfect 5th; 8=minor 6th; 13=minor 9th.

At times the numerical series is also reflected in the percussion part through various rhythmic figures. The first performance was given on February 14th 1995 in Kimbrough Concert Hall at Washington State University by David Pullman (Trumpet) and David Jarvis (Percussion).

**11.20: Reflections…talking……comfort break.**

**11.40 Rhythm : Steve Foreman.**

Steve will lead us in an exploration of Pulse-relational Theory. This is an interactive session

**Pulse-relational Rhythm Theory** is a holistic approach to understanding rhythm systems, structures and effects from the performer’s perspective. Conceptual models for temporal subdivision and grouping, polyrhythmic structure and architectonic alignment are presented in terms applicable to virtually any rhythm tradition or practice.

**Pulse-relational terminology** reconciles the arithmetically quantifiable aspect of temporal subdivision with the subjective, sensorial effects people experience in the presence of coherent rhythm systems in real time.

 In Europe and the Americas, the default language musical for rhythm is notation, appropriated from a two-dimensional static graphic system optimized for encoding the musical conventions of European aristocracy at the end of the 16th century. Rhythm is a multi-dimensional, time-contextual phenomenon in process, like fire. To talk about rhythm coherently and consistently, we need to approach it in the appropriate context –real time- using precise arithmetic terms for aspects that we can evaluate and quantify incrementally, and consistent qualitative terms for the sensorial aspects we can perceive, compare and evaluate subjectively.

**Pulse-relational Rhythm Pedagogy** incorporates practice routines, exercises and etudes that enable students to develop and embody a psychophysical familiarity, i.e., a body-knowledge of pulse and subdivision as experience. Rhythm regarded as kinetic structure; animated multidimensional architecture that we sense and feel.

As applied, pulse-relational rhythm theory can significantly enhance musicians’ self-confidence and performance capabilities, especially in music ensemble situations.

12.30- 13.30 BUFFET LUNCH

13.30: Sermons and Sounds in Stones : Tony Prave

Earth history is a four and half billion-year-long chronicle of creation and destruction, a story of a planetary Yin and Yang. The interconnectedness and complementarity of the Earth system operates on all scales across all time: plate tectonics, a tireless global cycle of forming and breaking of continents and oceans driven by the radioactive decay of the breaking and shaping of atoms in Earth’s interior; the thriving and dying of life as represented in myriads of evolutions and extinctions over billions of years fuelled by the Sun’s radioactive energy; a cycle of Earth system change that shapes and reshapes the planet that we, and all life, inhabit, a consequence of the vagaries of those geological processes.

Scotland’s archive of that history is unparalleled. The country who produced the scholars whose collective intellects built the foundations of the science that enables us to interrogate and understand our planet is, perhaps unsurprisingly, also the country that packs the most geology hectare-by-hectare of anywhere. Today we will experience that history as a series of geological vignettes, each preserved in a rock that comes from Scotland.

A rock is Earth’s record of her life, written in a language decipherable by the geologist. *MusicPlanet* translates that language into sound, and will place that sound in the 3 billion years of Earth history that Scotland retains. We humans are but the very last (in time and space) sentence of this ongoing story but in an incredibly short time we have come to dominate Earth, profoundly, disproportionately and unwittingly veering that story onto a path with unknown but no doubt lasting impact.

Sit back, enjoy and contemplate the Sermons and the Songs of the Scottish Stones.

**3000 million years ago: Lewisian gneiss**

The ‘basement’---and, like the foundations upon which buildings are built, these rocks are the deep roots of some of Earth’s most ancient mountains. For 3 billion years they have been twisted and deformed yet remain the cornerstone of continents and a lasting testament to the antiquity of plate tectonic processes.

**2000 million years ago: Loch Maree Banded Iron Formation**

The greatest environmental crises ever, the poisoning of Earth known as the Great Oxidation Event is preserved in the alternating red and grey rocks known as Banded Iron Formations. The origin of that profound and complex process of photosynthesis liberated free oxygen, in effect, a never-ending stream of pollution that placed Earth on an irreversible trajectory that transformed her from an anoxic to an oxic planet.

