

The Musical assemblage at work

Alex Kelley

Over the last several decades, several thinkers, including Bruno Latour, Helene Mialet, and Jane Bennett, have emerged who seek to re-evaluate the relationship between humans and things. These thinkers, though not without their differences, each seek to expand the notion of agency beyond the actions of an independent individual. They seek an idea of agency which allows for a distribution among groups, as well as to nonhuman actants. Though much of the work done in this new field has been on the sciences, These questions are also important to the study of culture and of art.

Music is a fruitful place to begin interrogating the role played by 'things' in our everyday life. The musical world is inhabited by a great variety of people, things, and ideas functioning together. In order for a performer to perform, or a composer to compose, they too are in need of a great deal of equipment. They must work with the things around them. Musicians, instruments, songs, and scores all have their part, each of which must be present. Though the sound of music is immaterial, its production and dissemination is always bounded up with the material, whether it be the use of a piano to compose a piece, the use of a sound system to amplify a performer, or the reification of the product in a recording.

This human/nonhuman interaction is critical to how we experience musical performances. Concert-goers fill halls in order to see a performer play a particular repertoire on a particular instrument. A translation from a violin to an electric guitar might be the critical

difference between a virtuosic performer of Paganini and a Heavy metal shredder. Musical genres are defined in part by what their practitioner's wear, what equipment they use, and where they perform. A specific instrument can be vital for a performer to truly become themselves, to find "their sound." And yet, even with all the care taken to craft just the right material circumstances to produce music, performers often find these circumstances surpassing them. A hand slipping on a guitar leads to a much improved solo. A band playing in a venue that resonates perfectly with their sound might lead to a magical performance that could not be predicted. In *Vibrant Matter*, Jane Bennett gives us a sense of her first experience of a "culture of things," which is replicated in these experiences of musical things exceeding our intention for them. It is that we "can be surprised" by them. (Bennett 2010, 5)

The question of the relationship between music and things is not a new one. In "Remark on Technology and Society," Max Weber gives us a sketch of how he interpreted it. Though he agrees that technology surely has some relationship to the development and composition of music, it is clear that Weber prefers to focus on the social, arguing that "transformations of style have probably never been *purely* technologically motivated. He gives several examples of how technology, or the material, may interact with music. One of these ways is as a limitation, in which current technology is insufficient to reproduce the aesthetic intent of the composer. Here he argues that the composer's artistic will is primary, and that the things around them act simply as a medium to express it. Musical technology, then, is either adequate or inadequate to this task. The other way in which music is related to technology is that music is made in a technological context, which necessarily affects a composer or performers mindset. He gives the example of

the “modern metropolis” in which he lived, arguing that whether they accept or reject it, contemporary artists' are necessarily influenced by this metropolis. (Weber 2005, 29)

Though Weber's two ideas of the relationship between music and technology are certainly correct, there is much more to be said on this subject. By reading the work of Latour, Mialet, and Bennett into Weber, it is possible to expand his ideas of this relationship. Using their ideas of human/nonhuman relationships as well as of distributed agency, we can see that musical ‘things’ have a much greater role to play than simply as ‘limit,’ or ‘context.’

First, by using Mialet’s concept of the ‘extended body’ and Bennett’s idea of the ‘assemblage,’ this paper will show that the ‘composer’ as such does not act with an independent artistic will which is limited only by the technological means to realize it. Rather, the composer, is often simply the label given to groups of human and nonhuman actants creating together. This grouping’s ‘artistic will’ is a part of the material and technological situation and not independent of it. Using the example of the Beatles’, this will demonstrate that technology does not just limit a composers will, but shapes and defines it, opening up possibilities as well as closing some off.

Next, using Bruno Latour’s actor-network theory, this paper will show that the musical object has a much greater role in development and change than as simply a context in which music is situated. Though the aesthetic values of artists are situated in a technological context, they are also able to change that context with technological innovations. These innovations in turn are able to generate new aesthetic values. Using the example of the development of the electric guitar, I will show that musical objects often spur change beyond what their innovators anticipated. Using an iconic performance by Bob Dylan, we will see what a dramatic effect a change in technological context can have on aesthetics and on the perception of the performer.

