The Bloomsbury Handbook of ROCK MUSIC RESEARCH

Edited by **Allan Moore** and **Paul Carr**

BLOOMSBURY

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Rock Music Engineering and Production

Samantha Bennett

Introduction

In this chapter, I deal with the space existing between performance and reception, that being, the often-overlooked yet critical realm of rock music recording and production. The history of rock music can be traced via a parallel history of technological and processual development, since key milestones in sound recording and production are foregrounded in rock music more than in many other genres of music. Certainly until the 1950s, sound recording of classical and jazz musics was limited to "performance capture" approaches designed to accurately represent a live performance in a traditional venue.[1] Indeed, some scholars, including Morton,[2] have traced twentieth-century music via its technological and production turning points; Cunningham[3] and Milner[4] also use this historical method to discuss rock music production in key general interest texts.

Zak recognized the postwar period as a time when recordists moved from making straightforward recorded snapshots of performances and "became fascinated with creating music in recording studios that existed nowhere else."[5] During the 1950s, "The artifice that recordists had sought to disguise was instead put on display."[6] This historical turning point is widely understood not only as the beginning of rock and roll, but also the point at which the presence of sound recordists, and their concomitant technological and processual interventions in recording sessions, was foregrounded in records. Subsequently, the significance of such production aesthetics seeped into wider rock music reception and cultural commentary. We hear the presence of the recordist, recording processes, and workplace in significant 1950s recordings. For example, the B. B. King, Howlin' Wolf, Johnny Cash, Elvis Presley, and Carl Perkins recordings made by Sam Phillips at Sun Studios, Memphis, are often cited as indicative of a coalescing of blues and rock and roll style with tech-processual practice. It is at this point that rock music and its sound recording and production practice(s) became inextricable; by the late 1950s, the recordist, process, and recording technologies were all understood to significantly impact the overall realization of a record.

The development and actualization of rock music in the 1960s is well established. Multiple, major academic works on canonized British and North American artists including the Beatles,[7] the Rolling Stones,[8] The Beach Boys,[9] Jimi Hendrix,[10] and other, predominantly male, musicians has resulted in an entrenched rock canon that continues to fascinate and draw scholarly attention long into the twenty-first century despite, as Wyn Jones rightly suggested, its "complicated web of values and mechanisms."[11] This is entirely commensurate with findings of rock canonization, specifically, in Ralf von Appen and André Doehring's work.[12] Their study involved research into thirty-eight lists of "greatest albums of all time." The results demonstrated a "top 30" list where all were rock records made before 1997. The canonization of particular rock artists and musicians is in no small part due to the innovative recording and production practices associated with their major works. Schmidt-Horning, for example, suggested that rock music's "new shape and form" was defined by both electronic instruments and "the way engineers and producers experimented with recording technology to create new sounds, new styles, new musical expression that combined older musical forms with new technological possibilities."[13] Yet the continuing presence of such interventions as sonically discernible on record was less to do with an extension of classical and jazz performance-capture approaches and more to do with what Sexton recognized as a "smuggling" of avant-garde composition techniques into rock production.[14] He went on to cite Brian Wilson, George Martin, Phil Spector, and Joe Meek as four examples of "sonic alchemists, capable of using the studio in a creative and constructive manner."[15] Prior to Martin's Beatles recordings at EMI Studios, Abbey Road, this interventionist approach had already been pioneered by Meek, an electronics enthusiast who built a recording studio and label, RGM Sound, into a town house on Holloway Road, London. Meek's combination of innovative processes (including recording instruments in a bathroom) and homemade effects processors resulted in a highly stylized production aesthetic that could be argued to be the first sonically discernible production "signature" in British rock music.[16] In saying that, Meek's work was less inspired by the avant-garde and more a result of a fascination—and experimentation—with electronics since an early age. Additionally, Meek's interest in outer space and the supernatural also impacted on his otherworldly production aesthetic, as embodied in tracks such as the Tornadoes' "Telstar" (1962).

Of course, the engineering and production of rock music has evolved since the 1960s. Yet a continuum of 1960s ideas and understandings of rock music production—to include matters of workplace, recordist identity and agency, technology, and process—is traceable through rock music since then and still manifests in today's rock music production.

