The Problem of Perfection in Classical Recording – The Performer's Perspective

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I - WHAT IS THE PERFORMER'S PLACE IN THE PROCESS AND PRODUCT OF RECORDING?

'This is gonna hurt, isn't it?'

From the moment Thomas Edison spoke the words 'Mary had a little lamb' into his new phonograph machine in 1877,[2] live concerts and recordings became irrevocably separate processes and products. The disjuncture between these two modes of performance seems to have instilled in many musicians a dislike or fear of recordings, a sense of anxiety relating to the process which is different from the normal nerves associated with performing live. The advent of recording is arguably the biggest change that musicians have ever had to deal with, and it transformed their lives forever. Almost overnight they were expected to cope with a completely new mode of performing, and it must have been frightening. An evocative example of this can be found in the film *The Legend of 1900* which is about an orphaned boy who was born and raised on an early transatlantic ship. When he grows up it emerges that he has developed a genius for music, becoming a virtuoso pianist and paying his way by joining the ship's band. A Fred Gaisberg-style producer[3] from a gramophone company hears of his prodigious talent and comes aboard the ship to make a recording of him. The recording session is about to begin. As the pianist stares at the recording horn and attached equipment, he looks worried, and as he turns to the keyboard to play he says: 'This is gonna hurt, isn't it?' His performance is, as usual, magical, but as soon as he hears the master played back, and the producer starts to tell him that he is going to be world-famous and sell huge numbers of records, he panics and grabs the master, muttering through clenched teeth: 'My music isn't going anywhere without me.' He finally breaks it, the only copy, into pieces.[4] This

scene is perhaps illustrative of how many early 20th-century musicians felt upon their first encounter with recording. Day, [5] Katz[6] and Philip[7] describe similar examples of many early recorded performers approaching the recording horn with trepidation and anxiety. But what is striking is that even after over a century of commercial classical recordings, many of the same issues are still in evidence for performers today – distrust of the technology, dislike of the process, doubts about whether you like what is captured, disillusionment with the editing process, disagreement with the level of perfection which is expected for a recording, the thought of your performance going somewhere where you are no longer in control of it, the thought of a disembodied performance existing at all.

I have interviewed professional classical musicians[8] - orchestral players from major London orchestras, a conductor, singer, and production team members - asking them about their approach to and feelings about live concerts and recordings. It was surprising to find how stark were their comparisons, and that there was a considerable amount of tension in their feelings about recording. Many musicians working today express a fear of the process and a dislike of the product of recording. For them the recording process is far from the collective musical experience of the concert hall that gave the profession its allure in the first place.

It is obvious that a recording is not simply a live performance captured. From Benjamin,[9] through Adorno[10] and Gould[11], to Auslander,[12] musicians, theorists, and listeners have been aware that the two performance modes are different. However, in today's climate of ubiquitous recorded music, consumers seldom question what impact the different situations have on the resulting performances, nor do they consider the effect the process and product of recording have on the performers who create them. [13]

The Performer's Place?

So, what is the performer's place in the process and product of recording? To consumers the performer's place must seem obvious: her place is centre-stage, in front of the microphones (as she would be in front of the audience in a concert), being recorded, with her name in bold across the CD cover. She is the performer, and the recording captures and immortalizes her performance; However, there are many different kinds of people involved in the making of a recording, most notably the producer and production team, and performers often do not have the control that one might assume they do, either throughout the process or over the final product.

In order to understand the conflicted place in which performers often find themselves in the recording process, we must realize that it is, for example, the Philharmonia's performance of Beethoven's 5th Symphony that is important, but before it reaches us through our CD players, iPods, or computers, it must go through the invisible prism of the producers, engineers, and recording process. The strange paradox is that in the studio the producer is seen as all-powerful, to the extent that the performers often feel that he takes away their control of the situation, yet to the outside world he is almost invisible. The production team is relegated to the small print on the back page of the CD sleeve notes, or entirely invisible on the minimal download information. This creates a complex and confusing situation for performers in terms of identity, agency, and control.

This loss of control is difficult for performers, as they have to make the transition from the stage to the studio, but often carry the live aesthetic with them into the recording session. Glenn Gould is one of the few people who have suggested a separate aesthetic for recording, even arguing for the primacy of recording over live music-making, but, for some reason, this attitude has not percolated through to large parts of the classical music profession, although crafting a performance in the recording studio has been the norm for many rock and pop musicians since the 1960s.[14] Gould used the

studio situation to gain artistic control. He was the performer, executive producer and editing director. He had control over the process and product in a way that many classical musicians - especially orchestral performers – often do not.

The Broader Research Context

The material I discuss in this article emerged from my research into the difference between live performances and studio recordings of classical music with particular reference to the work of the conductor Sir Charles Mackerras and the performers and production team members with whom he was working. In seeking to understand the practical differences between live and recorded performances, I used both ethnographic approaches and detailed performance analysis techniques. By combining these approaches I aimed not only to define the differences between the two types of performance, but also to contextualize them within musicians' experience. Two of my main findings were that live performances and studio recordings show points of difference in all aspects of performance (timbre, declamation and characterization, expression, dramatic timing, phrasing and articulation, tempo, etc.),[15] and, even more surprisingly, that many performers working today are often unhappy with the process and product of recording. Because of the projects on which Mackerras was working, this research was mainly focused on orchestral musicians working on symphonic and operatic repertoire. Therefore it must be kept in mind that the feelings about recording being discussed here are perhaps more representative of orchestral musicians, because they tend to have less control over the studio situation and recording than conductors, soloists, or chamber musicians.

To go into a bit more detail, the elements that they feel negatively about in a recording session are the lack of an audience and sense of occasion, the lack of control of

the situation, the different recorded balance, the question of whether the results are representative, and the effects of editing and the expectation of perfection; this last issue has in their opinion created a prioritization of perfection over musical expression. The results of repeated takes and editing have trained the public to expect perfection and finesse, something that many musicians feel is somewhat at odds with the expression and excitement they aim for in a live concert. This is not, however, to criticize the people involved in the production side of the process in any way – I am equally concerned with the challenges they face. In fact, the production teams must find it very strange to have their work go largely unnoticed in comparison to that of the performers' – Cook describes a situation in which classical production teams (also known in academic discourse as recordists) have not only needed to make their art invisible, but they have traditionally been seen simply as technicians, not musicians.[16] I am keen explore the ways in which the findings of this research might help both performers and production team members to think about their respective roles and challenges, as a means of improving their working situations and artistic satisfaction. But as a first step, the lid needs to be lifted on this interesting problem of performers' negative and disempowered feelings about the recording situation.

Performers have described recordings as not representative of their playing, 'not honest', [17] 'you never get the real thing', [18] 'it's all stuck together', [19] and they 'hate'[20] listening to themselves. One performer I spoke with said that I would be doing musicians a favour by showing that the recording situation as it currently stands is, in his opinion, 'highly unsatisfactory'. [21] By going to a recording studio today and asking professional performers what they think about recording, we give them a voice and get a chance to consider which parts of the recording process contribute to this fear and dislike.

How are we to read these statements? Do we think that perhaps performers are simply experiencing the same self-critical shock we all feel when hearing our voices on the answering machine? Are they too close to the situation to have an objective view? Do we need to take performer's views with a pinch of salt? Certainly not. For far too long performers and those involved in all aspects of music-making have been silenced by the claims of the musicological world that their contributions are simply anecdotal, and not to be trusted. This is a view which researchers in the fields of anthropology and ethnomusicology historically have not shared. What makes a performer's testimony any less valid as material for research than the written opinions in Mozart's letters, or Schenker's or Stravinksy's views on the value of performance (or lack thereof)? Leech-Wilkinson and Cook both argue that this might be partly due to the fact that the discipline of musicology has been concerned with writing history 'on the basis of documents, ranging from scores and transcriptions to treatises and criticism.'[22] Performance 'falls between the notes of musical texts and the words of literary ones',[23] and therefore so have performers. Cook describes a long tradition of disparaging and denigrating performers in the 20th century (including culprits such as Schoenberg, Schenker, Adorno),[24] and Doğantan-Dack, a scholar and pianist, has been working towards establishing a 'performer's discourse', leaving behind performers' 'notorious image as inarticulate musicians'.[25] Those of us who are musicologists working in conservatoires, or in collaboration with performers, working in the field of musical performance studies, and also those performers working in the field of practice-as-research, know how welcome and overdue this performative turn is.[26] These developments have created partnerships and ways of working that Cook welcomes as promising to 'give performers a voice',[27] something which, I agree, is much needed. Equally, the work of the AHRC Research Centre for Musical Performance as Creative

Practice (CMPCP) has helped to further developments in this area – all of the main research projects of CMPCP involved the use of ethnographic techniques.[28]