The Composer as Assemblage

In “Remarks on Technology and Culture,” Max Weber gives an account of the composer as ‘heroic,’ possessed of an independent and transcendent aesthetic intent. This view was common in 19th and 20th century music scholarship, and sought to separate the works of ‘great’ composers, such as Beethoven and Mozart, from their “historical and interactional contexts.” (DeNora 1995, 6) Weber gives a distinctively sociological and material spin to this view in his description of the composer’s relationship with the technological. He states that a composer’s “artistic will itself gives birth the technological means for problem-solving,” that is to say that great composers are able to surpass their technological situation. Given this, the only role Weber ascribes to the material conditions in which a composer works is as a “barrier,” in which a composer has ideas which go beyond the present stage of technology. Musical ‘things’ here are simply a medium for the composer to express him or herself in. (Weber 2005, 30) The compositional ‘genius’ in western art music has been critiqued in recent years. In *Beethoven and the social construction of genius*, Tia DeNora demonstrates how claims of Beethoven’s genius were mediated and developed as a function of the aristocratic social structures in Vienna. (DeNora 1995, 4) Weber’s remarks open up space for a different kind of critique of genius. Looking at the process of composition with more detail and noticing the points of collaboration between a composer and the human and nonhuman actants around them will allow us to judge whether, as Weber wrote, the “underlying idea” of music is “not technologically motivated.” (Weber 2005, 30) To get a better sense of how a composer is part of a larger network, the work of two theorists of ‘distributed agency’ will be useful.

Helen Mialet's *Hawking Incorporated* provides us with a model of how a composer may have more complex relationships with the world around him or her than may first appear. Mialet studies theoretical physicists, another field in which the rhetoric of the 'genius,' who apprehends knowledge directly, holds sway. In this book, Mialet examines the workings of what she calls Stephen Hawking's "extended body," a vast network of secretaries, research assistants, and machines, all of which work together in order to allow Hawking to appear as a self-sufficient genius. (Mialet 2012, 7) Mialet argues that Hawking's disability does not make him unique in this respect, but rather that it "makes apparent the normally hidden practices of academics...and managers," each of whom also rely on a kind of extended body to do their work. (Mialet 2012, 42) Uncovering this body requires careful attention to detail. By showing how technology, whether pen or paper, or digital computers, has an impact on the end product, we can displace some of the transcendent qualities of the composer onto these items, without which he or she would be unable to work. We can also show the efforts of teachers, performers, and confidantes which surround a composer and exert influence over their work. Composers, too, have their extended bodies.

A useful and related concept to Mialet's 'extended body' is the Assemblage, gathered from Jane Bennett's *Vibrant Matter*. For Bennett, an assemblage is an "ad hoc grouping of diverse elements," which are "not governed by any central head." (Bennett 2010, 23-24) It is composed of a mix of human and non-human actants, each of which "has a certain vital force," but also with "an efficacy proper to the grouping itself: an agency of the assemblage." (Bennett 2010, 24) Unlike Mialet's "extended body," the assemblage does not consist of a central node around which others gather. Rather, it is a grouping somewhat out of joint, with each member

having agency, and none exerting complete control. Agency is radically distributed, and she claims that we cannot ascribe independence to any single member of an assemblage. In composition, taking this idea seriously leads to say that, in some sense, pen and paper are to be considered partners with Beethoven, and not simply his tools. Every aspect of the assemblage has a role to play, and an agency to exert, no matter how small. After all, without the paper, how could Beethoven's symphonies be written, disseminated, or learned. How could we today hold him in such high regard, if we did not have the means to perform his music as written. However, it is often difficult to see members of an assemblage clearly. This is in part because smaller nodes, such as pen and paper, tend to withdraw from our view, deflecting our gaze towards a center. In *Hawking Incorporated*, Mialet claims that though Hawking's graduate students did the bulk of his research, they "attributed paternity of the[ir] ideas to Hawking." (Mialet 2012, 59) It is much the same with more complex assemblages. We look towards the genius composer which appears to be at the center of the compositional assemblage because it is so much more difficult to keep track of all the moving parts which surge and foment underneath. Weber appears to make this very same mistake when he claims that "the artistic will gives birth [to] the technological means." (Weber 2005, 30) He does not see clearly that the technological will gives birth to the artistic means as well.

