Musical Thought, Scientific Fantasies, Global Contexts

CIRCULATIONS
1900-1950

24-25 JUNE 2019, KING’S COLLEGE LONDON
About

From the first human flight in 1903, to the aftermath of the 1945 atomic bombings of Hiroshima and Nagasaki, science and technology in the first half of the twentieth century veered between the utopian and the malevolent. Conceived as idea, as material, and as praxis, science and technology prompt questions about mediation, ethics, marginalisation, space, and power. The time is ripe to interrogate the place of sound and music within the social worlds, political structures, and discourses of the early twentieth century, a period shaped by global uncertainty, military conflict, human displacement, and the legacies of scientised colonialism. This conference, the second meeting of the Sonic Circulations research network, explores the intersections of scientific, technological, and musical discourses in the global contexts of the first half of the twentieth century. Responding to intensifying scholarly preoccupation with science, technology, and music in the Enlightenment and nineteenth century, this conference seeks to cast our attention forward in time.

The Sonic Circulations research network originally stems from a European Commission grant partnering Harvard University with Royal Holloway, University of London, and aims to strengthen international connections fostering scholarship at the interface between music, science, technology, and culture. Beyond a historical focus on the period 1900-50, the research network is also preoccupied with broader disciplinary and methodological questions about how, why, and when musicology engages scientific and technological discourses. It seeks to foreground social dynamics and to spotlight how power and historical erasure are playing out at this disciplinary intersection. It considers what music studies in turn can offer to other fields. The network aims to stimulate interdisciplinary discussion around these questions between scholars at different career stages, and to this end, in November 2018 the first Sonic Circulations event was held at Harvard University Music Department, a Study Day titled ‘Musical Thought and the Scientific Imagination’. The Sonic Circulations website also hosts a thriving research blog for emerging scholars to explore ethical and methodological questions prompted by their work (soniccirculations.com/research-blog/).

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 705104. Additional support for this conference has been provided by the Music & Letters Trust, the Institute of Musical Research, Royal Holloway, University of London, and King’s College, London.
We are especially grateful to Martin Stokes and Arman Schwartz at King’s College, London for their enormous generosity in providing us with a new venue, and with additional institutional support; this allowed us to move the conference out of Senate House in recognition of ongoing, UCU-endorsed industrial action taking place there.

A map of the area, local transport information, and directions to conference rooms can be found at the back of this booklet. We will be updating the Sonic Circulations twitter feed (@SonCircNetwork) throughout the event, and you are warmly encouraged to join us in the virtual world using the hashtag #SonicCirculations.

**Conference Convenor**
Emily MacGregor (Royal Holloway, University of London)

**Programme Committee**
Emily I. Dolan (Harvard University), Arman Schwartz (King’s College, London), Emily MacGregor.

**Local Organising Committee**
Emily MacGregor, Hayley Fenn (Harvard University), Frankie Perry (Royal Holloway, University of London).

**Conference Assistants**
William Drummond (University of Oxford), Kit Kimbell (Royal Holloway).

Images used throughout this booklet refer to London Underground designs from the first half of the twentieth century.
CONFERECE PROGRAMME
All presentations will take place in room SWB21, and registration and refreshments will be in SWB20.

Monday 24 June

9:45-10:15 REGISTRATION (with tea/coffee)

10:15-10.30 INTRODUCTIONS

10:30-11.30 SESSION 1: The Politics of Song
Chair: Laura Tunbridge (University of Oxford)

La Voz de mi Madre en la Mía: Recording Moroccan Women’s Sephardi Repertoire in the Interwar Period
Vanessa Paloma Duncan-Elbaz (University of Cambridge)

Topicality and Reportage in the Discourse of Radio Music Theater in Weimar Republic Germany
John Gabriel (Hong Kong University)

11:30-12.00 TEA/COFFEE

12:00-13:00 SESSION 2: Genealogies and Reproduction
Chair: Flora Willson (King’s College, London)

Comparative Philology and the Emergence of Musicology: Interdisciplinary Frictions in Fin-de-Siècle France
Peter Asimov (University of Cambridge)

The Mismeasure of Music: Eugenics, Marketing, and the Science of Musical Ability
Alexander Cowan (Harvard University)
13:00-14:15  LUNCH (provided)

14:15-15:45  SESSION 3: Space/Place
Chair: Peter McMurray (University of Cambridge)

From Delhi to Hastings in the 1920s: Controversy and Experiment in Architectural Acoustics
Fiona Smyth (Trinity College, Dublin)

Music on Demand and the Strait of Malacca
Gavin Williams (King’s College, London)

Music, Mining, and the Desolated Figure of African Modernity
William Fourie (Royal Holloway, University of London / Africa Open Institute)

15:45-16:15  TEA/COFFEE

16:15-17:15  KEYNOTE 1
Chair: Heather Wiebe (King’s College, London)

Sound and Music in Three Dimensions: Bell Telephone Laboratories and the Spectacular Demonstration of Stereophony
Gascia Ouzounian (University of Oxford)

17:15-18:30  DRINKS RECEPTION

19:00  DINNER (Pig & Goose, 213 The Strand, WC2R 1AP)
Tuesday 25 June

9:30-11:00  SESSION 4: Subjectivity and Mind
Chair: Laura Protano-Biggs (Peabody Institute, John Hopkins University)

Nature, Culture, Affect: Music and the Unconscious in Early Twentieth-Century France
Alexandra Kieffer (Rice University)

Relaxing the Musical Spirit: Ginette Martenot and Scientific Pacifism
Patrick Valiquet (University of Edinburgh)

The Bureaucratic Modern
Joseph Pfender (New York University)

11:00-11:30  TEA/COFFEE

11:30-13:00  SESSION 5: War
Chair: Kate Guthrie (University of Bristol)

Violent Sound: Opera as Trauma in 1919 Manhattan
Melanie Gudesblatt (University of California, Berkeley)

Morale as Sonic Force: Listen to Britain and Total War
Heather Wiebe (King’s College, London)

Headphone Technologies and Psychological Warfare at the Advent of the Cold War: from Militarisation to Weaponisation
Jacob Downs (University of Sheffield)

13:00-14:15  LUNCH (provided)
14:15-15:45  SESSION 6: Musical Circuits  
Chair: Deirdre Loughridge (Northeastern University)