Methodologies

This chapter analyzes the current state of play—as well as potential future directions—of scholarly discourses pertaining to three evident methodological approaches. First, I address studies on the site of rock music engineering and production, the recording and production workplace. In *Chasing Sound*, for example, Susan Schmidt-Horning charts

the history and culture of the recording workspace from Edison to the LP, covering a broad historical era in great depth.[17] Eliot Bates deals with functionality, practices, and the concept of *vibe* in his analysis of "What Studios Do,"[18] whereas Alan Williams drills down into power, conflict, and role formation in recording studio architecture.[19] Recordist Brian Eno also set out the potential of the "studio as compositional tool" in his 1979 lecture and chapter of the same name;[20] this notion is a mainstay in record production discourse and, arguably, a concept manifesting more than ever in contemporary "in the box" and laptop production techniques. I have considered aspects of history, mythology, and heritage in relation to recording studios, and canonization focusing on the "aura" of Abbey Road studios.[21] Yet this skewed power dynamic is increasingly called into question with work focused on technological democratization and the proliferation of the home studio.[22]

Second, I deal with discourses surrounding recordist agency, a point of focus since Charlie Gillett's article "The Producer as Artist."[23] This attribution of agency to the recordist has, however, led to the problematic notion of "The Producer as Auteur"; the idea that a record producer's role is similar to that of a film director[24] or even a composer.[25] Conversely, the role of the recordist has been asserted as a collaborative one,[26] and in a more sophisticated analysis, as one of important "nexus" between musicians, songwriters, arrangers, and record industry personnel.[27] Plenty of works on the impact of individual rock recordists exist in the form of personal biographies[28] and interview collections,[29] but while helpful, these can be problematic in terms of accuracy, memory, and decisions surrounding the inclusion and omission of events, as Zak suggested:

> The oral accounts of practitioners, though problematic, are among our most useful resources. If, for example, we are to engage the entire musical surface, it is helpful to know what kinds of concerns were paramount to those who made it.[30]

Scholarly articles dealing with one specific recordist, including Shepherd's work on Stephen Street[31] and mine on Gus Dudgeon,[32] focus on the working practice(s) of an individual. This is not to suggest a recordist's contribution *alone* is what makes a recording notable but rather to illuminate the potential impact of their processual and/or gestural decisions on what is eventually heard. So, my intention here is not to suggest the recordist as auteur, but to recognize that recordist agency plays a significant part in the production of popular music and this is, in both historical and contemporary examples, perhaps more the case in rock music. An interesting way in which rock recordist agency manifests today is in the Mix with the Masters program.[33] This seminar-based residential course matches "carefully selected" participants to leading rock recording and mix engineers for a week largely of mixing practice. That the featured "masters" and participants are overwhelmingly male and are also largely affiliated to rock genres and artists positions this program as an elite, somewhat aspirational series. This is a point of focus later in the chapter.

Third, I focus on sound recording and production technologies in the context of rock music. Reading the history of rock music as a history of technological development, some particularly notable, and well documented, turning points include the manifestation of "slap echo" in Sam Phillips's 1950s Sun recordings of Elvis Presley and Johnny Cash; the introduction of multitrack recording as embodied in the work of Les Paul; the application

of recording technologies as compositional tools in George Martin's production of the Beatles' *Sgt. Peppers Lonely Hearts Club Band* (1967); Gus Dudgeon's maximizing of spatial and dynamic range in David Bowie's "Space Oddity" (1969); Alan Parsons's realization of radiophonics and avant-garde tape editing practices in Pink Floyd's *Dark Side of the Moon* (1973); the potential of "flying fader" automation and total mix recall realized in the large format SSL production of Def Leppard's *Hysteria* (1987); Steve Albini's raw, stripped-back analogue *anti-production* manifested in Nirvana's *In Utero* (1993);[34] Stephen Street's crafting of the Britpop aesthetic through the editing potential of the OTARI Radar in Blur's *Parklife* (1994); and, Liam Watson's return to vintage recording aesthetics in the White Stripes' Grammy-award-winning *Elephant* (2003). However, despite general agreement on the foregrounding of recording and production technologies and processes, this area is prone to critique. For example, "technostalgia" questions a return to past technologies in production;[35] the problematic glorification and mythologization of rock recording studios, tools, and processes is addressed by Williams and Bennett;[36] and, general critical discourses privileging *rock* recording practice over that present in classical, jazz, and dance musics is addressed, with key works by Klein,[37] Rose,[38] and Butler,[39] respectively.

Finally, while this chapter is focused on the workplace, role, and technology as integral facets of rock production, it is worth acknowledging the increase in scholarly focus on the foregrounding of such factors in emerging modes of (phono)musicological analysis. Considerable ground has been made in this area since Tagg identified "dynamics, acoustics and electromusical/mechanical aspects of the music to be of equal importance to traditional musical form" in his 1982 hermeneutic-semiological mode of popular music analysis.[40] Visual depictions of the impact of engineering and production processes on an overall rock mix have been addressed by Moylan,[41] Gibson,[42] and Dockwray and Moore.[43] This has been further examined in specific "tech-processual" analyses, such as my work on the engineering and production processes behind the Sex Pistols' *Never Mind the Bollocks ...*[44] and the tech-processual analytical mode detailed in *Modern Records, Maverick Methods*,[45] focusing on 1980s and 1990s popular music. These studies signify a marked shift away from the 1960s rock canon and toward a stylistically broader and more contemporary music source base. Interestingly, a large portion of analyses focused on areas of engineering and production privileges rock music as its textual source base.