The 'Slash' of Lennon/McCartney

The music of the Beatles furnishes us with a concrete example of the composer as a musical assemblage. Their continuing popularity, critical acclaim, and iconic status make this a case already familiar to most. Furthermore, the songwriting team of John Lennon and Paul

McCartney is one of the most successful of the Rock and Roll era. The Beatles were also dedicated experimentalists, using cutting edge technology in a unique way. A description of the assemblage which was responsible for the Beatles' music will show that it is far from transcendent or independent from its material and technological situation. In fact, their music involved a great deal of humans and nonhumans working together and exerting agency over the whole. By showing that this is true for the example of The Beatles' we will be well on our way to showing that technology and the assemblage plays an important role in musical composition and performance.

'Lennon/McCartney' is our first point of inquiry. This assemblage, indicating that the song was written by both John Lennon *and* Paul McCartney, is credited as the composer of most the Beatles' songs. No matter what the compositional process was, or how much each contributed to the work, both agreed to this convention, legally and formally, to add to their work. And yet, much hides within this slash. For, even as it might credit both members for the work of one, it also excluded any other possible member of this assemblage from recognition. All of the machines which recorded and distributed the Beatles' albums, and all of the other people, friends, and collaborators around them withdraw, hidden inside the slash.

Walter Everett tells us that the very idea that one could write songs was a gift from Paul McCartney to John Lennon, saying "McCartney's ability to compose was a revelation to...Lennon." (Everett 1999, 31) They collaborated extensively early in their careers, estimating that they completed between 50 and 70 songs by 1962. (Everett1999, 25) Yet, their decision to efface their individual songwriting efforts came far before the bulk of this production. In 1959, the two agreed to affix the name Lennon/McCartney to all of their future efforts, regardless of

who actually penned each tune. This continued throughout the Beatles' career, even as the two grew further away both personally and artistically. (Everett 1999, 31) These two songwriters became a single entity, an 'extended body' which was stronger than either of them alone.

This primordial effacement of the individual efforts of Paul McCartney and John Lennon into the juggernaut Lennon/McCartney opened the way for further concealment of the networks and collaborations which each of the songwriters deployed in order to produce their material. Two songs on 1968's *White Album* provide extreme examples. "Revolution 9," an eight minute long experiment in *musique concrete*, was "largely a Lennon-[Yoko] Ono collaboration." (Everett 1999, 174) Lennon was "guided by Ono's experience and enthusiasm" (Everett 1999, 174) in this work, which largely took place without input from McCartney. However, through the indirect use of sampling, the rest of the Beatles, along with Robert Schumann, Ralph Vaughn-Williams, and a great number of uncredited participants, ended up as unwitting collaborators to this gargantuan track. Outtakes from recording of other songs, discussions between the group, and tape found at the studio all ended up on this recording. The moniker Lennon/McCartney obscures the many other contributors, especially Yoko Ono. A heavily contrasting example is "Why Don't We Do It In The Road." This number was written and recorded by McCartney entirely on his own, over a single day, without any input or even performances by the other Beatles. All instruments are recorded by Paul alone. It too, though it could hardly be considered a piece by "The Beatles," is considered a work by Lennon/McCartney. (Dowdling 1989, 239)

The shifting assemblage responsible for a song is not always so easy to unpack. The authorship of the song "Back In The U.S.S.R.," conceived of as a parody of the Beach Boys, has

been contested, with Mike Love of The Beach Boys claiming that he contributed some of the words while he and the Beatles were together in India. (Dowdling 1989, 225) The song “Glass Onion” is another confusing example This song was an explicit response from John Lennon to interpretations of the Beatles' music by their fans. In an interview, he remarked that “I was just having a laugh, because there had been so much gobbledegook written about *Sgt.*

Pepper.” (Dowdling 1989, 227) This song, while ostensibly made to debunk his fans and retain control of the interpretation of his work, also shifts the assemblage of collaboration even further. The Beatles’ most ardent fans here furnish the theme and content, with Lennon shaping and adapting it. We can see in all of these examples the breadth and depth of collaboration, the shifting allegiances and aesthetic values covered up by the term “Lennon/McCartney.” This situation is not unique to The Beatles. Every story of singular ownership must hide a complicated and interesting story which lies behind the assertion of ‘aesthetic values’ and ‘inspiration.’