Prometheus Charged: Electricity, Saint-Saëns, Scriabin, and the Classical (Greco-Roman) Tradition  
Jon Solomon (University of Illinois at Urbana-Champaign)

Soviet Sounds, Modern Times?: The Iron Foundry and the ISCM (1930)  
Giles Masters (King’s College, London)

Music in the Cybernetics Moment: Two Case Studies from the San Francisco Tape Music Center  
Ted Gordon (Columbia University)

15:45-16:15  TEA/COFFEE

16:15-17:15  KEYNOTE 2  
Chair: Arman Schwartz (King’s College, London)

Bioethical Tech: Albert Schweitzer’s Climate-Proof Piano and the Colonial Trade in Life  
James Q. Davies (University of California, Berkeley)

17:15-18:00  CONFERENCE RESPONSES:  
Chair: Emily MacGregor (Royal Holloway, University of London)

Gundula Kreuzer (Yale University)

John Tresch (The Warburg Institute, London)
Keynote abstracts

Sound and Music in Three Dimensions: Bell Telephone Laboratories and the Spectacular Demonstration of Stereophony
Gascia Ouzounian (University of Oxford)

During the First World War, new forms of technological warfare inspired new methods of acoustic defense: tracking the enemy by listening to it. Acoustic location technologies like the geophone, the double-trumpet sound locator, the Baillaud paraboloid and the Perren telesitemeter inspired new modes of “spatial hearing,” and gave birth to a new class of listener: the military auditor. Wartime research in acoustic defense would have far-reaching consequences. In particular it would resonate in post-war industrial research on stereo sound. In the United States, some of the same scientists involved in military acoustics research would invent some of the first systems for binaural and stereo transmission, recording, and reproduction after the war. They included Harvey Fletcher, head of Acoustical Research at Bell Telephone Laboratories. Fletcher first experimented in acoustics in the context of submarine detection during the war, and subsequently developed new techniques and technologies for binaural and stereo transmission and reproduction. These innovations, some of which entailed collaboration with the renowned conductor Leopold Stokowski, were publicized through a series of demonstrations in the United States in 1933-1940. Conceived much in the vein of nineteenth-century spectacular science, these demonstrations of stereophony were given to audiences that ranged from several thousand to over five hundred thousand, audiences whose reactions ranged from delight to terror. Drawing on press reports, scientific literature, and company documents held today at the AT&T Archives and History Center, this talk considers the confluence of scientific, technological, and musical concerns in the early development of stereo at BTL, and explores a project that would influence Western art music traditions both in suggesting novel performance and recording practices, and in staging new alliances between music and science.

Gascia Ouzounian is Associate Professor of Music at the University of Oxford. She co-directs Recomposing the City, which brings together composers, sound artists, architects, and urban designers in investigating creative approaches to sound in urban environments. She is artistic director of Optophono, a label that publishes interactive music and sound art. Her book Stereophonica: Sound and Space after 1850 is forthcoming from The MIT Press.
Bioethical Tech: Albert Schweitzer’s Climate-Proof Piano and the Colonial Trade in Life
James Q. Davies (University of California, Berkeley)

This paper focuses on a single piece of biotechnology: the zinc-lined pedal piano presented to the greatest humanitarian of them all: Bach scholar, Nobel Peace Prize Laureate, theologian, and jungle doctor Albert Schweitzer. The instrument was gifted to Schweitzer by the Paris Bach Society in 1913. He received the gift, in order that he could continue musical studies, on the eve of his departure for the Paris Missionary Society’s mission at Lambarené on the Ogooué river, in Afrique équatoriale française (later the Gabon). This Gaveau piano, built to resist the equatorial rainforest, is now housed at the Musée Albert-Schweitzer in Gunsbach, Alsace.

Schweitzer’s migrant instrument in view, my paper surveys cultural ideas about air, sound, and environment. Reading along the grain of archival sources, as well as colonial and missionary reports, I follow this instrument from its factory assembly near Paris, where materials were sourced from the former slave reservoir of the AEF itself and historic site for the extraction of circum-Atlantic wealth, including ivory, ebony, padouk, and other musical woods. I then trace the piano’s journey to Kângwe Hill by pirogue, when it was reportedly borne along by the “ravishing” song of the paddlers. Finally, I describe its installation at Ntsé yi Nkomb’Ademba, the stronghold of the “Sun King,” where Schweitzer built his final medical hospital and entrenched his indigenous reputation as a fetishman with power over life. The impression on the ground, according to oral testimony, was that Schweitzer was usurping or cannibalizing this territory by his late-night performances of the sacred music of J.S. Bach.

My intention, in this paper, is to assess the powers attributed to sonic circulation. It is to sketch the lineaments of Schweitzer’s humanitarian project – at once biomedical, raciological, religious, and musical – to harness the vitality of climate to fortify and entrench the global powers of life.

James Q. Davies is Associate Professor of Music at UC Berkeley, and holder of the Henry and Julia Weisman Schutt Chair in Music. He is author of Romantic Anatomies of Performance (2014), co-editor with Ellen Lockhart of Sound Knowledge: Music and Science in London, 1789-1851 (2016), and co-editor with Nicholas Mathew of a book series entitled New Material Histories of Music, also with University of Chicago Press. His forthcoming monograph, Creatures of the Air, 1817-1913, is a history of nineteenth-century music in circum-Atlantic worlds told in relation to the medium of the air.
La Voz de mi Madre en la Mía: recording Moroccan women’s Sephardi repertoire in the interwar period
Vanessa Paloma Duncan-Elbaz (University of Cambridge)

In the 1930s two sets of two Sephardi women from Northern Morocco were recorded singing traditional repertoire by European academics based in New York and Madrid. These interwar recordings are to date, the first identified recorded sounds of Moroccan Sephardi women. The women from Tangier (Zarita Nahón and Simi Toledano) were recorded in New York by Frank Boas. The two from Tetuan (Yochebed Sananes and Estrella Chocrón), were recorded in Madrid by Tomás Navarro Tomás. Both of these scholars had active careers in collecting traditional music from around the world and helped shape contemporary understanding of various bodies of repertoire. The Boas/Nahón collection is now housed at the Archive for Traditional Music at Indiana University, Bloomington, and the Tomás/Sananes/Chocrón collection is found in the National Library of Spain at the Archivo de la Palabra.