**1000 million years ago: the Torridonian Sandstone**

Mighty Quinag, iconic Suilven, jagged Stac Pollaidh, all owe their origin to the ancient rivers that flowed across Scotland and carried detritus to a faraway sea. The supercontinent of Rodinia was forming and broad rivers flowed off the rising highlands forming plateaus and plains, one of which would become Scotland. Simultaneously, the evolutionary transition from sea to land had begun with simple algae colonising the edges of land surfaces.

**700 million years ago: Port Askaig Tillite**

Earth was plunged into the greatest, most extreme ice age ever, Snowball Earth …life clung to existence in ephemeral puddles and beneath cracks in the ice and along deep-sea vents---tens of millions of years of ice, with oceans frozen from the poles to the equator and howling winds.

**540 million years ago: the Piperock and the Durness Limestone**

Scotland is now in the tropics, Snowball Earth has melted long ago, the oceans swarm with animals, and the seas transgress across all land surfaces as beaches give way to bays and then shallow marine platforms, in effect, a Scottish Bahamas.

**460 million years ago: Caledonian granite**

For 4 billion years, Scotland and England remained geologically sovereign. Then, as the ancient oceans closed and continents collided, a geological act of union occurred, forming the Caledonian Mountains from North America through northern Europe and at their heart was granite, the same granite that defines much of Scotland’s present-day mountainous backbone.

**400 million years ago: Devonian Old Red Sandstone and Flags**

The cycle of rejuvenation, the cycle of decay, mountains form and mountains fade away…such was the fate of the Caledonian Mountains, eroded to their granitic roots and mantled by an apron of sand and mud that was to become the red building stones and grey paving stones of many Scottish towns and cities.

**300 million years ago: Carboniferous sandstones and coals**

The muscle of the Industrial Revolution was fed on a gluttony of coal that formed in the lush swamps and thick forests dissected by wide rivers that flowed through a tropical Scotland. Reptiles had taken their first steps onto the ladder of evolution, insects were the size of birds and the ancestors of mammals were forming their budding branch on the tree of life. The continental collisions that would lead to the formation of the supercontinent Pangea were reaching their crescendo.

**50 million years ago: dolerite from Rhum**

Pangaea was fragmenting into the continents that form today’s present-day plate tectonic snapshot. Some of the final tearing apart creates huge volcanoes and rupture Europe from America, forming the North Atlantic ocean and, for us, orphaning Scotland from the land mass that had been her home for 3 billion years. (a form of music that suggest separation and a drifting apart from one another)

**3 million years ago: quartzite from Ethiopia**

The earliest evidence for stone tools comes from marks on animal bones in the Lower Awash Valley Ethiopia at around 3.4million years ago. Hard, dense material lying around river courses was worked (chipped) into rough cutting shapes.

**800 thousand years ago: flint from Aberdeenshire**

The last 30 million years are marked by a change in global climate that resulted in permanent ice caps at the poles and cycles of cooling causing glaciers to extend over northern land masses. The vast ice sheets and glaciers moved rock hundreds of kilometres from their origin scattering them widely when the climate warmed again.

**12 thousand years ago: flint from the North Sea**

As the climate warmed following last glacial maximum (at 27 thousand years ago) hunter-gatherers moved across a dried out North Sea and walked into Scotland.

**6 thousand years ago: flint from Fife**

Increased population across “island” Britain, a change to farming and the building of permanent residences necessitated the invention of new tools for taming the wilderness. With an exponential pace of change the influence humans have on the Earth ensures that the lands will never be the same again. The Earth begins to run out of control and descend once more to the chaos of the beginning of time.

