

Betwixt and Between

Telephontröme beim Singen der Vokale.

**Sound in the Humanities
and Sciences**

February 15-16, 2018

(Working Group Workshop)

Betwixt and Between: Sound in the Humanities and Sciences

The broad domain of acoustics that emerged in academic life throughout the modern era is usually categorized as part of the natural sciences. Yet the acoustic subdisciplines or other fields of research on sound are rarely interested in the formal, “hard” description of sound alone; “soft” practices, epistemic forms, and experiential knowledge generally play their part as well. Work on sound analysis, sound regulation, and sound interpretation—and on their shifting relationships—often crosses the now customary frontiers between the humanities, social sciences, and natural sciences, as well as between academic and non-academic forms of knowledge production.

Starting from this observation, the Working Group addresses the epistemic difficulties that sound has posed for humanities and social sciences since the nineteenth century. Sound is ephemeral. Subjects such as linguistics, musicology, theater studies, history, sociology, and law have all aspired to pin down the spoken word, music, or noises, developing different epistemic and representational strategies suited to that end. This was just as much a process of defining and stabilizing the subject areas themselves, of asserting their methodological autonomy in the academic context—even if it frequently involved borrowing from longer-established approaches. Empirical, analytical, positivist, and interpretive procedures coexisted, sometimes in competition and sometimes in complementarity.

Sound as a touchstone for research methodologies is the focus of the Working Group. We explore the configurations within which sound—in its characteristics as signal, sign, and influence—was brought into play, whether prompted by the research object at hand or by the methodological advantages it could offer.

Please click on the **names** to reach the presenters' personal web pages.



ORGANIZERS:

Julia Kursell (University of Amsterdam)

Viktoria Tkaczyk (Max Planck Institute for the History of Science, Humboldt-Universität zu Berlin)

Hansjakob Ziemer (Max Planck Institute for the History of Science)

Thursday, February 15

13:30 *Welcome Coffee*

14:00–14:15 **Introduction**

Viktoria Tkaczyk (MPIWG Berlin, Humboldt-Universität zu Berlin), **Julia Kursell** (University of Amsterdam), **Hansjakob Ziemer** (MPIWG Berlin)

14:15–15:30 **Tuning Speech,**
chair: Hansjakob Ziemer (MPIWG)

Robert Brain (University of British Columbia)
Imagined Communities of Speech and Rhythm: Abbé Rousselot's Laboratory and Three Models of French Regeneration

Judith Kaplan (University of Pennsylvania)
Intelligible Pitch: Twentieth-Century Encounters between Musicology and Linguistics

15:30–15:45 *Break*

15.45–17:00 **Synthetic Sounds,**
chair: Fanny Gribenski (MPIWG)

Julia Kursell (University of Amsterdam)
Carl Stumpf and the Interference Apparatus

Xiaochang Li (MPIWG Berlin)
The Artful Deceit: Speech Recognition and the Datafication of Language

17:00–17:15 *Break*

17:15–18:30 **Poetics of Sound,**
chair: Viktoria Tkaczyk (MPIWG)

David Trippett (University of Cambridge)
Sensory Transfer: Richard Wagner's Vowels and Bodies

Shane Butler (Johns Hopkins University)
Tennyson Laughs

Friday, February 16

9:00–10:15 **Counting Sound,**
chair: Xiaochang Li (MPIWG)

Fanny Gribenski (MPIWG Berlin)
In Search of Lost Sounds: Histories of Pitch, between Physics and Music

Viktoria Tkaczyk (MPIWG Berlin, Humboldt-Universität zu Berlin)
Sound as a Relational Feature: Ernst Mach's Projectiles, Swivel Chairs, and Melodies

10:15–10:30 *Break*

10:30–11:45 **Sound & Belief,**
chair: Daniel Morat (FU Berlin)

Tanvi Solanki (Cornell University)
The Eternal Tone: Johann Gottfried Herder's Theology between Musicology and the Natural Sciences

Karsten Lichau (Max Planck Institute for Human Development, Berlin)
Theologies of Sound? Revisiting the Audiovisual Litany in Early Twentieth-Century German Theology