I propose a parallel study of these two extant recordings, unique in their decade, analyzing the material chosen for recording and the difference in their final length, as well as their eventual archival repository and use (or not) until today. My initial analysis indicates that these recordings allow more than a simple case study in the influence of Spanish and American technologies and intellectual power-brokering. This paper will address the power dynamics inherent in the anxiety to capture this material ascribing utopian narratives of convivencia through repertoires which had been exclusively transmitted through women’s orality. My paper proposes to address the historical erasure of traditional Jewish women’s voices in early recording’s scholarship and propose a bidirectional analysis of the dynamics between researcher and performer, man and women, European and Moroccan. It may be that the difference between the age and the cities of origin of the singers can nuance the final conclusions about the hierarchical dynamics between researcher and their object of sound research.
In 1929, radio stations in Weimar Republic Germany began a campaign to develop a new kind of radio-specific music theater that embraced both the technological specifications of the medium, such as which instruments were best suited to the microphones and speakers of the time, and radio’s sociological specifications, that is, who listened to the radio and how. Much previous scholarship on Weimar-era radio music theater has focused on these works’ medially: how they sought to fulfill these needs by self-referentially thematizing the technology and medium of radio and their own status as radio works. An experimental piece titled Hallo! Hier Welle Erdball! (Hello! Planet Earth Calling!), for example, was constructed as a kind of radio world tour in which the listener drops in and out of broadcasts from different nations.

In this paper, I argue that radio-specific music theater also drew on and scrambled existing discourses about modern music theater for the stage in Weimar Republic Germany, and that this extended beyond works that thematized their medially. Where modern music theater for the stage was much concerned with topicality – portraying modern life on stage but also structurally reflecting the experience of modernity in musical form and dramaturgy – topicality took on additional meanings in radio discourse. It also referred to the broadcast of live events. While commonplace today, the idea that radio might broadcast news or sporting events was initially controversial in Weimar Republic Germany and was only becoming standard around the same time as the new interest in radio-specific music theater. While imitation of live broadcasts quickly became a hallmark of works like Hallo! Hier Welle Erdball!, I examine how an aesthetics of reportage developed in the discourse of radio music theater more broadly. In a review of a domestic triangle crime drama titled Mord [Murder], for example, critic Fritz Stiemer praised composer and librettist Walter Gronostay’s efforts “to radically grasp the nature of the radio and to pursue all of its consequences,” and especially his “reportage” approach, which “translates simple, everyday events into acoustic form.”
Comparative philology and the emergence of musicology: interdisciplinary frictions in fin-de-siècle France
Peter Asimov (University of Cambridge)

This paper explores disciplinary interfaces between comparative philology and linguistics, musicology, and musical composition around the turn of the twentieth century. Emerging in the wake of William Jones’s observation of a linguistic relationship between Sanskrit and a vast range of European languages, the disciplines of comparative philology and linguistics were broadly premised upon the hypothesis of an ‘original’ Indo-European proto-language. For many linguists, the potential recovery of this *Ursprache* and its intendant culture remained a paramount intellectual motivation over the ensuing century, guiding the development of linguistic methods, and appropriating botany, biology, and not least, ‘racial science’ in an effort to trace origins. If philology more readily evokes libraries and conjugation tables than laboratories or implements, we should make no mistake: with its systematic methodologies, rhetorical technicity, and institutional support, comparative philology and linguistics bore the distinct trappings of a ‘science’.

For musicians in late nineteenth-century France, the science of language provided seemingly adaptable discourses and methods for what would become ‘musicology’. Musicologists sought to apply linguistic principles to music history, believing that music, scientifically studied, could contribute to the project of reconstructing Indo-European culture. Louis-Albert Bourgault-Ducoudray, in both his historical and creative output, sought to reanimate French music through the ‘restitution’ of Hellenic and ‘aryan’ modes and rhythms in his own compositional work. And at the first Congress of Music History (1900), Jules Combarieu set out to ‘link to philology an art [music] without which one cannot have a complete understanding of civilisation.’

Building on an increasing body of case studies (e.g., Bergeron, Campos, Christensen, Pasler), I explore interdisciplinary networks between musicians (from Fétis and Gevaert to Aubry and Emmanuel) and philologists/linguists (from Bopp to Meillet) that formed an intellectual core of early musicology. My argument is twofold: first, I demonstrate that dominant French musical trends in (and musicological discourses about) ‘modes’ and ‘modality’, pervasive well into the twentieth century, maintain ties to philological agendas upon which the musicological discipline was modeled; and second, given the authority comparative philology and linguistics represented for musicians, I urge historians of science and
musicologists alike to include these disciplines among a constellation of turn-of-the-century scientific practices.

The Mismeasure of Music: Eugenics, Marketing, and the Science of Musical Ability
Alexander W. Cowan (Harvard University)

In 1923 the psychologist of music Carl E. Seashore gave a speech to the International Congress of Eugenics in New York, in which he spoke enthusiastically of the musical possibilities afforded by the burgeoning sciences of race and heredity. To an audience of scientists and wealthy industrialists – the drivers of the American eugenics movement – Seashore proposed that the capacity for musical excellence was a heritable trait, and that as such it was “quite within the power of future generations to enhance the quality and degree of musical talent by conscious selection.” This call to action was heeded. With the support of the American Eugenics Society and its leading researcher, Charles Davenport, Seashore embarked on a decade-long experiment at the Eastman School of Music, seeking to test the validity of what would become his crowning achievement, a set of tests developed over the course of his career: The Seashore Measures of Musical Talent. The Measures, a battery of listening tests assessing one’s ability to discriminate between increasingly similar musical sounds, were deemed a triumph, and their dissemination became a eugenic priority.