This assemblage, though, is not just made up of human elements. The technology and material substance used by The Beatles also had an important influence on their music. One critical member of this part of the assemblage is the recording studio. Beethoven relied on patronage and publishing, and most popular musicians make their living as performers. The Beatles, though, especially after 1966, were primarily a recording band. Due to their success, their prestige, and also their producer George Martin, the Beatles had access to the most advanced recording studios at this time, (Everett 1999, 198) and near unlimited time to make use of it. Let us examine what role the non-human has to play in their compositions and performances.

Cajoling by George Martin, coupled with the early success of the Beatles', prompted the installation of 4 track recording technology in EMI's Abbey Road studios where the Beatles did most of their recording in 1963. (Julien 2008, 4) This technology allowed for both "more flexibility" and "more control" in the recording process. (Everett 1999, 199) It permitted an artist to record additional tracks on top of already recorded ones, building a sound which could not be easily reproduced in a live setting. The group made use of this technique throughout their career, but really began to use it as an instrument in 1967's *Sgt. Pepper's Lonely Hearts Club Band*. (Julien 2008, 5)

The Beatles' use of recording techniques in this period did not resemble Weber's characterization of technology as forming a barrier to the artistic will of the composer. On the contrary, this technology, and the freedom it afforded them, opened up new worlds and possibilities for them, prodding them to use instruments and compositional techniques that were unimaginable to them before. One place where the non-human aspects of the assemblage were fully deployed was in the song "Being for the Benefit of Mr. Kite." George Martin, the Beatles' producer, crafted much of the effect of the song after receiving vague suggestions from John Lennon. (Everett 2001, 111) Four track recording allowed for the recording of a basic track by the band, with their usual instrumentation. This was then used as a base for what followed. Several lead vocal tracks were recorded and mixed together, and added to this were at least four harmonicas, two piano tracks, and three organs. Tape of a calliope organ was cut up and spliced together at random, creating a swooshing, swirling effect. Finally, an acoustic guitar was recorded and played at half speed as an instrumental break. (Everett 2001, 110) One could argue that these bold experiments were the result of the inspired genius of John Lennon and/or George

Martin, who used the technology to develop the song according to a precise vision. If we are able to keep the assemblage in view, however, we find a very different picture. Here, the possibilities of the four track technology beckon to Lennon and Martin, suggesting to them the possibility of adding layer upon layer to the track, allowing them to experiment without fear of consequence. In this view the mixing of timbre and tape, the adding of piano to piano and vocal to vocal, did not occur to them until the technology made it possible. Rather than facilitate the vision that Lennon already had, the technology expressed its own agency, gently nudging the two experimentalists to realize the possibilities given by it.

Another look at how recording technology influenced the Beatles' work is given to us by the song "Strawberry Fields Forever," recorded just before *Sgt. Pepper's*. This song was recorded two separate times by The Beatles', each in a different key, tempo, and instrumentation. Unsatisfied with both recordings, Lennon and Martin attempted to combine the two, creating a hybrid by splitting them in half and connecting the first half of one to the second half of the other. (Julien 2008, 5) This feat, inconceivable without the new recording technology and still very difficult with it, was achieved, and the two tracks were merged. The result is very interesting, and it is hard to see what sense of "agency" or "control" Lennon had over the process at all. The two versions were simply not satisfactory, and the hybrid was. Even as Lennon suggested that the two might become one, it is unlikely that he had any idea what kind sound would result. "This manipulation of the phonographic medium clearly shows that...the Beatles were no longer concerned with the performability of their music." (Julien 2008, 6) This serendipitous event shows that The Beatles' had embraced the idea of the studio as a new instrument, but also as a new member, one whose actions would exceed the group's intentions.

In the years since recording *Sgt. Pepper's*, the technology utilized by the Beatles has become common and made so inexpensive that anyone can access recording technology superior to what the Beatles used in 1967. Through constant use, this technology recedes into the background, until it hardly seems like a technology at all. For many contemporary recording artists, layering and overdubbing tracks seems like the only possible way to record, and the effect that it has on us becomes inconspicuous. Something similar must have happened with other musical technologies in the past. Just as multitrack recording now seems to be a transparent part of the fabric of musical composition to us now, so too the role of the pen and paper, the publishing house, and the symphony orchestra does to the compositions of Beethoven. Since we cannot imagine it otherwise, we find it difficult to see how these things act upon us, how they nudge us towards certain outcomes and close others off. The more transparent a technology is to us, the less we can see the subtle sense of agency it exerts on our aesthetic sensibilities, our musical choices, and more, what even seems possible for us.