11:45–12:00 *Break*

12:00–13:15 **Social Sounds,**
chair: Joeri Bruyninckx (MPIWG)

Hansjakob Ziemer (MPIWG Berlin)
Observing Social Sounds: Paul Bekker and the Proto-Sociology of Musical Forms during World War I

Dominik Schrage (Dresden University of Technology)
Obstacles Épistémologiques for the Sociology of Sound

13:15–14:15 *Lunch*

14:15–16:00 **Sonic Evidence & Final Commentary,**
chair: Julia Kursell (University of Amsterdam)

Carolyn Birdsall (University of Amsterdam)
Talking History: Oral History between Archives, Historiographic Method, and Digital Humanities

Fabian Steinhauer (Goethe University Frankfurt)
Acoustic Jurisprudence

Anke te Heesen (Humboldt-Universität zu Berlin), **Susanne Schmidt** (University of Cambridge, Humboldt-Universität zu Berlin)
Final Commentary

Imagined Communities of Speech and Rhythm: Abbé Rousselot's Laboratory and Three Models of French Regeneration

Starting in the 1890s, Pierre-Jean (Abbé) Rousselot put his Collège de France laboratory to work on establishing an experimental phonetic basis for standard French pronunciation. A premier experimentalist, Rousselot's canonical studies followed a century-old republican tradition of seeking national unity in an imagined French language shorn of regional and class differences. Yet the famous divisions of Dreyfus-era France crowded into his laboratory, as Rousselot's epigones put his methods to serve different models of the French nation. On one side stood the anarchist avant-garde poets Robert de Souza and André Spire, who used experimental phonetics to promote the demotic declamatory practices of the Parisian cabaret culture as the basis of a secular and emancipated France. On the other side was the Jesuit Marcel Jousse, who put Rousselot's armamentarium to work to discover the declamatory rhythms of ancient Levantine Aramaic, the language of the original sermons of Jesus of Nazareth, which would serve to regenerate Roman Catholic liturgy and thereby Christian faith itself. This paper will examine how each of these three models—Rousselot's standardized French, Spire and de Souza's *vers-librisme*, and Jousse's rhythmo-catechetics—imagined a communitarian solution to perceived national degeneration and disunity in the calibration of the laryngeal-buccal sound image.

Intelligible Pitch: Twentieth-Century Encounters between Musicology and Linguistics

The fast-paced monotone of a tobacco auctioneer, recitation of the Hindu Vedas, the "singsong" patterns of a Chinese street vendor, patterned glides announcing the start of a Hopi rabbit hunt, the alphabet sung in a Bangkok school room, the melodramatic *Sprechstimme* of Pierrot Lunaire, rhymes set to a game of double dutch, dramatic incantation—these are among the difficult cases researchers have pondered in their attempts to characterize and compare intelligible pitch. Focusing on mid-century exchanges between ethnomusicology and anthropological linguistics, my paper explores the significance that fixed (song) and free (speech) vocal productions held for one another against the backdrop of rapid disciplinary specialization. I highlight the use of various inscriptional technologies, efforts to globalize archival collections, and concerns about cross-cultural auditory judgment. Bringing these themes to bear on the key example of the music of tone languages, the paper ultimately attempts to relate collaborations around music and language to the development of semiotic thinking.

Carl Stumpf and the Interference Apparatus

Philosopher Carl Stumpf counts as one of the founding figures of experimental psychology. In addition, he was involved in the beginnings of various other fields, such as music psychology, ethnomusicology, experimental phonetics, and Gestalt psychology. This role can partly be attributed to his use of new technologies. Stumpf was among the first to promote phonography for ethnological research in music, for instance. He also pioneered the systematic use of synthesized sound for investigating language. My paper looks more closely at the apparatus for this latter research: the “interference apparatus,” a complex device that Stumpf had built in the 1910s for synthesizing and analyzing sounds. I will argue that the terminology Stumpf developed for preconceived patterns in the human mind derived from this apparatus. His notion of attitude (*Einstellung*) describes a difference in the chosen preset options in the apparatus. At the same time, it points to a distinction between groups of experimental subjects, which differ with regard to the mental patterns they can draw on to interpret the information at hand. My contribution will trace these methods and terms, and ask how they embed Stumpf’s work in a landscape of new disciplines.

