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Review of *Electronic Inspirations: Technologies of the Cold War Musical Avant-Garde*, by Jennifer Iverson, Oxford University Press, 2018

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The electronic music studio of Cologne's *Westdeutscher Rundfunk* (WDR) in the postwar decade is too often presented as the cloistered workplace of Karlheinz Stockhausen, as synonymous with additive synthesis, and as a hub of the compositional discipline of *elektronische Musik*. In her new monograph on the postwar decade in German electronic music, Jennifer Iverson draws upon archival materials to tell a more complex story illustrated with myriad analyses of sound- and musical works. She reevaluates the composer- and discipline-centric understanding of the WDR, and details the training and background of studio technicians. Countering the narrative pushed by some of its main actors, Iverson presents the studio as a fundamentally interdisciplinary space. *Electronic Inspirations* is a refreshing repudiation of the presumed national and disciplinary insularity of *elektronische Musik*, and a model for addressing the role of failed experimentation, human-technological networks, and genre boundaries in electronic music and sound work. In the fragile years of German reclamation and the early years of the Cold War, the studio's musical experiments were mobilized as avatars of not only technological but also ideological progress. Iverson's text provides an investigation of the techniques and culture of this political project.

Below, after introducing the book's organization, I will summarize and comment on each chapter. Finally, I will engage with Iverson's approach to the ideological meanings of *elektronische Musik*. How did the technologies, research, institutions, and people actively bolstering wartime Germany come to represent the progressive momentum of postwar German reclamation? In answering this question, I comment on Iverson's methodological approach and scholarly orientation towards the topic, as well as the glaring gender imbalance implicit in the scope of her study. To conclude, I address the possible readerships for the detailed analyses contained in this specialized book, and its contribution to multiple disciplines.

The book is organized in six chapters, in addition to an introduction and epilogue. The chapters sequentially address the laboratory-like nature of the WDR studio; the contributions of Cage and Tudor to European music; the collaborative nature of additive synthesis; the perceptual limits of serialism and solutions offered by information theory and statistics; the 1958 Darmstadt controversy surrounding aleatory music; and the influence of phonetics, linguistics, and Cathy Berberian on vocal sound work at the WDR and RAI (Radio Audizioni Italiane) studios. The helpful "Glossary of Actors" at the end of the book, organized by area of specialization, tracks the network of "heterogeneous professionals" at the WDR (241). Together with the introduction, the chapters can be read independently. That said, Chapters 2 and 5 on Cage and Tudor in Europe are complementary, and Chapters 3 and 6 on ex-Nazi scientist Werner Meyer Eppler's expertise in information theory and phonetics could also be read in tandem.

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In the opening chapter, "Origins: Creating a Laboratory," Iverson describes the workflow at the WDR studio as laboratory-like, highly collaborative, and defined by technological affordances. She shows that the fierce hierarchization of studio labor contributed to blind spots in historiography, which foreground the work of composers at the expense of technicians, scientists, and engineers (33–55). While Stockhausen *was* a standout figure at the WDR, insofar as he both composed and understood studio technology (like a technician), he was far from the first and far from the only creative contributor to the work that took place there. Iverson credits the studio's co-founders and some of the book's major figures—scientist Meyer-Eppler, musicologist and composer Herbert Eimert, and sound engineer and composer Robert Beyer—as the true originators of the WDR studio's timbral orientation. (Meyer-Eppler, who brought his knowledge of synthesis, information theory, and phonetics to the WDR from U-boat research for the Nazi military, is perhaps the protagonist of Iverson's project.) Moreover, complicating the WDR composers' self-situation in a high-cultural lineage built upon the modernism of Ferrucio Busoni and Anton Webern, Iverson documents the influence of radio plays, or *Hörspiele*, on *elektronische Musik* (37). *Hörspiele* were only ever acknowledged in talks about seeking funding for the studio (38). In fact, the impact of this genre ran deep. Iverson presents meticulous analyses of WDR works that use the *Hörspiel*-adjacent portfolio of technicians such as Erhard Hafner and Heinz Schütz as uncredited sound material for sound montages, passing them off instead as sound synthesis (46). The first pieces coming out of the WDR show these connections: Schütz, who worked on effects for an outer-space sci-fi *Hörspiel* titled *Das Unternehmen der Wega* [*The Adventure of Vega*], which opened with the words *'Hier Abteilung Morgenröte'* ["This is Dawn Division"], later composed the WDR's "piece zero," conspicuously titled *Morgenröte* [*Dawn*] (1952) (40). As Iverson demonstrates, *Morgenröte* became the substantive uncredited source material for Eimert and Beyer's *Klangstudie II* (1952), the WDR's second piece (40–47).