While it is not possible to cover all these approaches in detail in the space of one chapter, the intention is to focus on some specific ideas related to each of these three areas and widen the discussion to include examples from mainstream and alternative rock musics.

Rock Music Production: Understandings and Interpretations

I begin with an understanding that most rock music—to include its historical and contemporary manifestations as well as subgenres—is bound by "performance-capture" approaches to production,[46] whereby rock's sound sources usually comprise performed

instrumentation rather than programmed and/or synthetic instrumental sounds, notwithstanding that there are examples, particularly in the twenty-first century, of rock music production featuring elements of programmed or otherwise sampled orchestration. Yet despite the presence of performed instrumentation, rock recordings still feature significant technological and processual intervention and, in many cases, this is not simply present on recordings but *foregrounded*. Such is the effect of technological, processual matters and recordist gestures on the sound of rock that we have come to witness a canonization of technologies, as evident in events including the NAMM TEC Hall of Fame.[47] Additionally, scholars have recognized a "canonization of process" as depicted through "making of" documentaries including the Classic Album series.[48] Furthermore, a recordist canon is evident, not just through various inductees into Cleveland's Rock and Roll Hall of Fame (Berry Gordy Jr., Sam Phillips, Tom Dowd, Phil Spector) but also through an evident recordist lineage. This canonization of technology, process, and recordist is, in most cases, directly linked to canonized rock music and the facets of engineering and production so intrinsic to its realization on record.[49] It is important to note that the lauding of such technological and processual associations to rock music is by no means exclusive to the genre; commercial hip-hop and dance musics feature canonized recordists, DJs, and technologies equally so. However, as an older and more established genre of music traceable to jazz and blues musics, rock's associations to engineering and production are perhaps more prevalent and visible through fora including the Audio Engineering Society (AES), National Association of Music Merchants (NAMM), and others. Let's think about these aspects of rock music recording and production in a little more detail.

The Workplace

Naturally, as both scholarly and general fascination with rock music has grown, the site of its production is called into view. Works including Massey's *The Great British Recording Studios* and Weindling and Colloms's *Decca Studios and Klooks Kleek* identify and elaborate the site of recording and production as one requiring special attention.[50] Nowhere is this focus more pointed and celebrated than in the case of Abbey Road Studios, London.[51] While the studio was originally built by EMI for the recording of classical music, hence the size of its renowned Studio 2 built to accommodate a full orchestra, Abbey Road is most synonymous with the Beatles and Pink Floyd. The site of Abbey Road is not simply associated with canonized rock recordings,[52] but was also the location of significant technological developments by its in-house engineers including Alan Blumlein. It is marked by the on-site development of EMI technologies, to include its presence boxes, microphones, and TG series recording consoles, including the much replicated and mythologized REDD.[53] That the Beatles named one of their most revered and critically acclaimed albums after the studios only solidifies the position of Abbey Road as the world's most renowned recording studio. While the focus of studies, including those by Southall,[54] Kehew and Ryan,[55] and Lawrence,[56] is fixed to the studio output of the 1960s and 1970s, a continuum of rock recording at Abbey Road studios is evident via later albums including

Oasis's *Be Here Now* (1997) and *Dig Out Your Soul* (2008). In saying that, since the turn of the millennium, Abbey Road has been more associated with mastering, film music and orchestral recording, with few rock albums having been recorded in their entirety. That is not to say that the *aura* of Abbey Road studios has faded—far from it. In fact, through Abbey Road–branded plugins, cloned and/or otherwise reproduced technologies, radio sessions, and events, the allure of the workplace and its rock music affiliations is arguably as strong as ever.

Another key site of rock record production is the Hansa Ton Studios in Berlin. In "Meaning in U2," Susan Fast recognized:

> There is a precedent for dark, technologically innovative albums such as this (U2's *Achtung Baby*) coming out of the Hansa Ton Studio … Brian Eno produced David Bowie's "Berlin Trilogy" there, and Bowie in turn produced Iggy Pop's *Lust for Life* (1977) there, so *Achtung Baby* is associated, both musically and extra-musically with a particular rock aesthetic.[57]

Hansa Ton Studios is a good example of a mythologized studio: Buckley writes of the "heavy atmosphere" around Berlin and how this is embodied in records such as David Bowie's *Low* (1977), *Heroes* (1977), and *Lodger* (1979), commonly known as the Berlin Trilogy.[58] As recordist Tony Visconti recounts "The studio was about 500 meters from the [Berlin] wall. Red guards would look into our control room window with powerful binoculars."[59] In this example, the recording studio's proximity to such a significant site imbues its recordings with a powerful aspect of political history, as well as a sense that the records were made under oppressive circumstances, thus further reinforcing the recordings' embodied values.