The Artful Deceit: Speech Recognition and the Datafication of Language

In 1969, J. R. Pierce, then the executive director of communication sciences, called for a suspension of all speech recognition research at AT&T Bell Laboratories. Pierce, who had been one of the speech recognition’s early proponents, condemned the preceding decades of research as little more than an “artful deceit” perpetrated by “mad inventors or untrustworthy engineers.” Speech recognition by machine, he insisted, could not be treated as problem of engineering, and would be possible only once systems incorporated linguistic expertise comparable to that of a native speaker. Just two years later, IBM launched its Continuous Speech Recognition research group, which developed a “data-driven” approach using algorithmic techniques that not only became standard across speech recognition and natural language processing, but today also appear in applications for everything from financial modeling to bioinformatics. The group director, Frederick Jelinek, infamously joked that the group’s early successes came from firing all the linguists.

This talk looks at the history of speech recognition research as it was refashioned from a problem of simulating language to one of sorting data. Starting in the 1970s, the dominant approach to speech recognition research shifted from efforts to incorporate diverse areas of expertise, including linguistics, psychology, physiology, and engineering, to what was seen as a “purely statistical” practice organized around the technical and commercial demands of digital computing. My talk examines how the problem of speech recognition, laden with the technical challenges and institutional legacies of acoustic engineering, helped bring language under the purview of data processing, as well as its consequent role in an entirely different kind of cross-disciplinary consolidation—the spread of data-driven approaches to knowledge production across disparate domains.

Sensory Transfer: Richard Wagner's Vowels and Bodies

Swans feature prominently in both *Lohengrin* and *Parsifal*. In the former, a swan is the transmogrified son and heir, Gottfried, who transports the grail knight to and from Brabant, while in the latter, a swan is shot dead by Parsifal—"the pure fool"—in an act of harm that will eventually bring about his first pangs of human empathy. In both cases, the physical anatomy of the animal is negotiated in relation to human anatomy. This paper considers the broader scene of comparative anatomy in Germany and Britain, threaded through the eye of operatic depictions of animals.

Wagner's open letter to Ernst von Weber entitled "The Torture Chambers of Science" ("Die Volterkammern der Wissenschaft"), published in the *Bayreuther Blätter* in 1879, argues passionately against vivisection. It is anomalous within Wagner's writings, and appears to offer a striking instance of art and science colliding at the level of verbal discourse. While both Weber and Wagner were artists, their cause ranged across public letters and lectures, journal articles, lectures and—more distantly—opera. The question of the utility of vivisection garnered debate in these quarters. In 1879, Wagner sought to shift the terms of the debate away from utility towards compassion (*Mitleid*), one of the fundamental threads running through *Parsifal*, completed in January 1882. Here I consider the context against which such ideas emerged, namely Ludwig Büchner's *Geistesleben der Thiere* (1876), which he jokingly subtitled "a novel from the world of animals" and was published a year before Wagner wrote the first prose draft for *Parsifal*.

Tennyson Laughs

"Garbo Talks!": so MGM publicized *Anna Christie*, its famous star's first "talkie." A decade later, posters for Garbo's first comedy winked at that earlier campaign, proclaiming instead, "Garbo Laughs." A half-century earlier, however, a no less miraculous technology had captured the talk, as well as the unexpected laughter, of a rather different artist: Alfred Lord Tennyson. The aging poet laureate famously recorded himself delivering several of his poems using a phonograph sent to him expressly for this purpose by Edison; his crackling, booming rendition of "The Charge of the Light Brigade" is the best known of these (and can easily be found on the Internet). In a lesser-known recording, Tennyson recites "The Splendor Falls," sometimes known by its refrain, "Blow, bugle, blow," which is part of a longer work, *The Princess*. Though the surviving wax cylinder is in a dismal state, we are helped by a remarkable earwitness account of Tennyson himself playing the recording for a group of guests. Even back then, the phonograph record seemed to this listener an inadequate substitute for the poet's still-living voice, but he was struck by an accidental acoustical passenger on the record: a laugh by Tennyson's grandson, evidently watching in the wings, which prompts the poet himself to laugh, incongruously, at the end of one of his verses. I believe that this double laugh, which has haunted me since I first learned of it, has the potential to illuminate several key themes of this seminar, and my paper will offer a preliminary attempt to explain why.