In Chapter 2, "Kinship: Cage, Tudor, and the New Timbral Utopia," Iverson expands the WDR network to the rest of Germany and the United States, locating multiple origins for Stockhausen's interest in timbre. She charts the deep, long-term influence of John Cage and David Tudor on German electronic music, citing hefty sums paid to the pair for concert series in Donauschingen and Cologne. Cage's works, ideas, and invention of the prepared piano certainly influenced Stockhausen's idea of musical form and conception of timbre respectively (67), but Tudor's influence, argues Iverson, was even more important to Stockhausen's development (52). Iverson redresses Tudor's relative historiographical invisibility (72), and posits him as the most influential translator between the European and American scenes in the 1950s (73). From his 1954 visit to Cologne onwards, Tudor was avant-garde Europe's go-to pianist and unofficial ambassador in "speaking for the 'Cage Group,'" in Stockhausen's words (70). Iverson presents two effective network maps that illustrate Tudor's connectedness to European and American composers via his four visits to the Darmstadt *Ferienkurse* in 1956, 1958, 1959, and 1961 (70–71).

Chapter 3, "Collaboration: The Science and Culture of Additive Synthesis," parses the process of experimentation in the studio's signature technique. In addition to a collaborative workflow, experimental results of failure and discovery characterized the WDR studio equally. Composers and technicians worked in parallel, sending work products back and forth, often hitting a wall. Many work products—such as Stockhausen's *Studie I*—were in large part determined by what was possible, and what was not, with the technologies in the studio, often leaving composers dissatisfied. Ultimately, many of the theoretical ideas explored at the WDR were only realizable acoustically. For example, based on a flawed understanding of psychoacoustics at the WDR, György Ligeti predicted that a melodic line would materialize from combination tones in *Pièce électronique No. 3* (1957–1958). Ligeti did, however, come to enunciate this "impossible" melody through string harmonics in his acoustic *Atmosphères* (1961) (102–103). The WDR is thus shown, in spite of its limitations, to be a generative hub of experimental hypotheses that influenced music beyond the *elektronische* genre.

Continuing with the theme of technological limitations, in Chapter 4, "Reclaiming Technology: From Information Theory to Statistical Form," Iverson shows how WDR composers' interdisciplinary infatuation with Claude Shannon's information theory helped them realize "the crucible of constraints and affordances" of their studio's technologies (137). The wartime discourse addressing questions of data compression and human perception made it clear that human ears cannot perceive the density of information resulting from some of the serialist and total-aleatory techniques. For example, Gottfried Michael Koenig's serialist *Essay* (1957) taxes the limits of human perception by working with durations so imperceptibly short that they become a blur. Meyer-Eppler and Cage receive only passing credit from Stockhausen for bringing information theory and a broader interest in perception to the WDR. Moreover, Stockhausen completely failed to credit the contributions of Koenig, Henri Posseur, and Iannis Xenakis. Xenakis, who worked with probability theory in pieces such as *Achorripsis* (1957), was ostracized by Stockhausen and disconnected from the discourses of the WDR

(129–135). The Greek composer himself guessed that this was because of exclusivist sentiments about expanding the German-French-Italian network (135). Iverson speculates that Stockhausen's personal insecurity may have played a role as well (136). Either way, the disciplinary openness of the WDR had its limits.

Rethinking the American influence on European composition, Iverson returns to Cage and Tudor to offer a new understanding of disagreements about compositional technique in Chapter 5, "Controversy: The Alteatory Debates Beyond Darmstadt." An outdated, but persistent, story of Darmstadt 1958 tells of a rift between the Americans and the Germans, exemplified by Carl Dahlhaus who wrote that Cage's arrival "swept across the European avant-garde like a natural disaster" (Dahlhaus 1992, 777). Iverson presents a much more nuanced account. Applications of aleatory procedures certainly veered in different directions for Cage and the Europeans. American composers such as Cage or Earl Brown privileged performer-centered indeterminacy, while European composers such as György Ligeti and Pierre Boulez preferred for all statistical constraints to take place precompositionally, the latter warning that a performer's imagination "misfires more often than it fires" (155). However, in Iverson's estimation, the debates surrounding these explorations were generative, not adversarial: "there was an aesthetic split, but there was no personal split," in Brown's words (164). Iverson concludes that the "debate and disagreement" at Darmstadt 1958 can be understood "as a sign of shared investment," and argues that "debate makes the stakes visible, helping actors on both sides to clarify their own positions, investments, and next moves" (164). This is an important rethinking of a key moment in twentieth-century music history. Here, Iverson shows the U.S.-European discursive network as intellectually and creatively porous in the early years of the Cold War, with everyone always engaged with everyone else's work, whether in Germany, the United States, or France.