Some recording sites are so associated with rock recording and production that they have since been turned into museums or other exhibition locations. For example, the Queen Studio Experience in Montreux, Switzerland, celebrates the home-away-from-home recording site of rock band Queen. The small studio is situated in the Casino Barriére, Montreux, and features a number of technologies, including the 16-Track Studer tape recorder and AMS delay units used by the band in the recording of significant works. Here, in a specially reconstructed console, it is possible for visitors to "mix" multitrack recordings, listening to individual guitar, drum, bass, and vocal tracks in isolation. This very same reductive mechanism was featured as part of the display in Pink Floyd's 2017 V & A exhibition "Their Mortal Remains," where visitors could "mix" a stem version of *Money*. What both these exhibits demonstrate is the integral nature of technological processes to rock recording and the display and interactivity of such processes presented to general audiences.

So far, I have focused on large-scale, canonized recording studios and their association with key rock works. That is not to say that smaller sites not associated to mainstream rock record production are not an equally fascinating point of focus. Southern Studios, located in a semi-detached house in Wood Green, London, between 1978 and 2012, is one such site of subversive rock production. Here, John Loder, founder of the studio and its related record label and distribution arm, pioneered a rock recording aesthetics that even today is traceable in mainstream rock musics.[60] Unorthodox in its layout, the main control room was situated in an outside garage with a telecom system routed through to the front lounge area, which was the main recording studio floor. With no direct line of sight between the

control room and performance space, the usually separated recordist/performer boundary was further reinforced. This sense of detachment is mirrored in the studio output: Crass's *The Feeding of the Five Thousand* (1978), The Jesus and Mary Chain's *Psychocandy* (1986), Big Black's *Songs About Fucking* (1987), Ministry's *The Land of Rape and Honey* (1988), and Therapy?'s *Pleasure Death* (1992) were recorded in their entirety or in part at Loder's Southern Studios. So influential was the wholly analogue studio on Big Black frontman Steve Albini, that he references Loder—and many of Southern's recordings—as key influences. Albini did, of course, go on to be one of the most recognizable recordists in alternative rock music himself and this is in no small part due to his experiences recording with John Loder at Southern Studios.[61]

Large-format consoles, revered artists and recordings, and locality symbolize the site of rock record production. As Leyshon recognized, the commercial recording studio has slowly declined since the late 1990s.[62] Yet there remain numerous examples of what have been termed "vanity project" studios, those owned, operated, and maintained by leading rock musicians. Both Peter Gabriel's Real World studios and Mark Knopfler's British Grove studios are good examples. Yet with this retention of traditional studios comes nostalgia. In the cases of Abbey Road, Sun, and Hansa Ton, these are now considered heritage sites; places of tourism and pilgrimage.[63]

The Role

In *Modern Records, Maverick Methods*, I noted that among recordist biographies, most were affiliated to major commercial recording artists.[64] Of the sixteen reviewed, all were authored by men, twelve were recordists strongly affiliated to rock, and three specifically to Abbey Road Studios.[65] This is yet another facet of the studios' canonization, but, like most biographies, these books chart the lives and times of recordists and not what it is they actually *do*. A recent—and most welcome—diversion from such biography is recordist Sylvia Massy's book *Recording Unhinged*.[66] Here, Massy not only draws upon her vast engineering and production experiences with leading US alternative rock acts Tool and System of a Down, she also details plenty of her tried-and-tested recording techniques, offers advice to up-and-coming artists, presents case study examples of unorthodox techniques and presents this information among her own illustrations. Massy is not only the first female recordist to publish such a book but the first recordist to reject an established autobiographical approach for one that foregrounds her techniques and experiential expertise.[67] This repositions recordists' autobiographical and biographical studies as focused on the vocation of audio engineering and music production, thus lending the work pedagogical value.

In recent years the dissemination of rock recordist expertise has become a commodity. This is largely due to the traditional role being one that is hidden and as such, a lexicon of descriptors used in both scholarly discourse and cultural commentary is now well established. Often described as "alchemy," "magic," "wizardry," or "trickery,"[68] the techniques and processes used by rock recordists in particular have come to be recognized as something otherworldly, informed by supernatural forces or otherwise unexplained. This is one of

rock music's most commercially exploitable facets; the historically inexplicable nature of engineering and production and the revelatory discourse used to monetize it; I have dealt with the manifestation of the Abbey Road *aura* in its studio merchandise, plugin bundles, and events previously, yet there are other ways we see this mythologized version of rock recording practice commercialized.