In Search of Lost Sounds: Histories of Pitch, between Physics and Music

Among the humanities, musicology might appear an obvious field for the development of sound studies. Yet modern musical historiography actually emerged and was consolidated as a positivistic field of research that focused on exhuming written traces of the musical past, largely ignoring the sensible dimension of music. Interest in the history of musical sounds arose, rather, from attempts to standardize musical practices and instruments, in the context of intensifying exchanges between different countries and their musical scenes. Starting in the mid-nineteenth century, these efforts resulted in scholarship at the crossroads of music history and physics, documenting the history of pitch in order to justify particular modern sound regulations. Writing the history of pitch raised a number of methodological challenges: What objects should serve as sources in this search for lost sounds? What methods should be employed to determine which frequencies were used over the course of music history and across varied territories? Such work required a combination of historical knowledge on music and physical expertise on sound.

Studying pitch historiography—from its origins to current work in performance practice studies—reveals the imbrication of scientific and historical paradigms and technology in the definition of pitch. In turn, it highlights the impact of efforts to archive and revive lost pitches on the development of music history and acoustics, as well as on technological innovation and the creation of an “audible past.” Considering the practical contingencies underlying the development of pitch historiography also explains the rise of some spectacular forms of acoustical and historical display. To raise awareness of the need for sound regulations, standard pitch advocates staged the history of pitch for various audiences, including those of large-scale events such as world’s fairs. Highlighting the practical foundations of pitch histories, finally, allows us to reevaluate current musical historiography and practices of both modern and early music, marked by nineteenth-century paradigms of standardization and positivism that translate into the use of a very limited collection of frequencies for the performance of Western musical repertoires.

Sound as a Relational Feature: Ernst Mach’s Projectiles, Swivel Chairs, and Melodies

Today, supersonic speed is defined as the speed of an object in relation to the speed of sound in the same medium. This definition goes back to physicist Ernst Mach’s experiments on the supersonic motion of a projectile—and its photographic visualization by the physicist-photographer Peter Salcher, published in 1887. It is common knowledge in the history of science that this and other experiments by Mach influenced (though to a debatable extent) Albert Einstein’s theory of special relativity. However, little attention has been paid to the role of sound in Mach’s experiments. In my paper, I argue that Mach’s interest in sound as a relational feature and thereby as a new epistemic tool needs to be understood against the background of his philosophical work on sensual perception and epistemology. I thus follow Mach, a border-crosser between the natural sciences and the humanities, to trace his multiple interests in the nature of sound, in human hearing and auditory memory, and in human’s ability to grasp, adapt to, remodel, compare, and analyze sonic phenomena.

The Eternal Tone: Johann Gottfried Herder's Theology between Musicology and the Natural Sciences

For Johann Gottfried Herder and the contemporary poets, philosophers, and theologians associated with him in the eighteenth century, listening had divine qualities: being the sense that was closest to the soul, void of noisy interference, of slowness and forgetting, of the potential for miscommunication, it was an ideal form of hermeneutics and interaction with God. In a letter to a friend, Herder described a “soft, gentle tone” that should remain in the “bones, limbs, and sinews” of the Protestant subject. It should “sound (*tönen*) like a well-tempered lute,” and “the tone should remain and sound (*tönen*) eternity and the love of God!” In his theological writings, Herder likened religious songs and the concise proverbs of the Bible to the muscle and nerves responsible for vitalizing the entire structure of a person's thoughts and allowing for their future movement. As I will show in my paper, these theological themes coexisted alongside, and were reactivated by, novel anatomical discoveries and musicological metaphors about the inner voice and the inner ear. According to Herder's theories, the means to bring together Protestant subjects into a Germanic culture would be to train the “habit of the ear.”