This paper follows the Seashore Measures as they circulated within and without the academy, in schools, in labs, and in homes, after their publication on 6 discs by Columbia in 1919: from eugenic fieldwork in Jamaica to school band auditions in New York. Following recent studies highlighting the outsized role of advertising in the development of eugenics as a social movement, the paper focuses on how the measures were marketed, as part of their 1920s transformation from laboratory instrument to consumer product. As considerable revisions were made to the Measures to fit the machine’s demands, the phonograph itself also featured prominently in the measures’ marketing, mobilising discourses of acoustic fidelity, I argue, in the service of racial purity. In reintegrating these histories of music psychology, commercial recording, and eugenics, this paper aims first to expand on existing studies of music and scientific racism, moving toward a clearer history of racialized musical epistemologies; and second, to ask how such a history might help address contemporary questions surrounding the role of scientific research, and commerce, in music studies.
From Delhi to Hastings in the 1920s: Controversy and Experiment in Architectural Acoustics
Fiona Smyth (Trinity College Dublin)

In 1923, at the request of the Government of India, the Department of Scientific and Industrial Research (DSIR) in Britain authorised the instigation of a specialist research stream. Its purpose was to investigate problems in architectural acoustics specifically related to the new Assembly Chamber then under construction at Imperial Delhi. Ancillary to the set research agenda in building science, the research was considered to be a singular excursion, ‘a matter of practical emergency’. Architectural acoustics had not featured on the government research agenda before, and it was envisaged that experimental work would be concluded within a matter of months.

However, events surrounding the design and construction of the Chamber were to prove catalytic for subsequent scientific research in architectural acoustics in Britain. The building itself was regarded as a scientific experiment (from drawing board to construction), and, rather unusually, scientists as well as architects were involved in its design. In the process, architectural acoustics was re-categorised from ‘special intelligence’ to ‘fundamental’ investigation, becoming embedded into a national programme of government-funded research.

The work for Delhi marked the beginnings of formalised research in environmental science within the construction industry in Britain. Further to this, archive work has demonstrated that during a gap in the formal research programme, a series of unofficial (but quietly sanctioned) experiments was implemented at the same laboratory. The intent in this latter instance was to use numerical data from Delhi to quantify acoustic conditions for concert hall design. In the process, a network of scientists, architects and musicians was drawn together in a little-known collaboration that would have far-reaching consequences for the path of architectural acoustics in early twentieth-century Britain.

Taking the Assembly Chamber at Delhi as a pivot point, this paper explores the changing position of acoustics as a branch of environmental science in 1920s Britain. It demonstrates the manner in which a series of controversies surrounding the design and construction of the chamber acted as catalysts for the instigation of a new laboratory and stimulated a national programme of research. It identifies the interdisciplinary networks which resulted and assesses the formal and informal
research programmes which emerged directly from the Delhi commission, and the longer-term implications of that work for architectural acoustics in Britain. Note: Environmental science in this instance refers to architecture and the design of acoustic environments.

**Music on Demand and the Strait of Malacca**
Gavin Williams (King’s College London)

The material history of shellac discs has been recently excavated by scholars of musical media: Jacob Smith calls attention to the eco-friendly aspects of “green discs,” and their supposedly more sustainable relation to North Indian forests, while Kyle Devine explores the “political ecology” of shellac discs as lively participants in extractive capitalism and global cultures of waste. Yet, beyond the materials that comprise discs themselves (shellac, limestone, gum copal, lampblack, etc.), recorded sound markets were intimately linked to the expanding infrastructures of imperial capital, which comprised the material means by which recorded sounds circulated throughout the first half of the twentieth century.

In this paper, I explore patterns of disc diffusion across and amidst the Strait of Malacca: one of the busiest bottlenecks in the global shipping system. For the London-based Gramophone Company – arguably, the first modern “multinational” – cities of the Straits Settlement, notably Penang and Singapore, represented an important connection to music markets in Southeast Asia, as well as business opportunities in their own right. As I will show, the slow rise of the gramophone was closely linked to the changing fortunes of the international piano industry, along with department stores, catalogue shopping, and mail-order disc delivery in the Malay Archipelago – and, from the 1920s, increasingly intermeshed with radio and cinema. By outlining these transport and media networks, I hope to provide a more fully materialist account of sound-on-record, and to explore historical dynamics in the interplay between vast infrastructures and the sonic intimacies of music on demand.

**Music, Mining, and the Desolated Figure of African Modernity**
William Fourie (Royal Holloway, University of London; Africa Open Institute)

Named after one of Johannesburg’s largest mines, Clare Loveday’s 2018 composition, *City Deep*, can be heard to sound the desolation of the miner working on one of the world’s richest gold reserves. The piece, scored for baritone saxophone and clarinet, charts the steady emptying out of the mining subject until only the respiratory flows of subterranean winds and the sounds of mining technologies are left. In this paper, I use a close reading of Loveday’s work to
consider the politics of mining and mining technologies as they have come to both form and break the migrant worker as the figure of African modernity. The piece prompts me to revisit early mining practices and how scientific developments in drill and ventilation technology as well as gold precipitation, often aligned with and propagated by colonial mining operations on the Witwatersrand, came to shape the world and conditions of labour of a figure synonymous with many forms of mid-twentieth-century black South African cultural expression. Be it in the ‘Jim Comes to Jo’burg’ literary genre, the songs of isicathamiya groups, or township marabi tunes, the experiences of an African modernity have been recounted through the figure of the migrant worker coming from a rural community to find work in the city. Yet unlike the figure in these works, whose central concern is often overcoming the moral difficulties of urban life, the figure in Loveday’s work succumbs to the extractive forces of the mining industry. Reading her work in this way allows me to consider anew the devastating conditions faced by this much celebrated figure, while at the same time considering, through music, the role of mining technology in shaping the South African cultural imaginary.

SESSION 4: Subjectivity and Mind

Nature, Culture, Affect: Music and the Unconscious in Early Twentieth-Century France
Alexandra Kieffer (Rice University)

In addition to its well-known affinities for Impressionist haze and Symbolist mystère, French music criticism in the first decade of the twentieth century took part in a vibrant intellectual culture characterized by a multifaceted exchange of ideas with the emerging human sciences. Partisans of the music of Claude Debussy, in particular, drew from recent work in the psychology of affect and the unconscious to help explain and contextualize a music that departed radically from nineteenth-century conventions of harmony and form. At the same time, adherents of the new “empirical” psychology turned to music, understood as a unique point of access to unconscious interiority, as a means to better understand the nature of affect.