The ethnographic study of classical music-making is a developing area that has experienced rapid, and still accelerating, growth over the last decade. It is still establishing itself, but Cook does not feel it to be an exaggeration to say that there has been an 'ethnographic turn' in musicology as well as the overall performative turn he deals with in his book *Beyond the Score*, with an 'explosion' of musicologists' use of the techniques of ethnography.[29] The work of ethnomusicologists helped to point the way forward, including that of Nettl, Kingsbury, Stock, Cottrell, Pitts, and Barz, amongst others.[30] Some time ago Stock called for further work to be done in this area: he explains why those working in the tradition of Western Art Music would benefit from borrowing ethnographic techniques, almost presciently describing the dual approach that I took in this research:

> 'it is self-evident that music is more than simply sets of sounds […] Music is process as well as product, an arena for both social action and personal reflection; it is [quoting Seeger] "emotion and value as well as structure and form." […] A study of these aspects of musical life will therefore need to integrate close examination of sound structures and symbols with analysis of the patterns of human action and thought that infuse these structures with meaning in specific social situations […] The musicologist that analyzes what musicians and others actually do on particular musical occasions, and how these individuals explain what they do, is likely to gain enlightening perspectives on the sounds that emerge'. [31]

The growth of research in this area is further evidenced by the publication in 2011 of the special issue of *Ethnomusicology Forum* on 'The Ethnomusicology of Western Art Music', edited by Laudan Nooshin (and subsequently published as a collected edition).[32] There are ethnomusicologists looking at classical music, and musicologists (as well music psychologists, performers, theorists and analysts) practising what Nettl calls 'ethnomusicology at home'.[33] As a musicologist and classically-trained violinist, I would count myself amongst the latter; my research involves fieldwork observation and

interviews, and although for this research I have not acted in the strict definition of a participant observer, I am drawing on my knowledge and experience as an insider of classical music culture and practice. This 'ethnomusicology at home' means 'to look also at the familiar as if it were not, at one's own culture as if one were a foreigner to it',[34] by employing ethnographic techniques in order to study current musical practices, .

Methods of data collection usually include fieldwork observation and interviews, the analysis of which can take various forms. Atkinson and Hammersley describe ethnography as usually covering features such as 'exploring the nature of a particular social phenomenon' without setting out to test pre-existing hypotheses, working with data that is 'unstructured', that has not been coded beforehand, looking at a small number of cases in detail, and an analysis that involves 'the interpretation of meanings of human actions, the product of which mainly takes the form of verbal descriptions and explanations'.[35] My research sits comfortably under this umbrella. For the research presented here, I observed recording session, rehearsals, and concerts, and interviewed Mackerras, members of the Philharmonia Orchestra, the Orchestra of the Age of Enlightenment and a singer working with the Royal Opera House, as well as some of the producers and engineers responsible for some of Mackerras's last recordings. I undertook seventeen interviews, and observed six days of recording sessions (which are usually very difficult to gain access to, and so represent a significant addition to the body of knowledge in this area), five rehearsals for live concerts, and twenty live concerts as part of this research. Most of these events took place in London, and so I am speaking mainly of the London and UK classical music scene, but my fieldwork also followed Mackerras's international career.[36] I conducted semi-structured interviews, in person, which I recorded onto mini-disc and then transcribed. The participants were aware in general of the thrust of my research: because of my presence at recording sessions and

rehearsals, I felt it would be impractical to try to conduct the interviews whilst keeping participants completely ignorant of my research area until after the interview, but I tried to explain as little as possible beforehand, so as not to influence their replies (see Appendix 3 for the full list of the semi-structured interview questions). The interview material and fieldwork observation notes were then thematically analysed, producing a series of main themes, which then formed the basis of my analysis and arguments. My interpretations and conclusions were then written up and checked with my interviewees in order to verify my reading of the details and issues. This kind of verification can be a very helpful tool for validation, but I am not unaware of the intricacies of representing others' voices. Stock reminds us that 'the researcher, as author, still selects which voices get to be heard, how much they are allowed to say, and when they speak – so that the use of quotations does not eliminate the issue of representational ethics. […] The onus remains on the researcher to find an honest and sensitive solution to the particular representational challenges exposed during the project.'[37]

I have chosen to adopt an ethnographic stance that seeks to triangulate the various points of view of my groups of informants (performers, production teams etc.) with the issues that arise out of them, and then subsequently debating the pros and cons of the various standpoints, as well as suggesting ways forward. This means that the larger argument posited in the latter part of the article – as well as at various points of debate throughout - is where I seek to critique the views of my interviewees. The choice has consciously been made to let the voices of the performers and production teams do the speaking, instead of paraphrasing and therefore prioritising the voice of the researcher – this latter style can create an effect of appropriation which can seem undermining of the informants, without actually offering any extra layer of objectivity. This is very specifically not a type of ethnography that seeks to undermine the position of informants, nor is it an ethnography of advocacy, of which there is also an existing strand

within the ethnographic discipline (see for instance Seeger or Castelo-Brano),[38] but rather attempts to look as objectively as possible at the situation and seek to uncover and explore how the participants understand their experience. Social and cultural ethnographer Willis says that 'what is most important is that we are concerned with the interpretations that the people in the situations make of the facts; we are looking at how the people involved understand what they are doing.'[39] The broader view I then take of the situation aims to contextualize these voices in a useful, critiquing, and insightful way.

II – CONCERTS VERSUS RECORDING

Live Versus Recorded Performances – different takes on the subject

Various groups of writers have addressed the question of comparing live performances and recordings, including philosophers (Gracyk, Godlovitch, and Davies),[40] commentators from the earlier part of the 20th century (Adorno, Benjamin, Forster, Lambert, Britten, Keller),[41] and an increasing number of scholars (Philip, Auslander, Small, Day, Clarke, Katz, Fabian, Gritten, Leech-Wilkinson, Johnson, Botstein, Cook),[42] the first two categories of which are largely negative in their stance towards recordings. Of course, ever since the process was invented the debate has raged about recordings - their quality and their place in comparison to live performance - but this has until fairly recently involved mainly opinion or morally charged philosophical or theoretical discussion, firmly grounded in, and therefore to be read in, the context of the time in which each investigation was written. Scholars, particularly those working in the field of musical performance studies, are now providing points of view which are more nuanced and performatively aware.[43] Performers and production team members have also joined the debate about live versus recorded performance (Gould, Tomes, Brendel, Haas, Rushby-Smith, Hallifax, and Freeman-Attwood).[44]

Authors such as Philip[45] and Milsom[46] have explored performance styles on early recordings, Day[47] has looked at the cultural contexts of these styles, Leech-Wilkinson and Cook have written about studying music as performance rather than as a text-based art,[48] and Katz[49] and Philip[50] have questioned the way in which recordings themselves have affected performers and performance, as well as listeners. I am taking the next step and exploring how performers have dealt with this relatively new split between the live and the recorded performance. There are also important collections of writings on performance and recording studies more generally, including publications by: Clarke, Cook, Leech-Wilkinson and Rink, Bayley, Doğantan-Dack, Zagorski-Thomas, Chanan, Eisenberg.[51]

The philosophical stance taken by Gracyk,[52] Godlovitch,[53] and Davies[54] allow them to debate the ontological differences between live performance and recording, taking various stances along the spectrum, from arguments which prioritise the live over the recorded performance, to ones which seek to see the benefits in each. Godlovitch and Davies seem to share a mutual distrust of recorded media, putting live performance at the fore of what is human or even *right*, often relegating recording to something which is somehow dishonest or fake. Their arguments, although rigorous in their critical thrust, usually take an ethical stance. This moral imperative approach to performance has been widespread in musicology, both in terms of whether there is a *right way* to play a composer's work, or whether a performance is more *correctly* represented via the live or recorded medium, but it is a problematic standpoint for me. I find that in cases of musical practice such as this it is far more fruitful to consider the intricacies and possibilities of both live and recorded situations, instead of attempting to assert the supremacy of one over the other. This is echoed and well-argued by other authors such as Katz,[55] Leech-Wilkinson,[56] and Cook.[57]

Early commentators include Adorno, who returned to the topic of the gramophone and recordings several times over a span of four decades, eventually significantly changing his opinion. Between 1927 and 1941 he described the record as 'not good for much more than reproducing and storing' music, as an 'object of that "daily need" which is the very antithesis of the humane and the artistic', [58] and as stemming from 'an era that cynically acknowledges the dominance of things over people through the emancipation of technology from human requirements and human needs.'[59] However, by 1969 Adorno has found a benefit of recording, stating that 'technological inventions […] gain significance only long after their inception'. His subject is the LP, which by eliminating the distractions of modern productions now 'allows for the optimal presentation of the music' and may serve to 'resurrect opera'.[60]

Benjamin's oft-quoted essay 'The Work of Art in the Age of Mechanical Reproduction',[61] asserts that the original work of art and its reproduction are two very different things: 'Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be',[62] and he holds the original in higher esteem: for the reproduction 'the quality of its presence is depreciated';[63] in summary, 'that which withers in the age of mechanical reproduction is the aura of the work of art.'[64]