Mix with the Masters is a fascinating example of how established rock recording aesthetics prevail long into the twenty-first century. Launched in 2015, this program features mainly rock (to include its subgenres) recordists; Chris Lord-Alge (Green Day, Muse), Andrew Scheps (Red Hot Chili Peppers, Metallica), Steve Albini (Nirvana, Pixies), and Andy Wallace (Rage Against the Machine, Ghost) are all examples of so-called "masters" featured on the program. However, this now-established operation glorifies and foregrounds the mix engineer, elevating their agency above other roles in the recording and production process. This is an example of auteurism in practice; songwriters, performers, assistant recordists, arrangers, and other recording-related affiliates are removed from the picture leaving the mix engineer prominent. This is, therefore, a flawed program; yes, these many mix engineers may divulge a wealth of experiential expertise to include specific mix techniques, but their individual workplaces, access to technologies, quality of their source material both musically and recorded, the myriad ways that recorded sessions are presented to them—in other words, the critical *context* of their work—is not, and cannot be, replicated with a YouTube tutorial or even a week spent at La Fabrique. Mix with the Masters does not suggest seminar attendees will leave possessing the same skill set as the "masters." Nevertheless, the course is promoted—to an audience of established recordists—using exactly the revelatory discourse inherent in scholarly and cultural works on production processes. For example, the program information suggests of each recordist being "ready to share his professional secrets with a select group of a maximum of 14 carefully-screened, professional-level participants."[69] Here, we have a good example of the secret/revelation discourses so prevalent in music technology production and consumption, but also of the power structures existing within them, as de Carvalho noted,

> "Pros" are the ones who hold the knowledge regarding what gear to buy, how to use it, as well as what is considered a "good" or a "bad" recorded sound. They have been granted this power for following the prescribed rules, which in turn seem to have their origins in the practices of the professional recording studios.[70]

Additionally, what manifests here is the canonization of process as researched by Alan Williams. Rock record production invokes the site of the recording studio, a large format mixing console, and a recordist at the helm; as Williams suggests of rock recording practice as depicted through the *Classic Albums* series, recordists "provide the essential validation of the recording as a work of art."[71]

Another interesting facet of the recording role in today's rock production is that of lineage. The sons of prominent 1960s recordists George Martin and Glyn Johns, Giles Martin and Ethan Johns respectively, have become rock recordists in their own right. This lineage plays out in the discourses surrounding both recordists' works. For example, in 2017 INXS released a thirtieth anniversary edition of their multi-platinum selling album *Kick*

(1987). Giles Martin was announced as INXS's creative audio director, launching a Dolby Atmos mix of the record at Event Cinemas in Sydney. During this high-profile association, Martin was continually framed in the work of his father: "the renowned producer and son of 'fifth Beatle' George Martin,"[72] and "Martin, the British-born music producer, composer and arranger, is the son of the late, great Beatles producer George Martin,"[73] are just two examples of how Martin is viewed through the lens of his father's work with the Beatles. Likewise with Ethan Johns, we see the connection to his father consistently playing out in discourses surrounding his work. Consider this introductory paragraph from a 2013 *Sound on Sound* article:

> Few record producers have served quite as remarkable an apprenticeship as Ethan Johns. The son of Glyn Johns, whose long list of credits includes the Rolling Stones, the Faces and the Eagles (and, more recently, Ryan Adams and Band Of Horses), as a kid he remembers sitting in on sessions for the Who's It's Hard and the Clash's Combat Rock at his father's home studio in Sussex.[74]

In both cases, Martin and Johns can be considered as bringing the *aura* of the 1960s rock canon to new, twenty-first-century projects simply with their names.

Despite the transformation of the recording and production role in the 1980s and 1990s, the romanticized idea of the auteur rock recordist in an elite recording house sitting in front of a large-format console prevails. What this also suggests is both the retention of 1960s rock recording aesthetics and an iconicizing of the rock recordist.

The Technology

One significant way in which canonized rock values permeate today's music is through the consumption, retention, and idealization of analogue technologies in the recording and production chain. In fact, a continuum of analogue aesthetics in rock music is traceable in rock production since the 1950s and, although artists, performers, songwriters, and audiences—and *technologies*—have evolved, the use and application of analogue technologies in the recording and production process is a mainstay feature. To that end, we can consider analogue technologies as a mechanism via which rock music has managed to navigate and, to some degree survive, the digital age. By the mid-1980s, digital composition, recording, processing, and format technologies were widespread in the commercial music industry. As noted by scholars including Théberge and Bennett, the decline in the consumption of analogue synthesis through the 1980s and the concomitant uptake of cheap, MIDI-compatible digital sequencing and sampling technologies shifted the balance of recording agency away from elite recording workplaces and engineers and toward musicians and performers.[75] These new, affordable, and digital devices both celebrated and *elevated* musician agency via the recording and production of groundbreaking new genres including house and hip-hop. Consider how Brian Eno framed the recording process of U2's *The Joshua Tree*—a traditional, "performance-capture" approach utilizing a then-vintage Neve console,

> It's not coming from a 1980s mentality. It's coming from somewhere completely different. [*The Joshua Tree*] was self-consciously spiritual to the point of being uncool. I thought being uncool was a very good idea then, because people were being very, very cool.[76]

This quote encapsulates the displacement of rock record production during the late 1980s. When Eno speaks of the spirituality inherent in U2's album as being unusual, he alludes to the hard tech-utopianism surrounding new digital technologies. Embodied in these emergent devices were sophisticated processing capabilities including sampling, transposition, and pitch shifting, potentially dehumanizing aesthetics inconsistent with established rock protocols.