Relying on accounts from contemporary physicians and natural scientists such as Johann Gottlob Krüger, Herder conceived of the network of nerves constituting the inner ear as a stringed instrument, variously a harpsichord, lyre, or violin. The inner ear would purify noise or a combination of tones (*Schall*), perceivable by the external ear, into simple tones, which then affected the “material soul.” This notion of acoustics, half-sensuous and half-ideal, was described by Herder as “the middle path” between the most abstract and the most practical theories of tones, propounded by physicists and musicians respectively. The science of tones was as yet undefined, an “undiscovered land” that could only be described using metaphors. Through the role of sound in Herder's theology, I will show how the now customary frontiers between knowledge production within the humanities and the sciences were yet to be established during the early formation of acoustics as a discipline.

Theologies of Sound? Revisiting the Audiovisual Litany in Early Twentieth-Century German Theology

During the last decade, studies in sound history have tackled the “audiovisual litany” that established a dichotomy between sound and vision and is based upon a “theology of sound” (Jonathan Sterne) heavily indebted to Christian spiritualism. Yet there is scarcely a more heterogeneous scholarly tradition than that of Christian theology. It might thus be promising to ask how other mainstream or heterodox currents in both Catholic and Protestant theology relate to the audiovisual litany by adopting, refusing, or transforming its premises.

A first exploration in this highly complex task addresses the field of German (mainly Protestant) theology in the early twentieth century. The dominant paradigm of Protestant liberal theology in that period was opposed by several currents, the most influential being *Dialektische Theologie* or *Wort-Gottes-Theologie* (Karl Barth, Emil Brunner, Friedrich Gogarten) and Rudolf Bultmann's program of *existential Interpretation* and *Entmythologisierung*. Both strands drew on liberal Protestantism's antidogmatic attitude, but distanced themselves from its rationalist, enlightened, and historical orientation, striving to reestablish “faith in Christ” as listening to a “Word of God” beyond text, myth, Church, and spirit. How did this connect or break with the Great Divide theory and the dominant theologies of sound? What was the role of sound and listening, in both their worldly and theological dimensions? And how did these newcomers to the theological field build upon or reject knowledge on sound from other scientific or artistic domains—such as literature, psychology, acoustics, or medicine—in order to elaborate their theological position?

Observing Social Sounds: Paul Bekker and the Proto-Sociology of Musical Forms during World War I

In 1916, the German journalist and self-taught violinist and music historian Paul Bekker published *Das deutsche Musikleben*, in which he developed a proto-sociological theory of musical forms in the concert hall. My talk will reconstruct the historical context of Bekker's attempt to pin down the effects of musical sounds in the concert hall (what he termed "musical form") and to theorize the social dimension of sound for listeners. I will use this as an example to follow the circuitous routes of sociological knowledge about sounds, from observational practices in the concert hall, contemplating theoretical dimensions, and controversial discourse to the forgetting of such knowledge in subsequent decades—pathways, that is, across different locations and practices of knowledge production. Bekker's music sociology did not achieve wide acceptance, and Adorno's later writings on the sociological dimensions of music shed quite a different light on the relationship between music and society, one in which sound as such was downplayed. However, Bekker's early reflection on the sociology of sound can serve as a starting point to explore epistemic strategies of gaining knowledge about the social effects of sound, to ask about the place of journalistic knowledge within the universe of social knowledge, and to illuminate methods of transforming everyday journalistic observations into sociological theories. I will show how, by combining personal erudition, journalistic observation, and theoretical assumption, Bekker turned latent social meanings of sound into sociological utopias.