Forster,[65] Britten,[66] and Lambert[67] use a rhetoric of artificiality, highlighting their perception of recorded music's *ersatz* quality. Forster's short story *The Machine Stops* prophesies a future in which mankind has completely subjugated itself to the technology it created – a future not dissimilar to that depicted in *The Matrix* films or the animated movie *WALL-E*. Written in 1909, it is strangely prescient of the technological developments of the last few decades, in that is describes people communicating mainly via technologies similar to e-mail and Skype.[68] Lambert feels that 'people soon acquire a preference for synthetic products. Those who are used to tinned Canadian salmon have

little use for fresh Scotch salmon, and those who are used to certain types of London beer would be nonplussed by a drink that was actually brewed from malt and hops. […] So it is with canned music.'[69] Britten stated: If I say the loudspeaker is the principal enemy of music, I don't mean that I am not grateful to it as a means of education or study, or as an evoker of memories. But it is not part of true musical *experience*. Regarded as such it is simply a substitute, and dangerous because deluding.'[70] Hans Keller is another writer who describes recording in similar terms: as contributing to a 'disastrous erosion' of both listening and performance skills.[71]

Many of these earlier commentators' opinions of recording are often deeply negative. However, it would be wise to consider that at the time in which they were writing recordings were of a lower quality and so seen as a poor replacement for the sound of a live performance.[72] Often one gets the feeling that they are criticizing being given the fake instead of the real thing much as we might now complain about the taste (or lack thereof) of an imported force-grown tomato in February. The Great Depression in America and the period surrounding the two World Wars in Europe were times of great social change and often decline in the quality of life, especially in the cities. There were great concerns about the direction in which humanity was going, and these commentators, even when speaking about music, voice this widespread concern about the mechanization and subsequent dehumanization of modern life. This state of affairs would seem to have had a strong effect on the sentiments expressed about recordings.[73]

Many of the fears of commentators from earlier on in the century were certainly contextually valid. However, in this age of technological pervasiveness, where our daily lives are filled with technology we can't really control and often don't even understand (do you ever wonder how bank records are kept or how wi-fi works?), perhaps it is time that we stopped worrying about the mechanized nature of recordings and just allow them

to be what they are – different things than live performances. This may be the way we have to go in order really to come to terms with this process and its end product.

Much more recently scholars have begun to compare the two performance situations, although from various points of view; these include Small, Auslander, Gritten, Clarke, and Fabian, Johnson, and Botstein.[74] Small and Auslander address the live event, describing its instantiations and its meanings. In *Musicking*, Small champions the live event, but his book is nevertheless largely a critique of the current classical concert-going experience, based as it is on voyeurism rather than participation. Auslander's compelling book compares live and mediatized (or recorded) performance events, asking the question 'what is the status of live performance in a culture dominated by mass media?'[75]

Fabian seeks to determine what sort of documents recordings are in relation to live performances, highlighting the similarities between them in an attempt to justify that recordings are valid and reliable sources from which to study performance. She seeks to find out whether recordings, despite their points of difference, can 'nevertheless be regarded as performances.'[76]

Gritten asks 'whether we can distinguish live performing events from recorded performances in terms of singularity', singularity being defined as the spontaneity of the live occasion. [77] He brings together many of the existing commentaries on the subject and argues that recordings are viable and independent of live performance.[78] Clarke also highlights the differences in 'Listening to Performance', reminding us that 'in an age when far more music is heard via recorded and broadcast media than in live performance, we have still not arrived at a stable conception of what a recording is – "captured" performance or studio construct – with all the consequences for our responses and attitudes to recordings that this entails.'[79]

Johnson argues that the 'practice of classical music rests upon an aesthetics of illusion', in which technology is 'used to conceal its presence to create a naturalistic simulation of live performance'.[80] He compares live versus recorded performance and argues that recording is in fact not a deception, but an intentional illusion[81] and that it provides a distinctive listening experience exactly because it is impossible to achieve live.[82] He concludes by saying that there is still room for experimentation in the recorded medium.[83]

Botstein argues that 'musicians and historians have been influenced by a pattern of technological change that has altered how we access, hear, remember, and think about music', [84] and that recordings have contributed to the process of canon-formation.[85] He discusses various effects of recording, and argues that 'we are at the threshold of the demise of […] the golden age of the so-called high-fidelity recording. Music's reliance on and romance with the sound document for more than half a century is coming to an end.'[86] As the latter part of this article will show, I am less sanguine about this state of affairs. However, as a result of this demise he posits that the live concert may as a consequence experience a resurgence, something which I welcome and which current music industry statistics indicate (this will be explored later), though I cannot say that I echo his sentiment that a another welcome result might be that scores would one day be 'scanned to produce a computer-generated sonic realization'.[87] I, and many other performers and scholars believe think that scores still need living, breathing musicians to bring them to life.

Performers themselves have not been silent on this issue, one of the most vociferous commentators having been Glenn Gould, who permanently abandoned the concert platform for the recording studio, such was his belief in this 20th-century performance medium. The pianists Alfred Brendel, Charles Rosen, and Susan Tomes[88] have also more

recently written about their experiences. Brendel's comments will be addressed later, but Tomes's chapter in her book *Beyond the Notes* offers some very important insights into the experience of a musician who has struggled in her relationship with recordings: she feels that records 'have to be as perfect as possible'.[89]

> 'All too often […] I know that the bit which is finally selected is a bit which is accurate, blemish-free and free of extraneous noise, but not necessarily the bit on which I played my best, or indeed the bit on which we achieved musical unanimity […] Therefore, when listening to a record, I often have to sigh, because it presents a blemish-free but antiseptic picture of our playing, and it gives the impression that we have mastery over nerves and fatigue, which is of course absolutely untrue.'[90]

Charles Rosen has written that 'with the invention of recording 'a performance was no longer a singular event that would evaporate as it took place but an infinitely repeatable experience; the model execution was no longer one that would dazzle, surprise or disturb our emotions for the minutes that it takes place, but an ideal rendition of a respected work that could support many rehearings.'[91] On the other side of the fence sits Glenn Gould, who was happiest in the recording studio. In his essays Gould challenges many of the common views on recording of his time. But although he provides a fully positive account of recording and its 'prospects', he does not argue against the accusations that recording is dishonest,[92] but says that this potential must be creatively exploited.[93]

Today's record producers and sound engineers are some of the people who best make this argument. I would say that a recording is *a* performance, but it is not *the* performance. It is not a true record of the live event. Record producers do not claim that a recording is the same as or a replacement for live music, they argue that it is a different thing, and that it should be allowed to be. 'Recording is not the same as concert-giving. They are separate media and have their own disciplines and objectives.'[94] Eisenberg states that one cannot record a play without artistic judgement,[95] and this is equally true of

recording a concert. You cannot just stick up a camera or a microphone and expect a satisfying result. This is one of the main reasons why a recording by its very nature is different to a live performance, and why producers have a creative role in making a successful recorded product. The producer Michael Haas paints a very clear picture of a recording being a different entity to a live performance:

> 'A studio is not a concert hall and a recording is not a concert. A recording is music made objective. […] Much debate is focused on the battle between "live" and studio (by implication, "dead"!) performances, where intellectual laziness has exaggerated the claims for "live" recording. As with "live" theatre and film, the differences (in both means and ends) between recordings and concerts are so vast, that they are hardly the same art form, but we can enjoy both without needing to set one above the other."[96] […] 'Translating a performance into a recording requires special skills', and changes need to be made such as 'adjusting the audio perspective and shaping the tempos, balance, and dynamics to match the recording medium. […] The producer is a facilitator, translating the "stage-drama" to the aural equivalent of cinema."[97]

The way in which this present study differs from the majority of the work that exists on this topic is that it takes these theoretical distinctions as a starting point, but then focuses on the views of the musicians (performers and production teams) actually engaged in these artistic endeavours in the present day, and in the larger context of the research systematically analyses the audibly perceivable differences between the two modes of performance (though this element of the research will only be very briefly outlined here).

How do Performers and Production Teams Describe Concerts and Recordings?

It is certainly true that the two performance experiences are very different for the performers engaged in them. In a concert, they wear evening dress and in the early evening gloom mount the stage in front of a sea of a thousand people, proceeding to ride one long wave from the first note to the last chord of a symphony, focussing on the musical expression of the performance, all of which culminates in the collective applause

from the audience. For a recording they typically turn up to a quiet suburban recording venue, perhaps on a grey drizzly morning, dressed in jeans and sweater, paper cup of coffee in hand, and proceed to record the piece in sections, interacting only with each other and the producer's disembodied voice, stopping and starting in order to capture the best takes, because this recording will be listened to in relative solitude through headphones or the surround sound in someone's living room, and will be available for many years to come. Live performances and studio recordings are created and experienced in different ways. In the former, process and product occur simultaneously in the presence of both performer and audience. In the case of the latter, the process is undertaken by the performer and producer together in order to create a product that is consumed by the listener, as a solitary experience, in a different time and place (the music becoming independent of the musician).[98]

The pianist Alfred Brendel writes that the differences between concerts and studio recordings are numerous.[99]

> In a concert, 'one plays just once, you must convince the audience at once'; 'the performer must get to the end of the piece without a chance to make corrections'; 'in the concert hall the concentration of the audience brings about a mutual influence between the performer and his listeners'; 'weaknesses in a concert performance tend to result from spontaneity, from a break in concentration or from nervous pressure' and 'the ability to convince the public in the concert hall is quite independent of absolute perfection'.