Finally, Chapter 6, "Technosynthesis: From Vocoder Speech to Electronic Music," charts the influence of phonetics and linguistics discourses on the WDR and RAI studios. Advances in speech synthesis in the U.S. at the Bell Laboratories, Meyer-Eppler's phonetics research, and the structural linguistics work of Roman Jakobson were particularly influential. Like information theory, phonetics became Meyer-Eppler's area of academic expertise after denazification; he was already familiar with the Vocoder from his time as a Nazi researcher (175). Iverson also notes Berberian's significant creative contribution to phonetics pieces such as John Cage's *Aria* and *Fontana Mix*, composed between 1958 and 1959 at the RAI. The appropriation of phonetics for music composition was, Iverson speculates, also a way to assuage fears about technology slipping out of human control: investing technological (and disciplinary) capital in the voice and language demonstrated control of the machine (193).

1. "Reclamation" through Electronic Music

Navigating how the ideological shift from wartime to post-war Germany played out on the stage of electronic music, which adopted the very material resources and human resources left over from wartime, is the challenging central thread of Iverson's book. Iverson traces the wartime pedigrees of cutting-edge technologies, ideas, and employees in the studio. How did additive synthesis, information theory, phonetics research, and figures such as former Nazi Meyer-Eppler transition from one project to another? According to Iverson, electronic music played a significant role in the PR campaign of German reclamation, not just in spite of, but also because of its ties to the wartime regime. These ties were merely made invisible by the repurposing of human and technological capital: "[i]t was on the grounds of electronic music that West Germany could stake its claims to cultural integrity and Cold War superiority" (107).

Within the broader West German cultural project, electronic music was intended to function as an ostensible vaccine against prejudice, inoculating listeners with small doses of (aesthetic) difference meant to cultivate open-mindedness—"a take your medicine approach" (6). It also acted as a model of Germany's cultural heterogeneity, showcasing the freedoms that differentiated the West German approach from a Soviet-style grip on cultural production. Asking to what extent listeners recognized and/or responded to these ideological missions of electronic music is not part of Iverson's investigation. Aside from calling this cultural mission "kind of paternalistic," she stops short of sharing her own estimation of this sociocultural campaign's efficacy, suggesting, perhaps, an interesting area of future research (6).

On the ground, the process of reclamation had less than polished contours, and it is to Iverson's credit that she leaves them so. The denazification of Meyer-Eppler personifies the WDR's appropriation of wartime brainpower for the field of electronic music research. Meyer-Eppler's story, cropping up throughout the text, makes for an uneasy read (4, 114, 138, 168, 175–176). Iverson speculates that his WDR collaborators likely never explicitly addressed his Nazi affiliation, "if they even knew" (138). No cathartic 'reckoning' ever takes place. At best, writes Iverson, the studio's "interdisciplinarity" and "reclamations" of technologies, research, and people from the Nazi regime's

military-industrial complex "do not so much heal the wounds of war as accumulate new meanings and layers that distance us from the trauma" (138). Iverson returns to this image of a palimpsest of history, writing that "shifting attention" from the militaristic "on[to] the artistic uses of the Vocoder and on[to] the scientific advancement of phonetics" rendered the former "invisible" (176). I questioned whether the WDR was merely a new layer of meanings or an effective site of reputational laundering for Meyer-Eppler, postwar Germany, and certain fields of research. On this question, Iverson generously honors the complexities of history; her writing radiates a broader ethic of compassion.

Still, I would have liked to learn more about Iverson's own positioning towards her subject of study as a site comprised of almost exclusively straight white men, to the point where the WDR's demographic homogeneity may be its main, albeit unspoken, characteristic. Iverson discusses the topic briefly in the introduction, valuably locating the WDR's male heteronormativity—which she says lent the institution an air of perceived trustworthiness—within the broader "speculative project of cultural remasculinization" happening across West Germany (17–18). Is this "remasculinization" part of postwar 'reclamation,' or does it actually reproduce, or at least perpetuate, the techniques of the project of cultural superiority that defined German culture in the preceding century? Is it both?