**14.15 Improvisation: Stones Sound Conversation**

**Alastair Macdonald and Alexander Waber.**

**Lewisian gneiss**

**Loch Maree Banded Iron Formation**

**Torridonian Sandstone**

**Port Askaig Tillite**

**Piperock**

**Durness Limestone**

**Caledonian granite**

**Devonian Old Red Sandstone**

**Carboniferous sandstone**

**Rhum dolerite**

**Ethiopia quartzite**

**Aberdeenshire Flint**

**Fife Flint**

**14.40 Marimba**

**Alexander Waber and Jessica Raas.**

**14.45 ”No Go” Percussion piece.**

**Alex Waber.**

**14.45 Tea Coffee and depart.**

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19.00- 21.00: **The Silo**

The Cupar Silo was built in 1964 as a bulk sugar store for the adjoining sugar beet factory, its short life ended in 1971 when the whole factory was closed and was then used for grain storage until the late 1990’s when no longer viable. Having remained empty for a number of years, in 2008 the 197ft silo began a new life as an experimental arts venue. Since then it has hosted several arts events including installation, film, performance, dance and experimental sound work. The Silo is now managed by a charitable organisation, Silo projects.

Participants need :

1. To complete the Consent Form

2. To dress for cold, darkish, and dusty conditions

3. To bring a torch

4. To bring a sound to play if you wish

The Silo is an experimental sound space for us. We will gather in the base area for wine and some food. We will at some point ascend to the Silo. We urge participants to keep silent during this and especially when actually in the Silo space. There will be Stewards to assist you in climbing the metal stairs, about 15 rungs to the space. When inside please move anticlockwise to the right and stay close to the wall and proceed as far as you can, make space between you and your neighbours. Please then extinguish your torch. We will then play 4 pieces each by a soloist using the sonic qualities of the Silo acoustic. Sound in the Silo is amplified and mobile, The resonance can be as long as 13 seconds so it is essential to listen long for the sounds to both develop, to hang in the air and to fade. We may end the set with the Stockhausen piece Right Durations, see the notes below. At that point we will invite participants to come into the performance space and perhaps with others sound their instrument/sound. We will not spend more that 30 minutes or so in the Silo space.

**Performance and Participation: Interpretive Music Karlheinz Stockhausen: Aus den seiben Tagen**

During a period of personal domestic upheaval, Stockhausen found himself alone and depressed, but was still inspired (triggered in part by Satprem's book, *"Sri Aurobindo, or the Adventure of Consciousness"*) to create 15 compositions which consisted mainly of verbal instructions or spoken text.  No notes or rhythms are given, and the performers are expected to channel music from a higher sphere (possibly the "supra-consciousness") based on the text instructions.  This kind of "free composition" was a kind of natural next step from his previous works.  The use of aleatoric or freely-distributed rhythm and structure was something Stockhausen had used as far back as in [ZYKLUS](http://stockhausenspace.blogspot.com/2014/09/opus-9-zyklus.html) and [MIXTUR](http://stockhausenspace.blogspot.com/2014/09/opus-16-mixtur.html), and the idea of using words as descriptive imagery was used in [MIKROPHONIE I](http://stockhausenspace.blogspot.com/2014/05/opus-15-mikrophonie-i.html).  During the evolution of his 1960's electroacoustic touring group (with Aloys Kontarsky, Harald Bojé, Johannes Fritsch, Alfred Alings and Rolf Gehlhaar), Stockhausen had also been increasingly using "plus-minus" notation to govern live interaction between performers ([PROZESSION](http://stockhausenspace.blogspot.com/2014/10/opus-23-prozession.html), [KURZWELLEN](http://stockhausenspace.blogspot.com/2014/10/opus-25-kurzwellen.html)).