In the recording studio, on the other hand, one plays several times if necessary, it is the accumulated result that counts; the performance can be reproduced; the performer

> 'can make corrections, learn while he records and get rid of nerves'; 'he has the opportunity to hear it again after playing' and react accordingly; 'the studio demands control over a mosaic; while it offers the performer the possibility of gradually loosening up, there is also the danger of diminishing freshness. And there is the painful business of choosing between takes'; 'in front of the microphone one tries […] to get away from exaggerations and aims for an interpretation that will bear frequent hearing'; in the studio 'the player sits as though in a tomb', 'the studio offers silence'; '[weaknesses] may have their roots in excessive critical awareness' and 'the studio is ruled by the aesthetics of compulsive cleanliness'.

He feels that concert halls 'continue to be the setting for the most vivid music-making' but does not wish to be 'dogmatic and will admit that there are concerts without a breath of life, and records of electrifying vigour. All the same, it follows from the way they come about that concerts are more likely to be characterised by spontaneity and risk.' [100]

The classical musicians interviewed here opt wholesale for the primacy of the live concert; for them the stage is the place for their best music-making.[101] Mackerras worked in the recording studio for decades, and valued and used them all his life. He had respect and appreciation for what recordings could help him do and achieve, but when it came down to it, for him concerts held that something extra, that 'electricity'.[102] However, those involved in the technological side of the recording process, producers and engineers, are passionate about the fact that they can create something unique in the studio, something that need not be seen only in comparison to its live other, but as an art form in itself. A point all parties agree on, though, is that live performances and studio recordings are very different things.

Mackerras felt that a concert always engendered a different feeling to a recording studio: he said that 'there's a sense of occasion at a concert, always, that must inevitably be lacking in recordings […] It *definitely is* a different feeling.'[103] When commenting generally on what is aimed for in a recording, he stated: '[In a recording] they *do* aim to get it perfect, that is to have everything perfectly together and no horn cracks and no wrong notes and no bad intonation, you see. So they do aim to get a perfect recording which they can easily achieve by editing, but on the other hand there is no doubt that the immediacy, well, that there is something, that the electricity I would say of the live performance is *real,* it's in some ways *better*, it's a greater artistic manifestation (if you know what I mean) to do a real concert.[104]

The production team's main concern is, of course, the making of the recording, but in order to do this they must consider how to manage the transition from the live concert to the studio. They call this a process of 'transformation.' The question I asked them was 'What is a recording for you?'; the fact that it was different to a live concert came up naturally, as it usually does in the literature written by producers and engineers.[105] Recording engineer Andrew Hallifax says that 'a recording has to make up for the fact that you can't see the performance.'[106] Producer James Mallinson explains that 'there's a great argument always in recording, musical, and record label circles about what the truth of a recording *is* and what the truth of a recording *ought* to be. In other words: if you're making a studio recording, is that a different kind of reality from a concert situation?'[107] He describes a recording as 'having to cheat the ear into thinking that it's hearing something in a real environment when in fact it isn't.' [108] He highlights the benefits of the recording process, by saying that although turning a live performance into a recording *is* a process of transformation from his point of view, it is a 'totally positive experience', allowing musicians to improve their performance and achieve results they would not otherwise have been able to.

The engineer Andrew Hallifax, in his book on recording, sums it up well: '[There is] a need for translating music into the recorded medium […] As [the producer] John Culshaw explains, "An artist who can be exceptional in the theatre cannot necessarily reproduce the performance in recording-studio conditions … Communication with an audience … is an entirely different exercise from communication though a microphone to a domestic audience." If the recording process is not merely one of capturing the sound of a performance, each member of the recording team and each artist must be complicit in making the transition from the concert hall to the living room'.[109]

The BBC balance engineer Campbell Hughes does not have to deal with this process of translation to such an extent, as it is his job to capture the live performance

successfully, whatever that may mean, depending on the situation and his ideology, but he does still consider these things: 'There are huge differences that a lot of people don't understand between the live and the recorded. There are *huge* differences.' [110]

As for performers, when asked to comment on their experience of live concerts and studio recordings, and to compare them, they all answered that the two situations were not the same: the tenor Robert Tear says 'They're both entirely different disciplines'.[111] When asked if a recording should approximate a performance in a concert hall, trumpeter Alistair Mackie of the Philharmonia Orchestra replied 'It just doesn't!'.[112] Lisa Beznosiuk, principal flautist of the Orchestra of the Age of Enlightenment is of the opinion that the two are so completely different that it's 'almost pointless comparing them!';[113] violinist and concert-master of the Philharmonia Orchestra James Clark feels that different performing situations affect him differently, be it a concert or recording or radio broadcast, and different things have to be taken into consideration;[114] and Mackie says that when doing a recording, 'you're in a completely different place (mode) mentally' than when performing live.[115] For Clark where live concerts are 'an event', studio recordings are 'plastic music' and 'sound the same every time';[116] for Mackie where concerts are about 'expression', recordings are about 'balance and accuracy', you have to 'tense up, focus, and get it accurate';[117] for Beznosiuk where concerts are 'thrilling' and 'each night is different', recordings are a 'manufactured product'; [118] concerts are 'fabulous, but then you go into the studio and it's not so much fun'.[119]

When asked which performance mode they preferred, all these performers unhesitatingly replied 'concerts'. Performing live is presumably why they entered the profession, and what keeps them enthusiastic and passionate about what they do. Beznosiuk 'loves concerts', describes the performances on a recent tour as 'fabulous', and finds it much easier to project the spirit of the performance (or work) in a concert. In

fact, despite the fact that she probably performs more than half the nights of the year, on the day of the interview, she was 'very excited' about the concert that night.[120] Clark also prefers concerts: 'In a concert, off you go – anything could happen […] a great musician brings different things out in each live performance.' He describes that at the beginning of the last century, people would get dressed up, have a meal, and go to a concert – it was an occasion – whereas now they go to the pub, have a drink and then go home and put on a CD. This is an unfortunate state of affairs, because as far as he is concerned 'there is no replacement for a live performance.'[121] For Mackie 'the concert platform exposes you like nowhere else' and 'performance is about standing up and doing it', which implies that there is great merit in just being able to make great music without the intervention of microphones and production and editing. He feels that a concert is first and foremost about expression: 'Music is a vehicle for human expression.'[122] Tear says that 'the performance itself is wonderfully ephemeral and you can't do anything about it. It's not like doing a painting where if you don't like something you can paint it out. You can't do that with a performance. Whatever is *is*, and that's it. I like it a lot.' When asked whether the occasion has an effect on his performance, he replied: 'The event is a much bigger thing. It has its own dynamic and you are affected by that, definitely. […] The event itself has its own impetus.' If the event had this sort of psychological effect on him, I wondered if his state of mind affected his performance: 'Absolutely. Not just mentally either. If you have an emotional upset the first thing that goes is your voice. You have to be at one with yourself for it to work properly. Everything changes you. If you do a recording – some on Monday and some on Tuesday – everything about you is different. The air is different, the temperature is different, everything is different.'[123]

In summary, it is the event, the venue, the audience (or lack thereof), the method of working, the technical expectations, and the final result, that make the two performing modes different from each other – in fact, it would seem that the only thing that remains

constant is the fact that the same musicians are performing from the same scores. However, it is significant that performers perceive the transition from stage to studio as a largely negative step, whereas production teams mainly see it as a necessary positive transformation. This duality is where our problems begin – two groups of people are working together to create a product, but they are approaching it from very different standpoints.

So if producers are so sure of what a recording is and what they aim to achieve when making one, why are many people, as Clarke suggests and the philosophers exhibit, still uncomfortable with the circumstances and techniques of recording (such as editing or the lack of an event)? Musicians and conductors seem to want recordings to be as much like live performances as possible – they say that this is what they aim for. But is this *really* the case, or just what they *think* they *should* be saying? The 'cheating' (editing) that goes on in recordings has become an ethical issue, almost as if admitting to edits in your recordings is like politicians admitting to drug-taking or sexual promiscuity in their college years. Why has it come to this? Why do recording practices seem to be a guilty secret? Surely they should be allowed to be what they are, independent of and free from comparison with their forebear, the live performance?[124]

Later I will argue for two different possible responses to orchestral musicians' negative opinions to the current habits of recording – firstly to bring more of an element of creative freedom into the studio, and secondly to experiment with a wider variety of the possibilities that recording technologies might afford.

III - WHAT ARE THE PROBLEMS WITH RECORDINGS?

A Recording Industry in Decline?

The recording industry has been in decline for nearly two decades – classical studio recordings seem to be a dying breed.[125] Scholars and journalists alike have declared the art-form's decline or demise, from Botstein and Born to Lebrecht.[126] They are time-consuming and expensive to make, and even the best orchestras are making far fewer of them than they were 20 years ago. This explanation has been echoed by many people in the industry that I have spoken to, formally and informally, as well as in writings by producer Haas and scholar Patmore.[127] There is a lack of research in the area of the classical music business, partly because it is not easy to obtain detailed sales figures. Lebrecht describes that he 'finally managed to extract' these figures from the record companies, and in my opinion the IFPI (International Federation of the Phonographic Industry) reports seem to be designed to provide as little information as possible, only highlighting the good news stories and presenting nearly useless info-graphics quoting only two or three figures. So the best attempt has been made here to paint a picture with the limited resources available.