Rock music was undoubtedly reestablished as a dominant popular music in the early 1990s in the form of grunge (United States) and, a little later in the decade, Britpop (UK). Despite both forms rekindling existing stylistic and formal traits already established through garage punk and 1960s British Invasion musics respectively, grunge and Britpop signified a revival, not only of rock music aesthetics but also of the technological means used in their production. One example of the embodiment of analogue aesthetics in grunge music is that of Smart Studios, Madison, Wisconsin. Owned and operated by recordist Butch Vig, the studio featured a Studer A827 analogue tape recorder and a Trident ADC mixing console. Records including Sonic Youth's *Dirty* (1992), Nirvana's *Nevermind* (1991), Smashing Pumpkins' *Gish* (1991), and L7's *Bricks are Heavy* (1992) were recorded in their entirety or in part at Smart Studios and as such may be read as embodying its technological aesthetic. Vig did not equip Smart with a digital recording device until 1998, fifteen years after their introduction. Of course, there are reasons for Vig's late adoption of such technology, related to its age and concomitant economic factors, but the presence of analogue technologies long into the 1990s symbolized more than simply emergent recordists taking advantage of the prevalence of analogue technologies on the secondhand market. Without subscribing to problematic discourses of authenticity, we can understand analogue technologies to, at the very least, validate a DIY, performance-oriented approach to recording commensurate with the roots of the genre in 1960s garage rock and 1970s punk. On the other hand, Brit-pop recording embraced 1960s rock recording aesthetics and this is perhaps most reflected in the output of rock group Oasis, with the recording of *Be Here Now* (1997) at Abbey Road Studios.

In his article "Analogue Distinction," Kaiser speaks of technological ownership and the loaded social and cultural factors embodied in analogue devices. He points to "the use of a hardware item as the symbolic indicator of (a) social position (status), and (b) people's esteem of the owner's status (prestige)."[77] Drawing on Marx's established discourse of ownership of production, as well as Bourdieu's groundbreaking work on "Distinction," Kaiser suggests that ownership of analogue recording and processing devices in 2017 symbolizes elitism. For most emerging recordists, analogue hardware is not simply out of reach economically but also physically; the impractical nature of the size, weight, and concomitant lack of portability inherent in analogue consoles and outboard equipment ensures its fixed point of operation. In saying that, the status and esteem bound up in analogue devices is projected onto—and consumed via—digital skeuomorphs of analogue technologies in the form of plugins. Nowhere do we see the iconicizing of analogue technology more

than in Universal Audio's UAD-2 Octo "Analogue Classics" plugin bundle. Marketed as, "The definitive emulations of five of the most iconic analog signal processors in recording history,"[78] this package features versions of analogue technologies including the Pultec EQP-1A equalizer, Studer A800 tape recorder, Neve 1084 equalizer, Teletronix LA-2A Leveling Amplifier, EMT-140 Plate Reverbs, Echoplex tape delays, and SSL mixing console channel strips. This not only provides emergent recordists, students, and enthusiasts with a viable and affordable means of acquiring "analogue" technologies but also represents a transcendence of analogue technologies into the digital domain. As Paul Théberge recently argued, "Digital technology is trying hard to be analogue."[79] In 2012, I recognized myriad reasons as to why recordists and workplaces retain analogue systems. Sonic character and client expectations were among the main reasons, but the romanticizing of analogue technologies was also acknowledged.[80] This idealizing of the technological means via which recordings are made is embodied in the documentary *Sound City* (2013). Produced by former Nirvana drummer and current Foo Fighters lead singer Dave Grohl, this film traced the numerous canonized rock recordings made at the famous Los Angeles recording studios, yet at the nexus of all of them was the Neve console. Here, the desk is not just used to demonstrate the soloing of individual tracks (as Williams noted is so common among the *Classic Albums* documentaries) but is presented as a kind of engine in the machine of rock record production. Grohl interviews company founder Rupert Neve and the film also focuses on the dismantling of the console as it is moved from the original site of Sound City to Grohl's private studio. This glorification of the console does, however, skew focus on rock production away from musician and recordist agency and toward a technological constant. This projection of rock values onto the technological means by which it was created—and the imbuing of rock values *into* technologies—is also brought into view through recent auctions. The sale of the 2017 EMI TG REDD Series console—otherwise known as the "Pink Floyd" console—was particularly notable. In this case, the sale was promoted using mythological and romantic notions of the console's past use; in the 1970s, the console was installed in Abbey Road Studios, operated by recordist Alan Parsons, and used to record one of the most canonic rock records in *Dark Side of the Moon* (1973). Some of the rhetoric surrounding the sale of this console included the console as "one of the greatest … ever constructed," with auctioneer Katherine Schofield stating:

> The world record price of this important item of music engineering only confirms the military precision of EMI craftsmanship and the powerhouse persona of Abbey Road Studio. The intense bidding seen in the room and on the phone speaks to its association with one of the UK's most relevant and successful bands, Pink Floyd, and highlights the fact that this is far from being any ordinary console.[81]