Just as the graduate student gives credit for his work to Stephen Hawking, so too does the recording studio not take credit for its contributions. The musical assemblage as a whole withdraws until all we can see is Lennon/McCartney. Though Weber accurately described one aspect of how technology works on a composer, he was unable to see that the composer itself is merely a convenient title for a complex distributed agency which cannot be reduced to a single entity. Indeed, Bennett and Mialet's concepts of assemblage and extended body make it very difficult for us to speak of 'the composer' in the singular at all.

Latour and the Electric Guitar

Weber asked another question of the relationship between technology and music in his “Remarks on Technology and Society,” “whether what is called modern technology...does not stand in some relationship with formal-aesthetic values.” (Weber 2005, 29) He says that we must “undoubtedly answer yes” to this second question. Weber describes this relationship as one in which music is *situated* in our technological context, specifically in the ‘modern metropolis.’ He claims that modern poetry could not exist unless the poet has “allowed the impressions of the modern metropolis to pass completely through himself.” (Weber 2005, 28) Weber is completely correct to say that this is one of the relationships between technology and culture. We are certainly *placed inside* a single technological and material situation and no other, and our art must reflect that situation “pass[es] completely through” ourselves. However, with the help of Bruno Latour’s Actor-Network Theory, we may be able to discover another relationship which reflects a more symmetrical view of technology and culture. This complicates the way that technology contributes to our aesthetic values. The music we create reflects our context, but it also provides a basis to change that context and create new values. Our technology and values are linked together by a chain that goes beyond its creator’s intentions. Technological forms give rise to new values, which in turn give rise to new forms of technology to better realize them. This technology can then be appropriated, or realized, for yet another new aesthetic value. Weber’s claim reflects just one part of the picture.

In “Technology is Society Made Durable,” Bruno Latour claims that we must to “turn away from an exclusive concern with social relations, and weave them into a fabric that includes Non-human actants.” (Latour 1991, 103) Unlike in Weber’s view, where human social relations take place in the context of the modern metropolis which inevitably influences them, he suggests

that we can “follow the simultaneous production of a ‘text’ and a ‘context.’ (Latour 1991, 106)

This means that we alter our technological context at the same moment that it influences us. The material and the social develops at the same time.

In order to make sense of this situation, Latour suggests that we consider the *programs* (or goals) of actants, as well as their *attachments* (to this program) symmetrically, applying each term to human and non-human actants alike. As Paul McCartney sits down with the aim to write a song on his guitar, his guitar is not neutral in this process. It has its own attachments, its tendencies and leanings, and it too participates in the composition. Latour claims that we are better able to understand innovations (in science and culture) using this technique than by studying humans relations alone. His work has dealt mostly with innovations in science, but it can be readily adapted to innovations in musical technology and values. Let us take as an example the development of the electric guitar.

The electric guitar is now an instrument of critical importance to American popular music, not to mention other music around the world. It’s portability, volume, and versatility has made it the central instrument in a huge variety of genres of music. And yet, one hundred years ago, it did not exist at all. Weber’s insight about our being situated in a technological context does not help at all in this case. He does not give us any indication about how a context can change, or about how something completely unknown can become ubiquitous, completely necessary for so many musical genres. We could give a crass explanation for this phenomenon by invoking the spirit of capitalism, saying that where there is a market for a product, it will be developed. However, at the time of the invention of the guitar, no such market could exist. A narrative which only has room for social relations will not be sufficient to understand how the

electric guitar became such an important instrument. By flattening the social and the material, and by attributing some agency to the nonhuman, we can provide a much more satisfying explanation.

In the late 1920's, larger dance bands began to replace the more angular, raucous music of New Orleans "Dixieland" bands in the American radio and imagination. These bands played music which was lush and smooth, more tame than what preceded it. These new bands began to do away with the banjo as an accompanying instrument, replacing it with an acoustic guitar. These bands often included as many as 20 musicians, and the volume of the guitar was not enough to compete. It is in response to this problem that the first attempts to electrify the guitar were made. This effort was not made in order to alter or change anything about the timbre of the guitar, or to create any new aesthetic values. It was simply to make the guitar better at what it already did, accompany these big bands. (Waksman 2001, 18) This innovation took place with actions from both the social and the technological. A change in aesthetic values prompted a technical problem which was solved by the replacement of a banjo with a guitar. Electrification was a response to this technical problem. Rather than musicians simply receiving their values from their material situation, here their values caused them to alter their technological situation.