The sound engineer Jonathan Stokes describes the situation by explaining that when the CD format first came out, there was a huge increase in quality, and so record companies decided to record many works again. At the time Polygram owned three classical music labels – Decca, Deutsche Grammophon and Phillips – and each of them were making 120 new CDs a year. That's 360 – almost one per day. This is no longer the situation; there has been a massive drop in the budget for classical music records, and many fewer are being made, and they are all expected to bring in a profit, as opposed to previously where they were supported by the income from the pop music labels

(management considered them worth producing because they were artistically important, and that was good for the overall brand image).[128]

The Philharmonia was once the biggest recording orchestra in the world, but now according to the violinist Clark recordings are 'going down the pan':[129] about a decade ago, they were making 30-40 discs per year; they are now down to about six.[130] This is because the record companies are no longer providing the big budgets necessary to record (especially operas), and so often private funding has to be secured before a project can go ahead (as was the case with many of Mackerras's recent projects, for example the Chandos Opera in English projects, which were funded by Sir Peter Moores). The same is true for other London orchestras, such as the London Symphony Orchestra (LSO):

> 'By the end of the twentieth century, however, even the proudest of the world's orchestras was gripped by a desperate sense of siege. It wasn't simply the fact that their audiences were, on the whole, getting smaller and greyer. A more alarming factor was the virtual collapse of the classical recording industry between 1990 and 2000.'[131]

Is the classical recording industry in fact dead, or is this hyperbole, born from a general sense of panic in the classical music world due to other factors such as cuts in arts and education funding in the UK over the last several years?[132] There has certainly been a great deal in the press about the death of the record industry overall. With headlines like 'Piracy Continues to Cripple Music Industry as Sales Fall 10%'[133] and 'Requiem: Classical Music in America is Dead'[134], as well as Norman Lebrecht's typically sensationalist declaration that 'either way, the classical record was dead', and 'the game was over: an art form had come to its end',[135] who could doubt that there is serious trouble? The general view is that if rock and pop music are suffering, then it looks like classical music is in intensive care, the priest has been called and life support is about to be switched off. Once we add to this picture the bankruptcy of HMV and the closure of innumerable small and large record shops (both in the UK and the USA), the record companies being merged or going out of business (leaving only what people have been

calling the Big-3: Universal, Warner, and Sony), the number of classical music recording industry professionals who are seriously worried about the declining amount of work they're getting and the future of their careers, and the fact that many popular and classical producers and engineers have embarked upon second careers in higher education, we get a picture of a seismic shift occurring.[136] Popular debate, as reported in the press, has blamed piracy and the inability of the record companies to control the copyright of their catalogue in order to be able to make money. The specific problem for classical music, as Lebrecht, Stokes, Patmore and many journalists identify, is that once classical music had made a bit of money, a trend started by the immense success of The Three Tenors and other populist or crossover acts, the accountants got greedy and started to expect more classical recordings to make that kind of profit, something which was going to be very difficult to achieve on a regular basis.[137] Patmore explains that in the days before the mergers of the big companies, classical music sales were allowed at least two years to show a return, but corporate accounting policies started to demand that classical music make higher returns, and within a year or less.[138]

However, against the backdrop of the *end of the classical recording world as we know it* hype, several people, both journalists and academics, have sought to bring balance to the discussion (including Gronow and Saunio, Kusek and Leonhard, Rogers, and various US and UK journalists from the main newspapers and broadcasting corporations).[139] They have done this by examining the sales figures more closely and trying to contextualise the huge drop in sales in recent years. In terms of the figures, the recording industry, including the classical sector, have certainly been contracting over the last two decades. Between 1995, which was the height of the CD-fuelled boom for the recording industry, and 2011, the UK sales figures more than halved: in 1995, 266.9 million units were sold, compared to 113.2 million units in 2011.[140] In the UK the classical record sales account for 7% of the total figures. Classical music is widely agreed to take up 10% of the global

market, 7% of the UK market, and 3% of the US market. The percentage of the US market might seem small, but the overall numbers are higher as the US market holds a much larger share of the global pie than does the UK: compare in 1995 the UK market of 266.9 million units to the US total of 1100.5 million units.[141] Lebrecht explains that even with these kinds of percentages, considering the volume of sales, classical music was nevertheless at one time a robust and profitable industry.[142] Rogers has the global recording sales for combined physical and digital sales at $38.7 billion in 1999, compared to $24.4 billion in 2010.[143] Digital sales figures only start appearing in the IFPI's statistics from 2004, so if we look at their general sales figures instead, we see smaller numbers, but the same trend downward: $26.9 billion in 1999 to $17 billion in 2009.[144] The IFPI are reporting that the sales figures for 2014 are $15 billion (with an even split between digital and physical sales, 46% each, with the remaining 8% accounted for by performance rights and synchronization revenues).[145]

The crisis has mainly been blamed on illegal downloading, but looking at several pieces of research on the subject,[146] an agreed shortlist of causes can be identified for the decline of the recording industry, including: corporatization, and in the specific case of classical music the push from the accountants and shareholders to make larger profits; a trend of the record companies to act as oligopolies and of the executives to pay themselves too much whilst continuing to cut bad deals for the artists (and overcharging the consumer during the CD boom);[147] long-term inefficiencies in how the companies were run; over-production of the classical catalogue and therefore saturation of the market (Lebrecht declares that at one point there were 276 recordings of Beethoven's 5th symphony available);[148] the indestructability of the CD which lessened the need to replace carriers when they wore out; the format change to digital which allowed illegal copying and subsequent loss of copyright control; the internet and massive explosion of music piracy; the further result of digitisation which was to unbundle albums into single tracks,

which turned out to be much less lucrative; the fact that the record companies focussed on suing to protect their copyrights instead of putting their efforts into diversifying, thereby failing to grasp early enough the opportunities afforded by the internet and the change to the digital format; the role of supermarkets in cutting the profit-margins and therefore the profitability of selling CDs; and finally the failure of invention or creativity, in particular in the classical industry where in the opinion of Lebrecht and Haas, there was not enough focus on bringing on new repertoire by living composers, resulting in a constant rehashing of canonic repertoire.[149] All of this resulted in breaking up of several major record companies, and the closure of the majority of high-street record stores (of course not helped by the advent of online purchasing via companies such as Amazon, for instance).

So both through the sales figures, and the wider debate around the issues, we can see that it is certainly true that between the high-point of CD sales in 1999 and 2011, unit sales more than halved, and profitability declined substantially.

However, as grim as this picture may seem, some scholars who are researching this area remind us that this is set against the backdrop of a period of what Rogers calls 'super-profits'[150] between 1986 and 1999. Cook asserts that in the second half of the 20th century, 'the story of classical music […] at least in the UK, has been one of outstanding success.'[151] It would seem that as far as the industry has fallen between 1999 and 2014, it had risen about the same amount between 1985 and 1999. Global unit sales grew from 2290 million in 1986 to 3349 million in 1995 (with the UK numbers growing from 197.7 million to 266.9 million, and the US numbers from 618.3 million to 1100.5 million).[152] Rogers shows that in 1990 the US market was valued at $7.5 billion, and by 1999 it had grown to $38.7 billion.[153] Gronow and Saunio write that in 1995 the unit sales were 80% higher than in 1985 and the real value had more than doubled.[154] The CD boom meant that when the digital crisis arrived, companies had at least twice as far to fall. Rogers

characterises this, then, as not so much that record companies have had a really bad time in the last ten years, but that they had had an exceptionally good time in the ten years before that.

The overall, more balanced, picture that can be gleaned from the press and the published research is that the impact of the decline over the last ten years has been significant, and yes, the recording industry is on its knees. However, writers such as Rogers, and Kusek and Leonhard, argue very convincingly that the recording industry is not the same thing as the music industry. The music industry is in fact doing rather well, with the growth in live music activity and revenue (as Botstein was foreseeing),[155] and the increasing profitability that the record industry is managing to extract by getting into the game of legal digital music.[156]

It is not clear how far this is the case for classical music, an art form which has always relied heavily, as we have been discussing, on the format of the live concert, with orchestras which have faced major set-backs in their funding streams, both in the UK and America. However, this crisis is at least inspiring people to ask what the other options might be; this will be discussed in detail later on in this article, once we have seen in more detail how some musicians now feel about current recording practices.