Yet, the accounts of music and the unconscious that emerge from these two discursive spheres differed in deep and fundamental ways – a contestation over the kind of knowledge of the human person that music affords (and one that was emblematic of its historical moment just before the sedimentation of a recognizably twentieth-century conception of the divide between scientific and humanistic ways of knowing). In this paper I explore these tensions and cleavages
in the writings of two contrasting figures: Louis Laloy, Debussy’s friend and first biographer and a prolific contributor to Parisian music criticism; and Albert Bazaillas, a philosopher engaged with the emerging field of materialist psychology who published a book on music and the unconscious in 1908. Laloy’s writings on Debussy, which drew extensively from Laloy’s studies of Ancient Greek music and the music of East Asia, continually revisited the hazy interface between “nature” and “culture,” positing that musical listening is historically and culturally variable in ways that are not available to conscious awareness. Bazaillas’s psychological account, on the other hand, reduced music to pure, unconscious affect, ossifying it into a static and ahistorical category represented most essentially by Beethoven and Wagner and – eliding the musically “natural” with this narrow repertoire – tending towards the erasure of all cultural difference. These divergences in method speak to early twentieth-century epistemological uncertainties regarding the scope and limits of scientific knowledge as applied to the deepest recesses of human personhood.

Relaxing the Musical Spirit: Ginette Martenot and Scientific Pacifism
Patrick Valiquet (University of Edinburgh)

The Ondes Martenot is known today primarily as an experimental concert instrument. At the time of its invention, however, it was valued in large part for its pedagogical potential. Essential to its popularisation was a comprehensive pedagogical method, which saw widespread adoption in France and Quebec over the decades overlapping the Second World War and remains in print to the present day. This method was shaped in close dialogue between the Ondes’ inventor Maurice Martenot and his two sisters, Madeleine and Ginette, both of whom were accomplished teachers and performers. Little attention has been paid to the politics behind their collaboration. Together, the siblings sought to imbue their work with the values promoted by the alliance of scientists, theosophists, feminists, and socialists who formed the Ligue Internationale d’Éducation Nouvelle (LIEN), figuring musical training as a means to foster health, creativity, holistic spiritual enrichment, and international fellowship.

This paper examines the body of scientific research that went into constructing the Ondes as an instrument of LIEN’s scientific pacifism, focusing in particular on the contribution of Ginette Martenot. It locates her work in relation to two concerns at the intersection of science and spirituality in the 1920s and 30s: a concern with the psychophysics and topology of pianistic touch, which she encountered through the writing of Marie Jaëll; and a concern with the psychosomatic benefits of physical relaxation as taught by the Martenots’ yoga instructor Youry Bilstin. Reading these literatures together helped Ginette
Martenot to configure her brother’s invention as a means to study and improve the relationship between slow, attentive gesture and the mental aptitudes she considered essential to the development of musical awareness.

Promising to combat ‘excessive musical intellectualism’ by privileging the lived immediacy of sound over the abstractions of notation, Martenot’s research anticipates an activist agenda which would later rise to prominence in the work of educators like Murray Schafer and Pierre Schaeffer. It does so, however, in a way that challenges gendered assumptions about the centrality of composers and engineers in the history of music technology, and reconstructs the politics of peace at the heart of modernism.

The Bureaucratic Modern
Joseph Pfender (New York University)

In 1949, art critic Clement Greenberg drew on the language of bureaucracy to theorize the regimentation and rationalization of Abstract Expressionism, celebrating its Taylorist aesthetic of efficiency as “medium specificity.” The economic, intellectual appeal of this mechanized organizational principle stimulated in artists a reciprocal impulse to draw out and heighten the uncanny dimensions of the human encounter with the machine. With deep historical context from John Tresch’s description of mechanical romanticism in nineteenth-century Paris, and Ellen Lockhart's and James Q. Davies's critique of “fantasies of total description” in the same period in London, I will suggest the following: when early tape composers imputed charismatic and even supernatural powers to the mechanical, they produced a concrete poetics that simultaneously supported and undermined the antiseptic empiricist facade of the infrastructure undergirding the American Century.

Paraphrasing one contribution to the 2013 “Tuning Speculation” conference, bureaucracy radically transforms agency, not by slowing actions down through deliberative mechanisms but by building networks of redundant, robust detours and routing agency through them. These networks cloak individual instances of agential force while simultaneously producing an impersonal, technocratic and diffusely existing “intention,” in which appeals to objectivity are made from nowhere, to no one.

In this paper, I argue that magnetic tape, as a vector of modernist experimentation and as a reification of Modernism’s preoccupation with physical science, recapitulated and complicated this bureaucratic subjectivity. In the 1940s and 1950s, philanthropic foundations including the Rockefeller Foundation
systematically extirpated individual judgement, and therefore the legibility and legitimacy of the individual subject, from their ostensibly objective determinations. Tape composers, supplicating themselves to a bureaucratic apparatus to justify tape’s mechanical charisma as musically valid, were attempting to smuggle a transformed romanticism back into a musical situation increasingly dominated by scientific rationality.

SESSION 5: War

**Violent Sound: Opera as Trauma in 1919 Manhattan**
Melanie Gudesblatt (University of California, Berkeley)

In October 1919, less than a year after the signing of the armistice ending World War I, New York City witnessed an outbreak of new hostilities. Local media reported that throngs of citizens (including ex-servicemen) were taking to the streets to protest an unexpected form of war-related trauma: theatrical performances of German opera sung in the original language. These had been suspended due to the conflict, but with fighting officially ended, the Star Opera Company was determined to reinstate them. Matters escalated to the point that the mayor himself instituted a temporary ban on German opera, and the resulting legal challenge made it all the way to the state Supreme Court.

Drawing on newspaper reports and court records, this paper examines the debates surrounding the ban with a focus on the impact of acoustic violence on postwar American music culture and geopolitics. Crucially, tensions over the performance of German opera were not rooted in the thought of using “enemy art” so soon after the war (as Laura Tunbridge argues regarding German Lieder in Britain), nor did they arise mainly from suspicions about potentially propagandistic texts. Rather, I show, ex-servicemen themselves claimed that the very sound of the German language counted among the triggers for what we would now call post-traumatic stress. I develop this point using recent work on war and auditory culture that demonstrates how even mundane sounds – not just those of artillery – can become weaponized in wartime (Cusick 2008, Daughtry 2014, Sykes 2018). In the case of New York City in 1919, responses to the ban crystallized a growing link between such sonic violence and debates over how to define American values at a time when the United States was assuming a new role on the world stage. While proponents of the ban stressed the nation’s duty to protect the welfare of its own citizens, opponents emphasized America’s responsibility to heal a fractured world, not least through soft power channels like opera. The ultimate question, one that remains of equal concern today, was how
to reconcile domestic and international interests in the pursuit of ethical governance.