Indeed the console was expected to sell for "six figures," but eventually sold for $1.8 million. Similarly, in 2017 recordist Steve Albini advertised three microphones on music and technology site *Reverb*.[82] At first, this Electrovoice RE-20 and stereo pair of Lomo 19A9 condensers appear innocuous; these are microphones likely to be found among studio collections globally. However, these particular types had been used to record Nirvana's *In Utero* (1993) album at Pachyderm Studios, Montana and, specifically, had been used to

record Kurt Cobain's vocals. Microphones that would usually retail for around $200 were suddenly attracting bids of more than $13,000. Here, we have an example of how canonic rock values are embedded in the technological means used to create them and as such result in a large increase in material value. If a record allows us a closeness to a musical performance and, therefore, the performers, then being in the workplace—or, indeed, owning a piece of technology used in the making of that record—surely brings us even closer. That a key member of the posthumous rock canon may have performed via such technology on a canonized record only imbues it with more musical and material value.

Prospects for Future Work

Discourses and literature on rock music engineering and production remain heavily weighted to 1960s recordists, processes, and workplaces. While there are plenty of studies surrounding the production of popular music genres including dance,[83] hip-hop,[84] and funk,[85] there is still plenty of opportunity for more study in the area of rock music. Some areas, particularly punk and grunge, are well covered from audience and reception angles.[86] However, there is significant potential surrounding subgenres, to include alternative rock, hardcore, industrial, and metal; studies in the recording and production of these genres are limited.

We have a wealth of studies focused on canonized recording workplaces. However, these are again skewed to sites of 1960s and 1970s production, so there is much opportunity to trace the continuum of rock production in the home and project studio domains as well as shine a light onto smaller, yet significant recording sites from the 1980s onward. Likewise, biographical, ethnographic, and analytical work based around the role and agency of 1960s recordists is ubiquitous. There is plenty of scope for broadening this area, not to reinforce existing or build new rock recordist canons, but to recognize the myriad methods of rock music record production and how these may vary according to musical aesthetics, recordist intentions and agency, in diverse workplaces, and via varying technological means.

A major area requiring attention is the place of rock record production outside the UK and United States. The overwhelming majority of works on workplaces, recordists, and technologies feature a narrow geographical focus. Recently, work by Eliot Bates has broadened this out to include significant work on recording practice in Turkey,[87] Marco de Dios Cuartas is focused on recording studio design and practice in Spain,[88] and Bartleet and colleagues have published on the production of Indigenous music in Central Australia.[89] These are a few examples of how scholars have widened the geographical boundaries of music production studies, but in terms of rock music specifically, there is still much work to be done. Rock music is global—written, performed, and produced all over the world. How is rock music produced outside its US origin? To what extent are these rock production values based on, imitating, or transcending established rock values and practices? And who is producing it? These are key questions for the future of rock music scholarship.

Another potential area of future focus surrounds the production of rock music with minimal analogue aesthetics. How is rock music recorded, mixed, and mastered

"in the box"? What does rock music's reliance upon analogue aesthetics mean for its future? What types of rock music subvert, bypass, or otherwise do not subscribe to current modes of analogue retention? Again, these are important questions for our scholarly community going forward.

Notes

1. For example, see the discussion on recordists John Culshaw, Walter Legge, and Fred Gaisberg in Eisenberg, *The Recording Angel.*
2. Morton, *Off the Record* and *Sound Recording.*
3. Cunningham, *Good Vibrations.*
4. Milner, *Perfecting Sound Forever.*
5. Zak, *I Don't Sound Like Nobody*, 6.
6. Ibid.
7. Womack, *Cambridge Companion to the Beatles*; and Moore, *The Beatles: Sgt. Pepper's.*
8. For example, Volume 2, Issue 3 of *Rock Music Studies* featured five articles on the Rolling Stones.
9. For example, the Beach Boys are featured twice in Bloomsbury Academic's 33 1/3 series: Fusilli, *Pet Sounds* and Sanchez, *The Beach Boys' Smile.*
10. Including Waksman, "Black Sound, Black Body."
11. Jones, *The Rock Canon*, 1.
12. Von Appen and Doehring, "Nevermind the Beatles, Here's Exile 61 and Nico."
13. Schmidt-Horning, *Chasing Sound*, 207.
14. Sexton, "Digital Music," 92.
15. Ibid., 92–93.
16. Cleveland, *Joe Meek's Bold Techniques.*
17. Schmidt-Horning, *Chasing Sound.*
18. Bates, "What Studios Do."
19. Williams, "Divide and Conquer."
20. Eno, "The Studio as Compositional Tool."
21. Bennett, "Behind the Magical Mystery Door."
22. De Carvalho, "The Discourse of Home Recording."
23. Gillett, "The Producer as Artist."
24. See Warner, *Pop Music*; and Eisenberg, *The Recording Angel.*
25. Moorefield, "The Producer as Composer."
26. Kealy, "From Craft to Art."
27. Howlett, *The Record Producer as Nexus.*
28. Including Martin, *All You Need is Ears*; Lanois, *Soul Mining*; Harding, *PWL*; and Johns, *Sound Man.*
29. See Massey, *Behind the Glass*, vols. 1 and 2; and Buskin, *Inside Tracks.*
30. Zak, "Editorial – The Art of Record Production."
31. Sheppard, "Stephen Street and the Art of Man-Management."
32. Bennett, "Gus Dudgeon's Super Sonic Signature."
33. See Mix with the Masters, "Mix with the Masters."