Recording: 'Not a good experience'[157]

To return to the theme of what the problems with recording are, let us see what specific issues performers identify. For the trumpeter Mackie, this 'slow demise is not a wholly negative thing – most musicians don't sit around being sad that they're not doing many recordings';[158] and the flautist Beznosiuk 'doesn't feel the lack of making recordings' in her life.[159] All the musicians agree, however, that one positive thing about recording is that it is more lucrative: 'they *do* pay more';[160] 'it's better paid – easy

money';[161] 'it's an inverse relationship: the most demoralizing work is the best paid, and the most artistically valuable or stimulating is the worst paid'. (This echoes Stephen Cottrell's analysis of the cultural capital of music-making).[162]

The tenor Tear has been happy to have recordings as part of his career, but finds that because they are 'endlessly perfectible' they are 'not as true, they don't go with my temperament'. He says that what you aim for in a recording is 'basically technical, you have to be as technically perfect as you are able to be, but at the same time putting your character into it. It's not quite as free, but it's a different kind of freedom'. Also, he finds any situation that does not involve the movements of acting for opera to be limiting (whether in a recording situation or in a concert performance): 'Acting is much better, being fixed in one place is difficult, somehow you're straight-jacketed. You do it, of course, because you have to, but it's not as free.'[163] When asked if he thought his recordings were representative of him, Tear said: 'Yes, I do basically. And of course it's very hard to say what you were.' He very rarely listened to his own recordings, and only a bit more when he retired, 'just to prove I could do it'. In answer to being asked about the value of recordings and his reasons for making them' he said: 'Well, because I suppose it is in many ways a bit of a monument, it proves that you *were*, at least at some point. I suppose it's a bit of vanity, a bit of wishing to do good music well, a bit of wanting to get paid – it's a mixture of all those things really.'[164]

For the violinist Clark, a typical recording session is 'stitched together […] sometimes recorded bar by bar – it's *awful*.' Many small factors dictate what it's going to sound like – the mikes, the room, how cold it is – and 'if you're not in the mood it can be a misery'. It doesn't matter if it goes wrong, because they can do it again, but then 'new problems rear their heads', and 'many artists don't give their best in recordings'.[165]

The flautist Beznosiuk would much prefer to talk about concerts than recordings, as she doesn't do very many recordings, and comparatively doesn't seem to like them very

much. She describes that when a recording is worked on in smaller sections, 'chopped up', the experience is 'not as nice', it is difficult to deal with, but it *is* 'easier to concentrate on the little bits'. She thinks that the fact that you can do multiple takes is not necessarily very helpful, because 'if you can't play it, then fifteen times will be no help; but if you *can* play it, then doing it two or three times can mean that you get a really nice result […] You always want it to be good, but a recording is more relaxing, but not so thrilling – live is more exciting.' When speaking more specifically about experiences of making solo or chamber recordings, she explains that 'you try to recreate a concert feeling […] you're going on a journey, but you have to keep going back and doing bits again, which means you might lose beautiful moments that you would have had had it been live.'[166]

Mackie hates making studio recordings: he says that 'artistically they are not a good experience.' He thinks that they are 'fundamentally dishonest', and dislikes that they focus on balance and accuracy, which 'are not the heart of the music'. He says: 'In a recording, you might do three really nice takes, but then they say "but now we're going to move a microphone" and you have to focus all over again: it's really hard to continually and repetitively focus like this.' But he asserts that he is still 'idealistic' – he still likes to try to think that he's 'making music' when making a recording, but he 'doesn't know if everyone still bothers to'.[167]

The Recording Studio – Power and Control

One of the main reasons that musicians have negative feelings about the recording process is that they do not feel they have much power or control over the process or product, which is quite a reversal if we consider that when on the concert platform, they are the ones playing the notes, giving the performance, and so they are in

control. It may appear as if the conductor is in control, which is true to a certain extent if the orchestra likes and respects him, but any orchestral musician (or conductor, for they are equally aware of this) will tell you how easy it is for an orchestra to decide to ignore a conductor and seize the control for themselves.[168]

It would seem that where musicians have more control over the situation, they are happier recording; conductors and solo or chamber artists seem to be more comfortable as they have more direct contact with the producer, and have more scope to work in their preferred manner, for instance stopping when they're flagging or insisting on another take, even if there is not much time.[169] A conductor, soloist or chamber musician also has a more direct say in the editing process, although this is still very limited. The producer almost invariably makes the editing choices, and the main musician/s will then hear that first version - a 'first edit' - and ask for different takes to be chosen for certain sections or notes. However, they are very unlikely ever to see the editing score, and therefore won't know in any detail how their recording has been complied (which takes were used for which sections of music). Most musicians working with mainstream record companies will never know how many edits are in their recording.[170] Moreover, a conductor doesn't actually make a sound, you can't hear his mistakes, so he doesn't experience the stress of a horn player or a flautist coming in on a quiet entry (this is a common opinion expressed in the literature about orchestral musicians). However, an orchestral musician is much more at the mercy of the recording process and the producer; there are too many of them for all to have their say (for instance, the flautist Beznosiuk is much happier with the level of control she has over technical and musical issues when working on the solo and chamber projects which she manages herself).[171] So it seems clear that your opinion about recording differs depending on who you are and what you are doing. There are even further subdivisions in how musicians feel about this and rationalize their preferences: for example, within the orchestra, the strings seem to be

more comfortable in their massed unity than the woodwind and brass in their exposed soloistic roles.

The musicians here expressed certain dissatisfactions with the balance of power situation in the studio. The flautist Beznosiuk sees a hierarchy in the recording studio, the first tier being the conductor, soloist/s and producer – the 'important people' – and the second tier being the orchestral musicians and the engineers – those who 'just go with the flow'.[172] Mackie feels that in the studio the approach is 'thrust upon you by the situation and the producer'. The process and the expectations limit and define what you can do musically. His experience is that the comments that are made between takes are about balance and accuracy ('out of tune', 'not together'), and never about music (they don't say 'I didn't like that phrasing' or 'that tempo should move on a bit'), and the expectation of perfection is the most prevalent thing. When asked how much control he felt he had over this process, he answered that orchestral musicians were 'at the mercy of the production team'. He gives an example of a recording session where they did nineteen takes of a difficult trumpet line, and they were all good except for one, and in the final edit, for whatever reason, 'they picked the bad one!!'[173] The tenor Tear admits that there is a hierarchy, a 'pecking order', and that singers and conductors and soloists are somewhere further up it than orchestral musicians. However, when asked what kind of power or control he feels he has in the recording studio, he replied: 'I think you've got very little. They can pretend to let you think that you do, but I don't think you really do, because somehow it's not your business. The singing is your business and the making of a record is their business. And I think you have to trust each other, really, quite a lot. There is a lot of acceptance in this, isn't there?!'[174]

The Expectation of Perfection (or the effects of editing)

One issue that was raised by all the musicians, and that also comes up in the wider literature, is that recording has influenced the public's expectations to such an extent that perfection of execution is now seen as not just the ideal but the norm. In the past, no concert-goer would expect that even the most exciting, masterfully-played concert by one of the best orchestras was going to be completely flawless; this was a given because they knew that the people playing the instruments were human, and were playing to the best of their abilities. However, even despite this, because in the recording studio a passage can be repeated until it is right, and any mistakes can be edited out, people long ago became accustomed to hearing perfect recorded performances, a perfection which it is seldom possible to achieve on the concert platform. Recordings have therefore influenced live performance, creating an expectation of perfection which musicians are at constant pains to deliver. Philip writes about this:

> 'by the beginning of the twenty-first century, musicians and audiences have become so used to hearing perfect performances created by editing that the general standards in the concert hall are also much higher than they used to be.'[175] 'Musicians who first heard their own recordings in the early years of the twentieth century were often taken aback by what they heard, suddenly being made aware of inaccuracies and mannerisms they had not suspected […] The most obvious effect of getting used to hearing ones' own recordings, as professional musicians do today, is to become highly self-critical about details. Any tiny blemish or inaccuracy takes on hideously exaggerated proportions. Making a recording becomes a process of detailed self-examination which would have been impossible a century ago. Seeking after precision and clarity becomes a habit, so that, in the concert hall too, musicians aim for technical perfection – often, it seems, above everything else […] This self-consciousness can be helpful or destructive, but now the genie is out of the bottle it cannot be put back.'.
> [176]

Producer Andrew Keener says that the 'search for perfection can become obsessional',[177] and Day writes that 'the need for accuracy has been the bane of the lives of most recording musicians throughout recording history, and the subject of countless laments for the inhibitions of this striving for technical perfection causes.'[178]

This phenomenon is not only something that has become apparent in retrospect. Adorno identified this effect early on (which may account in some part for his long-standing antipathy to recordings. He wrote in 1938 that that recording is to be held responsible for the 'barbarism of perfection' which he sees overwhelming performance practices, specifically citing Toscanini as complicit in setting this 'official ideal of performance'. [179] He continues:

> 'There is iron discipline. But precisely iron. The new fetish is the flawlessly functioning, metallic brilliant apparatus as such, in which all the cogwheels must mesh so perfectly that not the slightest hole remains open for the meaning of the whole. Perfect, immaculate performance in the latest style preserves the work at the price of its definitive reification […] The performance sounds like its own phonograph record. The dynamic is so predetermined that there are no longer any tensions at all.'[180]

He goes even further and writes about the conductor who presides over this process: 'Not for nothing does the rule of the established conductor remind one of that of the totalitarian Führer. Like the latter, he reduces aura and organization to a common denominator.'[181] Despite his tone of hyperbole, what is recognizable is a parallel between 1938 and now of a concern about the perfecting effects of recording on music-making.