The amplified guitar opened a space for another shift in musical values. This louder guitar no longer needed to be relegated to an accompanying role. Guitarists were now able to compete with louder saxophones and trumpets. Though before this, guitarists were content to only learn to play chords, now they began to imitate the single note solos of horn players. Charlie Christian was one of the first guitarists to use this louder volume to take a starring role in a group. He asserts in a 1939 article for *Downbeat* magazine that "most bandleaders see guitarists

only as robots ‘plunking on gadgets to keep the rhythm going.’ Electrical amplification has given guitarists a new lease on life.” (Waksman 2001, 22) Here, what began as an attempt to better adapt the guitar to the existing technological situation ends up somewhere very different. New technology led to new aesthetic values and also new social structures and new technical possibilities for guitarists. This new volume allowed Christian to assert himself as a musician equal to horn players and pianists. It is the amplified guitar that is responsible for this phenomenon, unimagined both by its innovators and its practitioners before its innovation. This chain illustrates how dynamic innovations can be, and how deeply they rely on the exchange between technological and social actants. Aesthetic values and material situations respond to one another almost immediately, and is responded to in turn. This dynamism is lost in Weber’s account, though, and it’s lost to Christian as well. Charlie Christian considers this brand new situation that he finds himself in to be static and unchanging, and writes; “play the guitar *the way it should be played* (my italics), and make the world like it.” (Waksman 2001, 22)

The next important development was the invention of the solid body electric guitar a decade later. Before this, electric guitars conformed to the basic shape and hollow body of the acoustic guitar, with electro-magnetic pickups to amplify the sound. This created a problem of distortion and feedback when the guitar became too loud. Amplifiers and hollow instruments resonating at the same time create a feedback loop at a certain volume. This creates a high pitched, painful whine through the speakers. Distortion, too, resulted from the amplified sound, making the instruments tone “dirty” when played through a speaker. Les Paul was one of those who was experimenting with solid body guitars in the late 1940’s, as an attempt to deliver a more pure, clear tone. He described his efforts as a search for a pure sound without any extraneous

noise, separated from the dissonances of modern jazz. (Waksman 2001, 38) Rather than a sound which mimicked the saxophone's growl, he wanted an instrument which was matched the clear sound of Bing Crosby or Paul's wife, Mary Ford. His goal was to find a sound which would fit in perfectly with the aesthetic values of his world, and make it easier for him to play the music that he already played. He designed several guitars which were made of solid wood, and pitched them to Gibson guitars, who finally honoured him by naming their flagship model after him. Again we see an example of aesthetic values concretely altering the technological situation

Within twenty years of the invention of the solid body guitar, it had moved far away from Paul's vision of a clear pure sound without any distortion. By 1970, Paul's signature guitar had become a necessary ingredient for the dirty, distorted guitar sound favored by Rock musicians such as Jimi Hendrix. The very element that made Paul's instrument so easily tamed, and so capable of producing a clear tone, also made it much easier to manipulate the sound. Whereas before, distortion was a necessary evil, now it was another tool for the guitarist. Paul had made it possible to control distortion and feedback, and Rock music took full advantage of it.

(Waksman 2001, 170) This outcome was not intended by Les Paul or the others who produced the first electric guitars at all. Again, an action to change the technological situation to better realize existing aesthetic values had led to actions to produce new aesthetic values.

Latour's insistence that we flatten the human and non-human actants gives us a much more coherent narrative than we otherwise would have. Just as we can say that Les Paul created the solid body guitar, we can say that the solid body guitar created Jimi Hendrix. This instrument connects the two men technologically, even as it separates them aesthetically. Without discussing the agency of the guitar, the way that it can surpass its creator, a critical link in the chain is lost.

If we were to connect the guitarists only, ignoring the role of the guitar, the story would become meaningless. The gap between the artistic values of Les Paul and of Jimi Hendrix would seem insurmountable. When we acknowledge the role of the guitar, we can see that the aesthetic values of Les Paul becomes separated from the medium he used to achieve it, and is opened up for new possibilities.