     The "intuitive music" concept removed the aleatory, external contributions of shortwave radio signals and exchanged them for poetically-tinged, self-directed, self-generated impulses.  Most of the text instructions begin with some simple instructions (*"play a vibration..."*) and then are refined with nature-based images for use in interaction with the other performers.  Many times they end with a kind of meditative or poetic image (*"sound turns to gold"*), which Stockhausen actually intends to be taken literally (for example, through intense concentration and squinting of the eyes, certain colors can be generated in the mind's eye). Despite some of the abstract or poetic imagery, Stockhausen is clear to state (from the Darmstadt New Music Summer Courses in 1968), *"I do not want a spiritualist seance - I want MUSIC!",*andalso: *"...not indeterminacy, but intuitive determinacy!"* (as reported in *“Musik für ein Haus”*, Fred Ritzel).
     From a purely compositional standpoint, the text instructions have certain connections with the previous "plus-minus" works, in that they often ask for cooperative imitation or gradual transformation of one sound structure into another.  However, since there is no notated score, the actual time of occurence and frequency of these actions/interactions is left up to the performers, which makes the performances more organic in some ways.  On the other hand, the sudden cooperative (synchronous) moments which occur in the scored pieces are here left up to how well "tuned" the performers are with each other.  For this reason I would assume that these works would require a long period of performers "getting to know each other" through playing the previous "plus-minus" works, but oddly enough, for the premiere recordings, Stockhausen chooses to mix members of 2 previously established groups, one of which (the "Paris group") had never previously recorded the "plus-minus" works.  It's possible that this was for practical reasons, since reportedly (in Michael Kurtz' Stockhausen biography) the regular Stockhausen Group members were at first skeptical of these text-based pieces (though apparently Stockhausen's pedagogical skill was eventually able to "convert them into believers").  Also, the introduction of these "outsiders" simply helps differentiate these recordings from PROZESSION, KURTZWELLEN, etc...

Versus Free Improvisation
     One of the main tenets of "intuitive music" is to avoid all recognizably idiomatic music - that is, music derived from pre-existing styles, even global folk music idioms (with the possible exception of ANKUNFT, which has *"play...even written music of any sort"* as part of its text score).  Intuitive music (assuming it is entirely based on Stockhausen's 2 sets of intuitive texts) also generally avoids obvious melodies and instead concentrates on "vibrations", which on the 1969 recordings seem to result in dynamically rising/falling drone textures, periodic rhythms, and evenly-distributed statistical forms ("points").  Melodies are not prohibited, but it's very rare that an ensemble motif has more than 2 or 3 notes.

     Some of these performances have commonalities with "free improvisation", a genre/style which developed more or less from the free jazz scene of the 1960's.  Free improvisation however, typically has no instructions or text at all, and does not specifically prohibit exploration of pre-existing musical styles (though it generally does its best to avoid sounding like anything "traditional").  Melodic material and "solos" are far more prevalent in free improvisation than in Stockhausen's intuitive music recordings.  The main thing that intuitive music and free improvisation do have in common is real-time cooperative composition using non-traditional musical textures.  Also on a larger structural level, performances tend to have structural patterns such as beginning softly, building to 1 or more climaxes, and then concluding with a coda-like quiet section, etc...

  As with the other works recorded by the 1960's Stockhausen ensemble, the unique choice of instrumentation greatly influenced the outcome of these compositions (which is true of course, for most pieces of music, but here it's an especially important element).  The Stockhausen Complete Edition CD box includes 15 performances of 12 of the 15 text pieces.  The first 14 were recorded in Darmstadt during the last 5 days of August 1969 by a pool of players made up of the Cologne-based "classic" Stockhausen Group combined with Vinko Globokar's "Free Music Group", a Paris-based, somewhat jazz-inflected, improv group including Michel Portal, Jean-François Jenny-Clark, Jean-Pierre Drouet, and Carlos R. Alsina.  A good introduction to the classic Stockhausen Group can be found on the [PROZESSION](http://stockhausenspace.blogspot.com/2014/10/opus-23-prozession.html) page, which includes pictures of the electronium and the amplified tam-tam (amplified giant metal disc).

     Aside from the compositions themselves, this pooling of musicians from classical and jazz (and Indian percussion) backgrounds makes for an interesting combination, with Stockhausen himself making very important aural (and physical) contributions as a kind of absurd, mischievous instigator.