34. Bennett, *Examining the Emergence and Subsequent Proliferation of Anti Production amongst the Popular Music Producing Elite*.
35. See Taylor, *Strange Sounds*; and Bennett, "Endless Analogue."
36. See Williams, "Pay Some Attention"; and Bennett, "Behind the Magical Mystery Door."
37. Klein, "Performing Nostalgia on Record."
38. Rose, *Black Noise* and "Orality and Technology."
39. Butler, *Unlocking the Groove*.
40. Tagg, "Analysing Popular Music," 45–46.
41. Moylan, *Understanding and Crafting: The Art of Recording*, 1st edn.
42. Gibson, *The Art of Mixing*.
43. Dockwray and Moore, "Configuring the Sound-Box."
44. Bennett, "Never Mind the Bollocks."
45. Bennett, *Modern Records*.
46. Ibid.
47. For further information, see NAMM TEC, "Technical Excellence and Creativity Awards." https://www.tecawards.org/hall-of-fame.
48. Williams, "Pay Some Attention."
49. For example, of the forty episodes in the *Classic Albums* series, only one—Jay-Z's *Reasonable Doubt*—might be considered as falling outside the genre parameters of rock music. Another point of note about this series is the domination of male artists. Of the forty episodes, only one features female musicians ("Fleetwood Mac – *Rumours* (1977)").
50. Massey, *The Great British Recording Studios*; and Weindling and Colloms, *Decca Studios*.
51. Abbey Road studios pertains to the name of the road on which they are situated. Originally, the site was called EMI Studios.
52. Bennett, "Behind the Magical Mystery Door."
53. The REDD (Record Engineering Development Department) was a series of consoles designed and manufactured by EMI in the late 1950s and 1960s. Renowned for their stereo recording capability and valve-driven circuitry, the REDD consoles are highly revered and sought after in the audio engineering realm.
54. Southall, Vince, and Rouse, *Abbey Road*.
55. Kehew and Ryan, *Recording the Beatles*.
56. Lawrence, *Abbey Road*.
57. Fast, "Meaning in U2," 45.
58. Buckley, "Revisiting Bowie's Berlin."
59. Ibid., 223.
60. Bennett, "Songs About Fucking."
61. Ibid.
62. Leyshon, "The Software Slump."
63. Bennett, "Behind the Magical Mystery Door."
64. Bennett, *Modern Records*.
65. Scott and Owsinski, *From Abbey Road to Ziggy Stardust*; Emerick, *Here*; and Martin, *All You Need is Ears*.
66. Massy, *Recording Unhinged*.
67. Another example of an established sound recordist taking a pedagogical approach to their practice is former EMI engineer Alan Parsons. His *Art and Science of Sound Recording* program features a DVD set of exploratory—and explanatory—videos as well as an accompanying book and website.

68. Bennett, *Modern Records*, 83.
69. See Mix with the Masters, "Mix with the Masters."
70. De Carvalho, "The Discourse."
71. Williams, "Pay Some Attention," 169.
72. Sinclair, "Giles Martin."
73. Brandle, "INXS."
74. Doyle, "Ethan Johns."
75. Théberge, *Any Sound You Can Imagine*, and Bennett, *Modern Records*.
76. Classic Albums U2 – *The Joshua Tree*.
77. Kaiser, "Analog Distinction."
78. See, Universal Audio, "UAD Plug-Ins." https://www.uaudio.com/uad-plugins/plug-in-bundles/analog-classics-pro-bundle.html.
79. Théberge, "ReCon."
80. Bennett, "Endless Analogue."
81. Ramsey, "Dark Side of the Moon Console Fetches $1.8 Million at Auction."
82. Orkin, "Steve Albini."
83. Butler, *Unlocking the Groove*.
84. Rose, *Black Noise* and "Orality and Technology."
85. Danielsen, *Presence and Pleasure*.
86. See Strong, *Grunge*; and Worley, *No Future*.
87. Bates, *Digital Tradition*.
88. De Dios Cuartas, "Towards a Standardization of the Recording Room."
89. Bartleet, Sunderland, and Carfoot, "Enhancing Intercultural Engagement Through Service Learning and Music Making with Indigenous Communities in Australia."