Morale as Sonic Force: Listen to Britain and Total War
Heather Wiebe (King’s College, London)

“It is a Sound Report of a people at war,” Humphrey Jennings wrote of his documentary film Listen to Britain in 1941. What did it mean to be a sound report? And why would Jennings – a poet, sociologist, surrealist painter, theatre designer, and film-maker – think such a report was worth producing at this moment? Much of Listen to Britain affirms music’s morale-building force and its special power to connect individuals to places and to larger groups. Music coordinates bodies, both in work and in play; while rarely expressive in any conventional sense, it creates affective alliances; it conjures distant people, places, and memories; through radio, it connects people around the nation and the empire. But in many ways, the film’s representations of music rely on a broader rethinking of the nature of sound as a connecting force in public life. Listen to Britain suggests a struggle to come to terms with new ways of understanding the circulation of sound, reflecting on the possibilities presented by radio in particular. This is one aspect of its attempt to navigate and articulate the shifting sensorium of wartime, and the new technologies at the service of total war. More specifically, these technologies of film and radio enable Jennings to re-imagine music’s relationship to morale. He alights on sound as a figure of the affective force of morale itself, binding and integrating while also remaining difficult to pin down and control. In the process, Listen to Britain suggests new ways of imagining music’s distinctive relationship to feeling and the political.

Headphone technologies and psychological warfare at the advent of the Cold War: from militarization to weaponization
Jacob Downs (University of Sheffield)

The first US headphone patent was registered in 1910, with the prototype receiving positive attention from the US Navy. There was a war on the horizon, and the device offered the military unprecedented ease of communication, affording not only the segmentation of acoustic space but the removal of the need for manual support. Ever since, headphones have featured prominently in the history of warfare, employed for numerous purposes. However, little is yet known about the weaponization of headphones’ phenomenological affordances during the twentieth century. Within this paper I explore how, in the years following the Second World War, the military uses of headphone technologies began to venture into more explicitly malign territories. I trace the burgeoning panic reported
within the US, UK, and Canadian secret services surrounding the alleged success of ‘brainwashing’ experiments by Soviets and Chinese communists. The formation of this Western alliance, predicated on the fear of an imbalance of power in global psychological warfare, would lead to the establishing of Project MKULTRA – the CIA’s famous collaborative ‘mind-control’ programme – in the early 1950s. In particular, I focus on a paper of 1956 published by Dr Ewen Cameron, a Canadian psychologist directly involved with the programme, in which the headphone-specific phenomenon of ‘in-head sound localization’ is instrumentalized to torturous ends. I adopt a hybrid approach incorporating insights from sound studies and (post)phenomenology to show how the spatial reality of headphone listening would eventually feature as part of the US’s military arsenal in the so-called ‘War on Terror’ during the first decade of the twenty-first century, where the forcible, non-volitional appendage of headphone technologies to the bodies of detainees and the channelling of intensely loud sound into the ears would demarcate the interior space of the head as a site of political violence. My argument positions the advent of the Cold War at its genealogical centre and serves to highlight the central role of state-funded torture ‘research’ in the history of sound-specific psychological warfare.

SESSION 6: Musical Circuits

Prometheus Charged: Electricity, Saint-Saëns, Scriabin, and the Classical (Greco-Roman) Tradition
Jon Solomon (University of Illinois at Urbana-Champaign)

The classical (Greco-Roman) tradition had for centuries provided artists, scholars, and scientists with mythological and historical narratives, artistic genres, concepts, and terminology. From Raphael’s School of Athens and the creation of opera to Neoplatonism and the term “telepathy,” the influence of the ancient world, despite its distant chronological horizon, continued into the early twentieth century at the intersection of scientific, technological, and musical discourses.

Coordinating with the spectacularly illuminated Palais d’Electricité at the landmark Parisian Exposition Universelle of 1900, Camille Saint-Saëns composed the cantata Le Feu Céleste (Op. 115: provisionally Le Feu du ciel) to celebrate the Exposition’s theme, “The Triumph of Science.” Featured as the inaugural work of the Exposition, Saint-Saëns’s cantata was designed for “the glorification of electricity” and purported to imitate musically the flashes and sparking arcs of electricity. Armand Sylvestre’s libretto notably addressed the modern harnessing of electricity as the scientific avenger of the ancient mythological catastrophes suffered by Phaethon and Prometheus (“O grand voleur du feu sublime, Prométhée”).
In the nineteenth century Prometheus as the creator of (hu)mankind had represented the Enlightenment’s secular alternative to the Biblical creation and human suffering at the hand of God (Zeus) in Beethoven’s *Die Geschöpfe des Prometheus* and Liszt’s *Prometheus*. But Saint-Saëns’s re-energized twentieth-century Prometheus, guarded by the Aeschylean personifications of Power and Force in Gabriel Fauré’s enormous outdoor Béziers production of *Prométhée*, also in 1900, was representing the advancement of science with the technological harnessing and generation of electricity.

Inspired by this association, in his February 18 letter to the cantata’s dedicatee, conductor Paul Taffenel, Saint-Saëns even contemplates placing electrical wires under the listeners’ seats “to give them a violent shock at each stroke of the tam-tam.”¹ Devising a less painful and more synaesthetic alternative, Alexander Scriabin in 1910 included in the instrumentation for his symphonic *Prométhée, Le poème du feu* (Op. 60) Preston Millar’s chromola, a *clavier à lumieres*, and indicated specifically in his own handwriting in the score that its purpose was to create electrically the illusion of lightning.


**Soviet Sounds, Modern Times?: The Iron Foundry and the ISCM (1930)**

Giles Masters (King’s College London)

A notable sub-genre of interwar musical modernism comprised works that used established orchestral instruments to depict the noisy technologies of production and transportation characteristic of early twentieth-century industrialism (such as factories and trains). The disjunction between the ‘musical’ technologies sounded and the ‘non-musical’ ones evoked led to extensive discussion about the innovativeness and legitimacy of these quasi-programmatic compositions. The international origins and dissemination of such works also raised the question of whether changing technologies and their representations were symptomatic of a shared, transnational ‘modernity’ or a number of alternative, situated ‘modernities’ – a debate that remains lively today.