     It's fairly obvious that here the personalities of the players themselves contribute more to the substance of this work than, say, in a typically-notated instrumental work.  It might be worth quoting some of Stockhausen's own remarks on each of the original Kürten players (from a 1969 sketchbook, and transcribed by Richard Toop in *"Stockhausen's Secret Theatre - Unfinished Projects..."*):

| Rolf Gehlhaar | *: "broadest spaces, surfaces, sustained bases, long durations"* |
| --- | --- |
| Alfred Alings | *: "best translator"* |
| Johannes Fritsch | *: "best transformer and dreamer"* |
| Harald Boje | *: "best dynamic force, irritant, stirrer"* |
| Aloys Kontarsky | *: "motor, battery, energy outlet, and "brain" (coordination, construction, technique)"* |

     On a group level, he notes:
*"Ever more apparent: each sound takes the others in another direction, diverts, converts.*
*One danger: too often, doing something that engages one or more of the others, and distracts them from what they are doing.****Too Much****is the temptation: we must learn to listen more to one another; if one person is doing something beautiful, or on the way to finding it, don't disturb him, but keep quiet, or join in so imperceptibly that the other person doesn't notice, or else feels supported, animated."*

     The sound mixer (and spatial projectionist) acts as...
     *"...a listener who amplifies hidden vibrations. He must be more than a music-maker, a connoisseur.  He must be a seismograph registering those vibrations which, once they have set a soul vibrating, give it courage, and move it to fly to heaven."*

     Below, Rolf Gehlhaar shares his own impressions on the chemistry of this "classic" group:

*Important also were the personalities of the players; here too there was a good balance.*

*Aloys Kontarsky (Piano) - ebullient, confident, authoritative, forceful, and humorous - possessed the almost unbelievable skill to sum up even the most complex timbre in a 4-7 note chord. He always seemed in control of his own situation, constructing and deconstructing along intelligible lines with clear independent goals, and yet almost always willing to participate in a 'joint venture'. His playing was as elegant as his speech and often as jocular as one of his favourite expressions, "Gesund muss es sein und flott muss es gehen! (It's got to be wholesome and take off.)"*

*Harald Bojé (Electronium), on the other hand, - reserved, quiet, quick-witted, flexible, chimerical, sinuous, and quietly enthusiastic - was a steadfast individualist who did not easily submit to synchronous ensemble antics. Although he often precipitated intense implosions, he usually bailed out just before things got too hot, ending up grumbling somewhere in the depths or screeching balefully in the stratosphere. He represented the entropic force that every ensemble needs.*

*Alfred Alings (Tam-tam) - solid, persistent, reliable, unsophisticated, patient, supportive - generally set the moderate, but often majestic pace which made room for everyone else. Establishing simple and predictable broad guidelines were his strengths.*

*Johannes Fritsch (Viola), truly a virtuoso on the amplified viola - humorous, versatile, adaptable, resourceful, even-tempered, and seemingly indifferent - had a vast range of timbres which allowed him to blend easily with the more 'abstract' sounds of the tam-tam and the Elektronium. On the other hand, he would often employ straight, classical string playing in order to absorb the piano sounds and take them to meet their more distant cousins.*

*And then, of course, there was myself (Tam-tam) - stubborn, insistent, experimental, renegade, purposeful, ambitious, - tending to search out unoccupied temporal and timbral domains, to pull others in my direction, to structure time independent of duration, representing the anti-entropic force that every ensemble also needs.*

*from*[*Leap of Faith: Personal Biography of PROZESSION*](http://www.gehlhaar.org/x/doc/kstart.doc)

      The last piece on the CD set, GOLDSTAUB, was performed and recorded 3 years later at Stockhausen's home in Kürten by Stockhausen and a third group of collaborators (Péter Eötvös, Herbert Henck, and Michael Vetter). All of these players would in the future go on to record (or conduct) many other important Stockhausen works as well.

Here are some examples of Stockhausen’s texts:

RICHTIGE DAUERN
("Right Durations")

*play a sound*
*play it for so long*
*until you feel*
*that you should stop*
 *again play a sound*
*play it for so long*
*until you feel*
*that you should stop*

*and so on*
 *stop*
*when you feel*
*that you should stop*
 *but whether you play or stop*
*keep listening to the others*
 *At best play*
*when people are listening*
 *do not rehearse*

*into the rhythm of the universe*
*======*

**HARK/Music Planet SOUNDINGS Group:**

**Alex Wäber** was born in 1979 in Basel (Switzerland).He completed his studies at the University of Music in Basel in 2003. This was followed by two post-graduates at the Music Academy in Lucerne. Since 2001 he is solo timpanist in the chamber orchestra basel, and solo timpanist in the Gstaad Festival Orchestra. In addition, he has been a permanent member of the Sinfonieorchester Basel for around 20 years and a teacher at the Basel Music Academy. He played as a drummer and timpanist in the most important concert halls throughout Europe, Asia and South and Central America.