Auslander highlights the fact that 'live performance's cultural valence' has traditionally been set above that of any mediatized type of performance because 'the common assumption is that the live event is "real" and that mediatized events are somehow artificial reproductions of the real'.[182] This rivalry, he feels, is not due to any 'intrinsic characteristics of live and mediatized forms' but is rather 'determined by cultural and historical contingencies'. In other words, it is the way we perceive, judge, and use these things that gives them their cultural value (or cultural capital as Bourdieu terms it).[183] The irony that Auslander reveals in this situation, however, is that although live performance still holds a symbolically higher social position, it now often seeks to replicate the mediatized product. For instance audiences have come to expect higher

levels of detail and perfection from live performances because they have become accustomed to this standard from mediatized experiences (whether it be perfection of execution, amplification of sound, or close-up effects).[184] Attali also makes this same point: 'What irony: people originally intended to use the record to preserve the performance, and today the performance is only successful as a simulacrum of the record.'[185]

Katz is amazed by how quickly the values of recording have taken over: 'The repeatability of recorded sound has affected listeners' expectations on a much broader score as well. When the phonograph was invented, the goal for any recording was to simulate a live performance, to approach reality as closely as possible. Over the decades, expectations have changed. For many – perhaps most – listeners, music is now primarily a technologically mediated experience. Concerts must therefore live up to recordings. Given that live music had for millennia been the only type of music, it is amazing to see how quickly it has been supplanted as model and ideal.'[186]

Botstein describes that 'the increased sophistication in the technique of editing redefined sufficient accuracy and made the encounter with random error and inevitable inconsistencies in any live performance intolerable.'[187] He identifies an interesting correlation when he writes that between the 1930s and 1980s even the acoustics of concert halls developed to mimic the modern clean and perfect sound of recordings.[188] This clean flawlessness of edited recordings resulted in the raising of technical standards, to preferred performance styles which were antiseptic, with no extraneous noises: 'Accustomed to flawless renditions created in the studio, the performer now had to match – at a live performance – the clean accuracy of a record.'[189]

Leech-Wilkinson explains that recordings played a role in discouraging mistakes: 'the downside to this must already be obvious. If accuracy comes first, spontaneity and originality are pushed into second place. […] editing, in removing the slips made by

musicians (just as film has removed the verbal and action slips that characterise real life) has removed a 'vital' aspect of human musical performance. .'[190]

Despite the strength of these arguments from both performers and scholars, and despite the fact that the twin issues of perfection, and by inference mistakes, come up repeatedly in discussions of studio recording in the academic literature, I wonder if 'mistakes' are really as much of an issue in modern recordings as they used to be, or as they are made out to have been by modern commentators. Recordings in the age before editing became possible have immortalized the occasional mistakes of a few great performers, but perhaps we have misconstrued this in the context of our time; we perceive that earlier musicians played less perfectly because of the faultlessness of our own recordings. It also may be that perhaps they did not worry so much about mistakes. They were giving a performance, and it wasn't technically possible to edit errors out, but that was not too much of a problem because it was human, it was real.

Is there an extent to which this blaming recording for creating the tyranny of perfection is red herring? Perhaps. Or at least it would seem that another situation exists concurrently, creating a sort of paradox or dialectical reality. Today, the standard of professional singing and playing is so high that even in live performances audible mistakes are rare, and from the evidence of my research, much less common even than we might expect.[191] Mackerras also felt that the standard of orchestral performance had improved vastly since he started conducting: 'The orchestras play really so well, and play so mistake-free nowadays.'[192] This is not to say that players don't struggle to get things right – they do, every day of their lives – but they do such a good job that a typical audience member won't hear very many major mistakes in any given live performance.[193] So if performers play so nearly perfectly these days, why are they worrying so much about playing perfectly in the recording studio, and then in turn on the concert platform?

The problem here is that we're confusing different types of perfection. There are in fact at least two different kinds in question. There is the live standard of perfection, which is the professional's best attempt at accuracy in the moment (an attempt to avoid obvious 'mistakes' of pitch, timing, or tone), and then there is the recording standard of 'perfection', which seeks not only to eliminate any textual and technical 'mistakes', but also any blemishes and tiny imperfections which are seen as detrimental to the sound of the recorded performance, whether it be untidy ensemble, split notes, shuffling feet, airplanes flying overhead or the extraneous but unavoidable sound of a violin bow making contact with the strings. (There is also perhaps a third type which sits in between these, which is the audience's perception of mistakes. They will hardly ever hear any, even if the musicians know that they have made some. But the critics may pick up on them, and relay this back in their reviews, which perhaps puts another kind of pressure on musicians. Johnson, I think, is describing a similar problem when he posits that 'What needs to be sorted out here is the difference between the artistic pursuit of an ideal image and perfection as a criterion of value.'[194]

Of course there is a very high standard of live performance, and musicians are always trying to achieve technically accurate performances, but they resent that the perfection of the recording studio has crept into the expectations for the concert hall. It takes away their freedom to decide to eschew technical perfection for the sake of achieving a musically expressive moment. And in the studio, the perfection of sound and technique expected is simply not musically rewarding enough for them most of the time, hence their dissatisfaction. So no matter that standards have improved, musicians are still feeling very pressured by this expectation of the recording type of perfection.

Perhaps performers might benefit from remembering that mistakes are so rarely heard these days that maybe they can relax a bit and not worry so much, but we can't ignore the pressures that musicians work under that are not related directly to audience

opinion; there is the judgement of their peers, their desk partner, section leader, conductor, orchestral manager, audition panel, music critics, and the list goes on. Classical music is a highly skilled and competitive profession, and just because some observers might think that musicians have less to worry about now because they are trained to such a high standard, musicians, like other people, still worry about many things (for instance we could look at the ongoing problems relating to some musicians' use of alcohol and drugs to deal with performance anxiety, or the level of competitiveness and stress exhibited by musicians auditioning for the Berlin Philharmonic in a 2009 documentary).[195]

This distinction between 'mistakes' and 'perfection' can be shown by looking in on a recording session. In recording sessions retakes are often done for reasons other than straightforward mistakes (for example very obvious wrong notes). However, many musicians comment on how the very fact of being recorded makes you focus on accuracy and aim for perfection, because nobody wants to appear unprofessional or unreliable, or to hear their mistakes replayed to them *ad infinitum*. To take as an example one of the recording projects I observed (of Mackerras conducting Mozart's *Così fan Tutte* with the Orchestra of the Age of Enlightenment),[196] we find that there are many reasons that takes are stopped. As can be seen in Figures 1 and 2, the reasons are more often for issues that concern the massed musicians, such as tempo and ensemble, than for actual inaccuracies or imperfections of individual execution. In order for the recorded performance to flow uninterrupted, it is necessary that the tempi are consistent enough so that takes can be edited together, whereas normal fluctuations in tempo would usually be overlooked in a live performance. In a live opera, problems of ensemble between stage and pit are among the few imperfections ever perceivable, and so the opportunity is taken to correct these for a recording.

Figure 1: Reasons for stopping takes

– in diminishing order of occurrence

Issue	**Number of takes**
Tempo	20
Mistakes	18
Ensemble	16
Characterization/Style	13
Tuning	12
Articulation	6
Music/Text	5
Technical (rec)	4
Sound	3
Logistics	3
Total:	100

Figure 2: Takes stopped list – comments made by conductor (CM) and producer (JM)[197]

	CM	JM
Mistakes	2	2
Tempo	6	8
Ensemble	2	5
Tuning	4	4
Characterization/Style	7	3
Articulation	4	3
Technical	6	5
Music/Text	2	1
Sound	1	0
Logistics	1	1
Positive Comments	6	24
Total (including 'other')	Approx. 40	Approx. 64

(Figure 1 shows the total takes that were stopped and includes when there was not a particular comment made; Figure 2 shows who reacts to particular issues, and sometimes more than one comment is made with regards to a take, hence the different totals).[198]

Out of 100 instances, although mistakes only comes second to tempo, there are only eighteen takes stopped compared to a combined 82 for every other kind of problem. We thus see that most often takes are stopped to correct minor blemishes or imperfections, rather than for what we might term mistakes. But for a recording, getting these small details right is seen as important, and it is all of this, as well as perfection of individual execution, that puts pressure on the musicians.