Musicologists still frequently refer to the *Iron Foundry* (1927) by the Soviet composer Alexander Mosolov to exemplify this sub-genre. Despite this, the work’s widespread international circulation during the 1930s has not received sustained attention. This paper focuses on the performance at the 1930 festival of
the International Society for Contemporary Music. With the festival context priming audiences to listen in particular modes, this performance and its mediation in the press did much to set the agenda for how Mosolov’s composition came to be heard and understood outside the Soviet Union.

Part of the Iron Foundry’s appeal lay in the allure of discovering what ‘proletarian’ music – and life in the USSR more generally – might sound like. Longstanding tropes about the primitiveness of Russian music remained crucial to this search for cultural specificity. On the other hand, the work’s perceived glorification of technology evoked a familiar notion of modernity posited on imperialist and gendered narratives about achieving mastery over raw nature. Moreover, the confidence and frequency with which reference was made to the work’s allegedly startling, ‘photographic’ realism also revealed the assumption that industrialism sounded the same everywhere. Mosolov’s music thus appeared legible against a shared contemporaneity grounded in the apparent ubiquity and neutrality of technology. The ambivalent fascination with the Iron Foundry was, I suggest, indicative of underlying uncertainties and anxieties about the relative modernity of the USSR and its music with respect to the faltering capitalism of Europe and America.

Music in the Cybernetics Moment: Two Case Studies from the San Francisco Tape Music Center
Ted Gordon (Columbia University)

By the mid-twentieth century, America was fully immersed in what Ronald Kline has called the “cybernetics moment.” Concepts such as the fungibility of “information,” the systematicity of complex phenomena, and “self-regulating” systems pervaded popular and public conversations about new technologies, new social policies, and new organizations of life. “Electronic Music” was a popular vector for discussing these new concepts in the realm of auditory culture: it offered both a sonic imaginary of what systematized, self-regulating music could sound like, and a technical imaginary of how humans could leverage new tools to explore new ways of making music.

This paper illustrates two early cybernetic musical projects from the mid-1960s, created by Morton Subotnick and Pauline Oliveros at the independent San Francisco Tape Music Center. Contrasting these projects shows how differences in the metaphoric understanding of cybernetic concepts created material and political differences in musical practice. Though cybernetic theory originated in the 1940s, materials for implementing cybernetic ideas in new electronic musical instruments became widely available to musicians without institutional support in
the 1960s. Subotnick and Oliveros, trained as composers, suddenly enjoyed a surplus of cheap, transistorized technology, but had no formal training in electrical engineering. Instead, they turned to popular texts written in the cybernetics moment to teach themselves about electronics and systems design, translating technoscientific concepts into the domain of music with wide metaphorical latitude.

Using the cybernetic concept of the “black box,” Morton Subotnick imagined a new instrument – a “composer’s black box” – that would be a new tool for self-expression, simplifying electronic music to “input” and “output.” Contrastingly, Pauline Oliveros translated concepts of nonlinearity and feedback to create instrumental systems that questioned unilinear flows of human agency, instead embedding the body within the “black boxed” system itself. These differences had important consequences for the legibility, prestige, and circulation of both composers’ works, and this paper follows these divergent practices to show the material effects of differing metaphorical translations between technoscience and music. Indeed, these early projects present a diverse constellation of possible “cybernetics moments,” with different configurations of agency, technicity, and instrumentality.
BIOGRAPHIES

Peter Asimov is a PhD student at the Faculty of Music, University of Cambridge (Clare College), where he is also a Gates Scholar. He holds a Masters degree in musicology from the University of Oxford, and an undergraduate degree in Comparative Literature (French and Sanskrit literature) from Brown University. He has presented research in the UK and the US, and is an accomplished pianist. He was also étudiant-chercheur at the Conservatoire de Paris in 2016.

Jacob Downs is a PhD candidate in the Department of Music at the University of Sheffield, working under the supervision of Prof. Nicola Dibben (Music) and co-supervision of Dr Annamaria Carusi (Medical Humanities). His doctoral project, funded by the Arts and Humanities Research Council (AHRC) via the White Rose College of the Arts and Humanities (WRoCAH), explores headphone listening from a (post)phenomenological perspective, concerned especially with ideas of spatiality, corporeality, and human-technological relations.

Alexander W. Cowan is a doctoral candidate in Historical Musicology at Harvard University, and a graduate of King’s College London (MMus) and St. Hugh’s College, Oxford (BA). His dissertation focuses on the role of music in the American eugenics movement of the first half of the twentieth century.

Vanessa Paloma Duncan-Elbaz is Research Associate of the Faculty of Music at the University of Cambridge working on the ERC funded project “Past and Present Musical Encounters Across the Strait of Gibraltar”. Dr. Duncan-Elbaz was granted her Ph.D. from the Sorbonne’s CERMOM research group of the INALCO. In 2012 she founded KHOYA: Jewish Morocco Sound Archive in Casablanca. Her work focuses on the dynamics of power, language, and transmission in Moroccan Jewish music.

William Fourie is a Research Fellow at the Africa Open Institute for Music, Research, and Innovation at Stellenbosch. He is currently completing his doctoral studies under the supervision of Prof. J. P. E. Harper-Scott at Royal Holloway with a thesis on musical modernism in post-apartheid South Africa and has published articles in South African Music Studies and Muziki on issues of decoloniality, urban geography, and the music of Clare Loveday.

John Gabriel is a post-doctoral fellow in music in the Society of Fellows in the Humanities at the University of Hong Kong. His research focuses on the music history of Central Europe and the United States from the fin-de-siècle to the early Cold War. His current book project examines the opera and music theater of the
New Objectivity in Weimar Republic Germany through the contentious discourses on topicality in the arts at the time.

**Ted Gordon** is a musicologist and musician whose work lies at the nexus of experimental music studies, critical organology, and science & technology studies. He earned a PhD in the History and Theory of Music from the University of Chicago in 2018, where his dissertation research explored new experimental musical practices in the San Francisco Bay Area in the 1950s and 60s. As an improviser, Ted performs with the viola and the Buchla Music Easel.

**Melanie Gudesblatt** is a PhD candidate in Music at the University of California, Berkeley. Her research focuses on the cultural history of voice and vocal sound in the decades around 1900, particularly as regards issues of technology, subjectivity, and governmentality. Her article “Origins of a Menschendarstellerin: Characterization and Operatic Performance in fin-de-siècle Vienna” is forthcoming from the *Journal of the Royal Musical Association*.