**Tony Prave** is a geologist who specialises in studying pivotal periods in Earth history. His work has taken him from the Artic north of Russia to the deserts of southern Africa and the American southwest and he is considered to be one of the leading field geologists of his generation. Tony’s expertise lies in reconstructing ancient environmental settings and his work has ranged from how Earth became an oxygenated planet more than 2 billion years ago, to documenting the conditions that drove severe climate change in Deep Time, to assessing the impact of supervolcanoes on Earth system functioning.  Tony has been at the University of St Andrews for 22 years and currently is Professor and Head of the School of Earth and Environmental Sciences. Prior to that he was, for 10 years, an Associate Professor at the City University of New York.

**Alistair MacDonald** is a composer, performer and sound artist. His work draws on a wide range of influences reflecting a keen interest in improvisation, transformation of sound, and space. Many of his works are made in collaboration with other artists from a range of media. It explores a range of contexts beyond the concert hall, often using interactive technology.Current and recent projects include music for the 1922 film Nosferatu; a collaboration with Belgian dance company Reckless Sleepers; Strange Rainbow, a live electroacoustic improvising duo with Scottish harp player Catriona McKay, and The Last Post with trumpet player Tom Poulson and director Susan Worsfold commissioned by the St Magnus Festival and performed at the 2017 Edinburgh Fringe. He has also been working with Carrie Fertig, on pieces for glass percussion, electronics and live flame-working. Le Sirenuse (with percussionist Stu Brown and film maker Rob Page) was selected for the Royal Scottish Academy Open Exhibition 2015.Other recent works include The Imagining of Things with Brass Art (video and audio installation) for Huddersfield Art Gallery, and Mitaki (string quintet and live electronics) for the Scottish Ensemble.

**Bede Williams** is a New Zealand-born trumpeter and conductor. Bede  trained as an ABRSM International Scholar at the Royal Conservatoire of Scotland and at numerous international conducting masterclasses. He has toured and recorded widely as a soloist, chamber musician and conductor, and in recent years become established as an artistic researcher and festival director. He is currently Head of Instrumental Studies at the University of St Andrews where he teaches a wide range of courses, coaches chamber music and conducts the St Andrews Chamber Orchestra and New Music Ensemble. His PhD from the University of St Andrews investigated interpretation and conducting from an autoethnographical perspective: he has presented research at numerous international conferences and published in academic journals and the popular press.  For more information see [www.bedewilliams.com](http://www.bedewilliams.com/)

**Huw Lloyd-Richards**. Huw was a Choral Scholar at Llandaff Cathedral School, read Theology at Oxford University and Social Sciences at Glasgow. He has developed a wide range of research interests using qualitative and ethnographic methods. He undertook Masters research on friendship patterns amongst mental health service users and self-managed groups. As HM Commissioner for Mental Health Social Services at the Scottish Office he developed participative methodologies and software applications for qualitative action-research into complex systems (Enquire) and published papers in that field. He was an adviser to WHO on Human Rights and Mental Health, and a founder remember of the Centre for Rights and Ethics in Psychiatry (Paris) he used Biographic Narrative in projects in Japan, and worked with groups in Chennai and Moscow. He was for ten years a Fellow in the Kings Fund, London, where he was Director of the Senior Manager Program and other group-work programs which embodied learning approaches derived from the Group Relations Tavistock Centre tradition.

His doctoral thesis at the University of St Andrews was in Social Anthropology, entitled: ‘"The Place the Words Come from……" an Ethnographic study of Worship Practices of  British Quakers’, which included chapters on silence, listening and the body in worship practices. He is member of the Music Centre, and sings in the University Renaissance Singers. The HARK project brings together Huw’s interests in listening in various domains: nature, music, contemplation, learning and his expertise in participative qualitative research methods. He is the author of the paper “Ways of Listening” which stimulated the development of this project, which can be read on this website: HARK.org.uk.