In the book's sixty-two deep "Glossary of Actors" (241–250), only three women are listed: Fluxus artist Mary Bauermeister, new music patron Suzanne Tézenas, and the above-mentioned vocalist and composer Berberian. Berberian, a "central collaborator" who contributed to "nearly every piece to emerge from the RAI studio," predictably receives the most space (188–189). Iverson credits her with "rehumanizing" (191) and "domesticizing" (193) speech synthesis for the listener, which was no doubt part of her role. Unfortunately, Iverson does not explore how descriptions of Berberian's vocal work reveal the tenuous terms defining composition, human-machine boundaries, and labor itself: what is at stake, for example, when Berberian is described as "the RAI studio's most important technology" and its "tenth oscillator" (188)? What goes unarticulated, though it does simmer in the background of Iverson's analysis (e.g. 163), is that electronic music has always flirted with difference, looking to gendered and racialized sonic expressions (and male/white fantasies thereof) for its 'electronic inspirations.' It would have been worthwhile to address the influence of jazz, like that of *Hörspiel*, on timbral exploration at the WDR. That Eimert pitched Cage's music as operating in the lineage of jazz could have been a starting point for this discussion (52), though one could look more directly to jazz records and performances in Europe.

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The *Inspirations* of Iverson's title seems to refer to several things: to multiple disciplines sharing in postwar electronic music-making; to the restoration of credit to previously disregarded experimental, technical, and discursive work in the studio; and to the multiple national ideologies (Nazi German, West German, French, American, Italian) that influenced the genre. As for the book's subtitle, *Technologies of the Cold War Musical Avant-Garde*, some readers may agree that *Electronic Inspirations* has more to do with the aftereffects of World War II than the core dynamics of the Cold War. That is, the central political tension implicit in the text—albeit one that goes unarticulated at the WDR—is between Nazi Germany and postwar Germany, not between the Soviet Bloc and the U.S.-oriented West.

The core reader of *Electronic Inspirations* may be a music theorist or musicologist interested in *elektronische Musik* and the mythology surrounding Stockhausen. Iverson shows *elektronische Musik* to be—yes—niche, but also fundamentally dependent on exchange with fields of specialization and schools of composition outside of its Cologne studio. The book will certainly speak to those researching Cage, Tudor, and aleatory music, as well as the RAI studio.

Further, music theorists and historians will appreciate Iverson's analytical-archeological digs into connections between seemingly unrelated pieces of sound work. My favorite ones relate to Pousseur's aleatory *Mobile* (1957–1958) for two pianos, which challenges performers to coordinate fixed, aleatory, and improvised sections chosen on the fly from a notebook score. Iverson notes the human-centered "mobility" of *Mobile*, and argues that Cage's vision of indeterminacy clearly did influence Pousseur in the end (155). A map of *Mobile*'s structure is one of many analytical graphs among the book's rich illustrations, which also include archival documents and score excerpts. Other graphs of form, such as a map of durations in Koenig's *Essay* (121–123), also helpfully illustrate at least some of the principles from information theory that I, frankly, found difficult to grasp. *Electronic Inspirations* is a fairly specialized text, and few readers will have expertise in all of the disciplines circulating at the WDR, which is, after all, Iverson's main point.

The book will also be valuable to those interested in postwar German cultural history, the cultural history of technology, scholars of radio, and those exploring the influence of information theory and mathematics on music. Devotees of Bruno Latour's actor-network theory (ANT) will find Iverson's interpretation of the studio as a laboratory instructive. Iverson only briefly gestures to ANT as such, but her approach to the role of technological limitations, the porous disciplinary boundaries of the WDR, and

the disciplinary transfer of technologies and people offers a model for revealing the "invisible"—her frequent term of choice—in a network. By accounting for all of the creative work, expertise, and professional relationships surrounding the WDR, Iverson brings the figure of studio technician into the purview of music studies in a way that should inspire scholars studying the work of producers, administrators, patrons, stage hands, and other marginalized figures across disciplines. On top of contributing valuable research on the technical sources of *elektronische Musik*, Iverson offers an important analysis of networks, disciplinarity, and institutionalism. *Electronic Inspirations* is also sure to inspire further research into electronic studios, reception studies, other disciplines' influence on music, and music's role in political history.

References

Dahlhaus, Carl. 1992. "Form: Introduction." In *Contemplating Music: Source Readings in the Aesthetics of Music, Vol. III: Essence*, edited by Ruth Katz and Carl Dahlhaus. New York: Pendragon Press.

Iverson, Jennifer. 2018. *Electronic Inspirations: Technologies of the Cold-War Musical Avant Garde*. New York: Oxford University Press.