**Alexandra Kieffer** is Assistant Professor of Musicology at Rice University. She received her PhD from Yale University in 2014, after which she spent a year at Stanford University as an Andrew W. Mellon Postdoctoral Fellow in the Humanities. Her work on early twentieth-century French intellectual culture has appeared in *19th-Century Music*, *Music Theory Spectrum*, and *The Journal of Musicology*, and her first book, *Debussy’s Critics: Sound, Affect, and the Experience of Modernism*, is forthcoming from Oxford University Press in 2019.

**Gundula Kreuzer** is Professor of Music at Yale University and author of the award-winning *Verdi and the Germans: From Unification to the Third Reich* (2010) and *Curtain, Gong, Steam: Wagnerian Technologies of Nineteenth-Century Opera* (2018). She edited Verdi’s chamber music for *The Works of Giuseppe Verdi* (2010), co-edited a special issue of *Opera Quarterly* on “Opera in Transition” (2011), was reviews editor for *Opera Quarterly* and editorial board member for *JAMS*, and serves on the editorial boards of *VerdiPerspektiven*, *WagnerSpectrum*, and *Cambridge Opera Journal*. Her current research interests include contemporary stagings and indie opera; media archaeology of screen media; and the historiography of music from the Nazi era. In May 2019 she launched YOST, an annual symposium on Opera/Studies Today.

**Emily MacGregor** is a Marie Sklodowska-Curie Global Fellow at Royal Holloway, University of London. As part of her fellowship, she spent 2016 to 2018 as a postdoctoral researcher at Harvard University. Her research focuses on the music and cultural history of Germany and North America in the first half of the
twentieth century. She was recently awarded the Royal Musical Association’s 2019 Jerome Roche prize.

Giles Masters is a PhD student at King’s College London, where he holds a studentship from the Arts and Humanities Research Institute. His research focuses on the festivals organised by the International Society for Contemporary Music (ISCM) in the 1920s and 30s.

Fiona Smyth is a Research Fellow at Trinity College Dublin. From 2015 to 2018, she was a Marie Skłodowska-Curie Global Fellow at Harvard University and Trinity College Dublin. She is currently preparing a monograph on the musical and scientific origins of architectural acoustics in early twentieth-century Britain, and also a biography of Hope Bagenal. Her work was awarded the Hawksmoor Medal by the Society of Architectural Historians of Great Britain in 2017.


John Tresch is Professor of History of Art, Science and Folk Practice at the Warburg Institute, University of London. He is author of The Romantic Machine: Utopian Science and Technology after Napoleon, and various works on media, art, and science; he is currently completing The Reason for the Darkness of the Night: Edgar Allan Poe and the Forging of American Science and a book on cosmological representations.

Patrick Valiquet is a musicologist specialising in historical and anthropological approaches to experimental music and music technologies, with particular interests in the framing of experimentalism as an object of science, education, and cultural policy. In 2018 he took up a British Academy Postdoctoral Fellowship in the School of Music at the University of Edinburgh. He holds degrees from McGill University, the Royal Conservatoire in The Hague, and the University of Oxford, and has previously held fellowships awarded by the Institute of Musical Research and the Fonds de Recherche du Québec - Société et Culture.
Heather Wiebe is Senior Lecturer in the Department of Music at King’s College London. She is the author of Britten’s Unquiet Pasts: Sound and Memory in Postwar Reconstruction (Cambridge, 2012). She currently holds a Leverhulme Research Fellowship for her project “Mobilizing Music in Wartime British Film.”

Gavin Williams is a musicologist and Leverhulme Early Career Research Fellow at King's College London. He has published articles and book chapters on Futurist music, Italian opera and ballet, and nineteenth-century London. He has edited the collected volume Hearing the Crimean War: Wartime Sound and the Unmaking of Sense, recently published by Oxford University Press, and is currently engaged in a monograph project on the imperial geographies of recorded sound during the first half of the twentieth century.
Local underground stations:

TEMPLE (Circle, District): c. 4-minute walk
CHARING CROSS (Bakerloo, Northern): 10 mins
EMBANKMENT (Circle, District, Bakerloo, Northern): 10 mins
n.b. if taking a northbound Northern line train, go from Embankment rather than Charing Cross to catch an original ‘Mind the Gap’ platform announcement.
WATERLOO (Jubilee, Northern, Bakerloo, Waterloo & City): 12 mins
HOLBORN (Piccadilly, Central): 12 mins
CHANCERY LANE (Central): 15 mins

n.b. while we do not advise attempting to travel to Aldwych station (originally ‘Strand’), which closed in 1994, we do recommend admiring the oxblood terracotta tiles of the station’s façade, which are an iconic feature of Leslie Green’s early twentieth-century London Underground designs. This ‘ghost station’ is situated directly east of KCL.

National rail:
Waterloo; Charing Cross; Waterloo east (12 mins); Blackfriars (12 mins).

Bus routes:
1, 4, 6, 26, 59, 68, 76, 341, and others (TFL online route planners are useful).

Boat:
Disembark from TFL’s commuter river service at Blackfriars Pier or Embankment Pier.
DIRECTIONS

The conference rooms (SWB21 and SWB20) are in the music department at King’s College, London’s Strand Campus, WC2R 2LS. Use the main entrance to the campus from the Strand, as indicated on the maps below. You will be signed in at reception, given a visitor sticker, and should then proceed to the very end of the long corridor directly ahead; the music department is then on the right in the South West Block.

The Strand campus is located on the north bank of the Thames and is in easy reach of several underground and mainline stations (see previous page). For the conference dinner, we will convene at the Pig & Goose, a short walk east on the Strand, next to the Twining’s tea shop/museum and opposite St Clement Danes church – listen out for its bells…

![Map of Strand Campus with Conference Rooms highlighted](image-url)

**Key to room numbers**

- Virginia Woolf Building: VB2.19
- Strand Building: S-2.08
- King’s Building: K1.13
- Norfolk & Chesham Building: 332N
- South West Block: SWB21

**Strand Campus maps**

- Strand Riverside & Virginia Woolf Building
- Strand Building
- Virginia Woolf Building
- King’s Building
- Norfolk & Chesham Building
- South West Block
- South East Block

**Entrance from Strand**

**Conference rooms**