Obstacles épistémologiques for the Sociology of Sound

In sociology, the acoustic sphere (or auditory phenomena) was for a long time not considered a subject of specific interest. Though this may change with the advent of sound studies, the field is still rather marginal in sociology. The aim of my paper is to identify the most crucial *obstacles épistémologiques* (Bachelard) that may have prevented sociology from appreciating auditory phenomena as legitimate and productive objects of sociological thought. I will concentrate on sociological theories (two crucial classical and one more recent) that define sociality in quite different ways, but converge in diverting attention away from the particularities of the acoustic sphere by assigning sensory modalities the status of presocial issues (thus excluding them from sociology). The first of these theories is Durkheim's, where I will focus on his notion of *faits sociaux* and the resulting conception of the social as a predominantly immaterial coercive structure; here, sociality is an obstacle to perceiving the physical materiality of sound. Second, I discuss Weber's notion of social action and the resulting conception of the social as fundamentally consisting of meaning, an obstacle to taking sensory perception and modalities into account as a relevant aspect of sociality. Third, Luhmann's understanding of social systems as consisting exclusively of communication will be discussed as one of the most advanced sociological theories, which nevertheless follows Durkheim's and Weber's basic premises. Especially in Luhmann's theory of mass media, the consequences of those premises' *obstacles épistémologiques* become manifest.

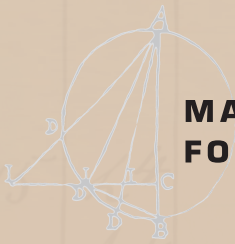
Talking History: Oral History between Archives, Historiographic Method, and Digital Humanities

The field of oral history is commonly understood as having its origins in the 1930s and 1940s, before reaching its zenith between the 1960s and 1980s. While oral history is usually framed as a subdiscipline of history, its practitioners have ranged from historians, archivists, and community activists through to folklorists, anthropologists, and digital humanities researchers. The spoken word—whether by “elite” or “ordinary” subjects—exerts a strong appeal and impetus for oral history initiatives. Yet in the first decades of oral history, practitioners tended to erase sound recordings following the completion of an edited transcript. From the 1960s, as sound recording technology became more portable and affordable, institutional collections vastly expanded in scope, and practitioners often disagreed about best practices for archive management of materials held in various sound formats. At the same time, those active in the field faced fierce criticism concerning the reliability of transcript-based representation and the validity of individual interviews for historical analysis.

In this presentation, I reconsider an ongoing predominance of Anglo-American contexts for understanding this field. Drawing on European developments—with examples from Germany, Austria, and the Netherlands—may allow important revisions to a persistent focus on singular national frameworks, individual institutions, and stable disciplinary boundaries. Instead, I seek to specify the relation of oral history to sound as its primary data and to the establishment of sound-related techniques (e.g., interviewing, modes of listening), technological protocols (recording set-up, postproduction), and analytical methods. I will also question accepted chronologies about “phases” of oral history, the most influential being the notion that oral history was first an archival practice based on empirical data collection and repositories, but subsequently shifted to a formalized historiographic practice and, more recently, to digital methods of research (e.g., annotation, analysis) and presentation (e.g., digital storytelling).

Acoustic Jurisprudence

My talk is about two different fields where law and acoustics meet. On the one hand, there is a change in the way that people talk in the courtroom, a change that was initiated by new technologies such as microphones and started in the mid-twentieth century. This new technology led to a new kind of law theory (best represented in the works of Cornelia Vismann), a theory about law and cultural techniques in which the language of law is not centered on a human subject and in which acoustics perforates the borders of that language. On the other hand, acoustics became part of modern jurisprudence by becoming a matter of law. James E. K. Parker has shown that the trial of Simon Bikindi structured new categories in a field Parker calls “acoustic jurisprudence.” The two fields should not be understood as a new alienation of the law’s own media. They are, rather, part of what Jacques Rancière calls the *partage du sensible*. Acoustics have always taken part in social normativity—what is new is the technical range and the “internal distance” between language and noise.



**MAX PLANCK INSTITUTE
FOR THE HISTORY OF SCIENCE**



**Vossius Center for History
of Humanities and Sciences**

Stimme beim Singen der Vokale.

VENUE:

Harnack-Haus

Ihnestr. 16-20

14195 Berlin

To register, please contact:

Birgitta von Mallinckrodt

officeacoustics@mpiwg-berlin.mpg.de

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