**Richard Bates** is an applied geophysicist who began his career in the US contracting to the applied geoscience industry. Since returning to the UK and joining the University of St Andrews his focus has been on applying geoscientific techniques to a range of applied research areas in particular with relevance to climate change studies and the reconstruction of past environments and landscapes. Recent European-based archaeological research has focused on the use of sediment DNA across Doggerland and the ancient people of Britain at field sites from the southern coast to the far northern isles. Recent discoveries using geophysical techniques including electromagnetics, magnetics and electrical resistivity have included the 800,000yr old footprints at Happisburgh, Norfolk, the oldest time reckoner at Crathes in Scotland, and new pit alignments at Durrington Walls, near Stonehenge. International projects include Medieval trade route reconstructions along the African and Arabian shores and investigations of the Gorgan wall in northern Iran both onland and into the Caspian Sea. Dr Bates has pioneered the integrated use of geophysical methods in archaeology in particular in shallow lake and near shore locations. He has written geophysical guidance for conservation organisations such as English Heritage and managed large scale projects with multi-disciplinary teams globally.

His work has been published in journal articles and the popular press with a number of television documentaries following recent studies, for example the submerged Mesolithic and early Neolithic landscapes of Orkney (BBC Operation Orkney). In 2016, Dr Bates initiated a global crowd-source project to help digitally preserve heritage threatened by conflict, climate change and neglect. This was prompted by conflict in the Middle East but has world-wide impact **(**[**http://www.visualisingheritage.org/CT.php**](http://www.visualisingheritage.org/CT.php)**).**

**Jessica Raas**

Jessica Raas was born in 1992 in Basel (Switzerland). She studied music and movement at the conservatory in Basel and Biel. Her instrument during her studies was the marimba. After graduating, she now works at a school with children aged 6-8 years in the field of music and movement.

**Steve Foreman**

Composer, Percussionist. Royal Conservatoire of Scotland

Steve’s professional history began in 1968 with the Phoenix Symphony while a student at Arizona State University, but broader musical interests soon lured him to Los Angeles. Over more than three decades Forman made a significant imprint in American recording and film music, working directly with many established artists, directors and film composers; his discography includes hundreds of pop record projects, underscoring sessions for motion pictures, television shows, commercials, interactive titles, and theatrical events.

            In 2003 Forman began a career transition from the recording studios in Los Angeles to focus on composition at the California Institute of the Arts, earning a BFA and an MFA in composition.  In 2007 he joined the research department at the Royal Conservatoire of Scotland, completing a PhD in composition in 2012.  His research lead to the Theory and Practice Pulse-Relational Rhythm, a holistic approach to rhythm systems, structures and psychophysical effects of rhythm in real-time performance.

**Roberto Kuhn Versluys**

Roberto Hernan Kuhn Versluys is a recent graduate of the Master of Performance at the Royal Conservatoire of Scotland, studying under the tutelage of Matthew McAllister. Previously he had completed a bachelor in both classical guitar and composition at the Pontifical Catholic University of Chile.

His work as a soloist and as a chamber musician has brought him to different parts of the world including Mexico, Peru, Bolivia, Colombia, Spain, Germany, England and Scotland. Lately he has been invited as a guest professor in the Classical Guitar Retreat, an international guitar workshop in the east of Scotland, work that has led him to work closely with Rene Izquierdo, Elina Chekan and Matthew McAllister. For the tenth anniversary of the retreat the renewed guitarist David Russell gave a concert and a series of talks about the classical guitar. Roberto has recently started working as coordinator and co-director of the National Youth Guitar Ensemble of Scotland (NYGEScotland).

The year 2013 Roberto Kuhn was given the Outstanding performer award by the Pontifical Catholic University of Chile, covering all tuition fees. The year 2015 he was awarded a scholarship by the Royal Conservatoire of Scotland to do his masters program, and that same year he was awarded another scholarship by the Ibanez-Atkinson foundation to cover accommodation and living costs in Glasgow.

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