An iconic story about Bob Dylan at the 1965 Newport Folk Festival gives us another example of the power of the guitar as an agent. At this concert, for the first time, Bob Dylan traded in his acoustic guitar for an electric one. Dylan had become an icon of the folk music audience, and this gesture was seen as a betrayal by many. (Waksman 2001, 1) Folk audiences of the late 1950's and early 1960's valorized the acoustic guitar, feeling that its intimacy and softness were felt to be far superior to the crude brashness of the electric. As innovators changed and transformed the guitar, all in an effort to make it better at realizing their aesthetic values, the older ways, the solo acoustic guitar acquired a nostalgia for these audiences as that which was left behind. In this situation, an aesthetic value attempted to reject the technological situation it found itself in, and attached itself to the technology of an earlier day. These audiences, too, felt that aesthetics and technology were so tightly linked that even the appearance of the electric guitar was a travesty.

The innovators of the electric guitar could not have foreseen this nostalgia for the acoustic guitar. After all, their attempts to develop the guitar was never with the intention to change its value. At every stage, their desire was only to make it better at what it had already done. And yet, with each technological change, a slight change in values followed, and with that, another change in technology. By the time Bob Dylan stepped onto the Newport stage, the solid-

body electric guitar seemed to have almost nothing in common with its acoustic forbearers. The chain of human and nonhuman actants which had led from one to the other had become, for folk audiences, an unbridgeable gap.

This gap between social relations shows up when we try to tell stories about innovation and change without including nonhuman actants as well. Instead of smooth transitions, we begin to see shifts in epoch. These shifts make it difficult to see how dynamic our aesthetic values and technological situation are. Though Weber surely understood the dynamism and change that is a part of our existence, his discussion of the relationship between Technology and Culture does not acknowledge it. Our account of culture must also take note of how things might be otherwise, and the network of human and nonhuman actants is a very useful tool to better understand how this occurs.

Conclusion

Studying the relationships between the human and nonhuman in music is a fruitful way to better understand why we have the music that we do, and how we got there. The study of music, which so often is fixated on personality, creativity, and ‘genius,’ often misses the quotidian aspects of our craft which makes all of these things possible. Without four track recording, we would not have The Beatles, and without the symphony orchestra, we would lack Beethoven. And yet, these two examples are miniscule in the vast networks which allow musical life to proceed. Completing these networks would be a task perhaps too vast to undertake, and yet knowing that they’re there is immensely helpful. It tells us that if we begin to explore the underpinnings of certain composers, performers, genres, or musical cultures, we ought not be

surprised when we dig up some bit of material which acts, and makes these worlds possible. In fact, we can expect to see them everywhere, always interacting with people, with other things, connecting dots and exerting their influence. This should not be surprising other for musicians, many of whom spend their lives with an instrument, acting on it and being acted on, surprising it and being surprised. There are many musicians who continue to play for just this reason, who pick up their instrument to play just so that they can feel it 'respond.'

Bibliography

- Bennett, Jane. *Vibrant Matter: A political ecology of things*. Durham, NC: Duke University Press, 2010.
- DeNora, Tia. *Beethoven and the construction of genius: musical politics in Vienna, 1792-1803*. Berkeley, CA: University of California Press, 1995.
- Dowling, William. *Beatlesongs*. New York: Fireside, 1989
- Everett, Walter. *The Beatles as Musicians: The Quarrymen through Rubber Soul*. New York: Oxford University Press, 1999.
- Everett, Walter. *The Beatles as Musicians: Revolver through the Anthology*. New York: Oxford University Press, 2001.
- French, Richard. *Engineering the Guitar: Theory and Practice*. New York: Springer, 2009.
- Julien, Olivier. *Sgt. Pepper and The Beatles: It was forty years ago today*. Burlington, VI: Ashgate, 2008.
- Kemple, Thomas. "Weber/Simmel/Du Bois: Musical Thirds of Classical Sociology." *Journal of Classic Sociology*. 9. no. 2 (2009): 187-207.
- Latour, Bruno. *Technology is society made durable. A Sociology of Monsters: Essays on Power, Technology, and Domination*. Edited by John Law. London: Routledge, 1991.
- Mialet, Helene. *Hawking Incorporated: Stephen Hawking and the Anthropology of the knowing subject*. Chicago: University of Chicago Press, 2012.
- Waksman, Steve. *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience*. Cambridge, Mass: Harvard University Press, 2001.
- Weber, Max. "Remarks on Technology and Culture." *Theory, Culture, & Society*. 22. no. 4 (2005): 23-38.