The problem is that many musicians don't like having to prioritize perfection; they feel that this striving for perfection is to the detriment of the power of the performance, and is stifling in many ways. Dorottya Fabian undertook research on soloists and chamber musicians, and quotes some of her interviewees on the issue of perfection: "'At most recordings the desire for technical perfection overrides the importance of 'unrepeatable' musical moments"; "In the studio one tries to reach technical fluidity and perfection.'"[199]

This feeling is common among musicians: Tony Pay if the LSO says that the 'problem is that musicians have become satisfied with their work when the microphone is "satisfied" – technical perfection has become the extent of their concern with interpretation.'[200] However, there is a question I would like to raise here: is it the musicians who become satisfied or the production team, or is there a general but tacit consensus that it is simply the exigency of the medium and the current aesthetic that have been satisfied? Another similar opinion is expressed by a member of the LSO, Bill Lang:

> 'I love a concert performance, many times you get touches of magic there. But recording can knock any beauty out of music-making. Players […] don't go for it, they get careful. Note-getting, not music-making. This is where recording can destroy music. I'd rather hear a recording of an actual concert, warts and all.'[201]

For musicians at the top of the profession, with positions in the best orchestras and opera companies (which is certainly true of those interviewed as part of this research), accuracy is of course very important, and they strive for it, but perfection is not seen as the central factor in a live performance: 'Perfection is never seen as the most important part of a concert – in a concert it's expression […] As an orchestral player at 7:30 you just have to sit down and do it';[202] in a concert, 'you sacrifice perfection for the event'.[203] They feel that the 'level of perfection' and the 'expectations of accuracy' 'have been created by the record industry',[204] and that 'it's a pity that recording techniques have led people to expect perfection live.'[205] Alfred Brendel goes so far as to call some modern listeners 'wrong-note fiends' in discussing the early recordings by people such as Cortot or Schnabel, and feels that 'a few missed notes are not only irrelevant but almost add to the excitement of the impact.'[206]

It's not just the musicians that feel this; it is undeniable that these days, imperfections are not an option in recordings, as explained by producer John Rushby-Smith:

> 'The live concert is intended to give immediate satisfaction. Blemishes are heard once and are generally forgotten by the time the final bars have sounded. Recordings are

> heard repeatedly and the smallest flaw is multiplied by the number of times the recording is played, so the quest must be for a level of perfection rarely attainable in live performance.'[207]

But musicians would like things to be different. Alfred Brendel writes on this topic:

> 'in the studio accuracy is more readily manageable than "soul" […] the gramophone record has profoundly upset listening habits. Its effects on the player, however, may not only be purifying but also sterilizing; it may be petrifying as well as concentrating and distilling. The interpreter who aims at accuracy risks less panache, lesser tempi, less self-effacement. The gramophone record today sets standards of perfection, mechanical not musical, which the concert hall seldom confirms. It induces some artists to play in a concert as though for a record, in the fear that the audience is listening as though to a record';[208] 'those who consider spotless perfection and undisturbed technical neatness the prerequisite of a moving musical experience no longer know how to listen to music.'[209]

Emanuel Ax comments on whether making a mistake affects his performance:

> 'The answer is yes. One of the big things that I've worked on all my life and am still working on is to get away from being conscious of and a slave to wrong notes. It's one of the worst things about the recording culture – it's the biggest single problem both for performers and for listeners, including critics.'[210]

However, this preference for sacrificing perfection for the energy of a live event does not extend so far as a willingness to release completely unedited lifelike recordings. The trumpeter Mackie admits that although he loves the expression of the live concert best, he 'couldn't live with releasing a recording with mistakes' (for instance an unedited live performance). He uses the example of recordings made by the record label Nimbus, which were done with one microphone and no editing: he says 'they got quite a following, but the recordings sounded terrible.' Although the approach is a more honest one, it just didn't sound good enough, because 'the market has been cultivated and we've been trained to want something that's physically impossible live.' [211] The violinist Clark has a different opinion of the Nimbus approach, though. He did some work for them and felt that being able to play 'swathes of music' was 'more true to the occasion'. He thinks that the performers 'are more into the music' and 'more relaxed', and that the

resulting performance had 'more vibrancy' and was 'far more exciting'.[212] We could perhaps extrapolate from this that if musicians were in charge of editing choices, instead of producers, they might pick takes for their excitement or vibrancy, rather than for perfection. However, this does not automatically make the producer the villain of the story. Producers and editors speak of the fact that it is not unusual for musicians to start to get picky and ask for retakes or send long lists of edits even when the producer would have done less.[213] So although the move towards higher levels of recorded perfection might be a result of the recording process, this is not necessarily attributable solely to the individual producer's whims and preferences.

Looking at the bigger picture, Mackie describes the situation prevalent until recently in which the possibilities of recording technology have created a false posterity – previously too many careers have been built on recording, thanks to the miracles of editing and production (more than one musician, and a production team member, refers in general to people who have been known to record a bar or a note at a time). He feels that the fact that the recording companies now have less money means that only the people with real merit (who could get up and do it in the concert hall) are getting the recording deals – this to him seems fairer, less dishonest.[214]

The Control Room Glass: Which Side of the Fence?

Let us consider this conflict that is presented by the recording situation a bit more carefully. People on the production side of the fence have a completely different conception about what it is possible to achieve in a recording. They think that a recording is liberating for musicians (as ideally it should or could be), that recording and editing provide a safety net that allows experimentation and risk-taking that wouldn't be possible in a live performance. The sound engineer Stokes's opinion is that 'in a

recording, things *can* be corrected, so [the musicians] *can* take risks – I'm not suggesting that they're going to do something like up the tempo or let the soloist do outrageous things in the cadenza – but they can try things out, so you can build up a really exciting performance'.[215] Rushby-Smith writes: 'The possibility of retakes enables artists to take risks they would never dare take on the concert platform, often with breathtaking results'[216]

But we have seen that performers feel very differently about this situation. Mistakes take time, and time is money (and there is not much money), and so there is incredible pressure to get it right as quickly as possible. We might also add to this the fact that, as the performance is being recorded for posterity, musicians feel bound to make sure they don't do something they may regret later, or that might pall upon repeated hearing. This feeling is echoed by musicians not directly related to this research, for example Tony Pay of the LSO:

> 'The impression an orchestra often gets from a record producer is "produce the goods or else". We're there on sufferance – watch out. I remember trying to solve a problem with a conductor and a producer, and if I'd been any good there wouldn't have been any problem. And this unease is made worse by the knowledge that the record companies have the orchestras over a barrel. If you don't produce this time, they'll use another band next time. We are desperately trying to please, just in order to make an income, people who may have very minimal qualifications for making music live. But we all know the wonderful records, and the only way we can judge past performance, or at least get an idea of it, is to listen on record. The making of records *is* important, *more important than present practice seems to allow*.'[217]

As we know from what the trumpeter Mackie said, there is always the worry that in the final edit, the producer may have reasons to choose a take that you're not happy with, and so you would want to leave him with the smallest number of non-ideal takes to choose from. It is then hardly surprising that this situation is not conducive to experimentation, partly due to practicality, and partly to psychology. Dorottya Fabian's research found that most of her interviewees (79.5 per cent) 'reported taking fewer risks in the studio, in spite of the potential for correction.' She suggests that 'there might be

several reasons for this, including time constraints and tight budgets limiting the opportunity for experimentation.'[218] When I explained Mackie's point of view to one production team member, he said he had not thought about it quite like this before, that people on the production team 'side of the fence feel that there is more freedom in recording'.[219] This is a significant and surprising difference in point of view, and may account for a large part of the tension present in the recording situation.

This fundamental misunderstanding between performers and production team members surely needs to be opened up and debated. If during the time that the production team members are seeing the great opportunities provided by repeated takes, the musicians are labouring under a feeling of great pressure to get things right, and at the same time feeling that they have no control over the situation, there will of course be problems, misunderstanding, and dissatisfaction. If performers and producers could look at this source of tension and discuss it openly, they might come up with some interesting insights, perhaps change some of their opinions, and find some new solutions.

IV - TOWARDS AN AESTHETIC EMANCIPATION?

This tension, I would like to suggest, is also due to another factor: the fact that in classical music, recording has not achieved an emancipation from the aesthetic of live performance in the way that film has successfully diverged from theatre. It seems logical that the two performance modes should be allowed to be seen as independent of each other and judged on their own terms. There are several solutions to this problem, including: reconsidering the ontologies of live and recorded formats, arguing for their emancipation (their freeing from the constrictive bonds of comparison), teaching musicians now training in conservatoires about how to make the transition from stage to studio successfully (to work on their studio art as well as their performance art), making

producers and engineers more aware of the challenges and justifiable fears that musicians face when standing in front of the microphone, further exploring the possibilities of the classical recording aesthetic, and opening critics' and listeners' ears to the new possibilities that musicians and producers might explore if only they were given the artistic and commercial freedom to try.

What Do Performers Want?

The bigger picture here is that recordings have become an integral part of musical life, but the musician's relationship with them is still one fraught with mistrust and difficulties, seemingly centred around two issues which seem particularly worth further thought: power and control, and perfection. When musicians enjoy recording, it would seem to be because they feel they have some control over the process, can make decisions about the product that is released, and because the whole endeavour is either more akin to their preferred activity of concert-giving, or there is time and space in the project to experiment with a performance only achievable through recording. As soon as you take this power and self-determination away, such as in some quickly-made orchestral recordings, many musicians are simply going to feel disenfranchised as they have no real say in the process. If the situation could be changed to the point that most of the time performers and production teams worked together in a relationship based on trust and a mutual goal (which *does* happen, but not always, and the reason for this not happening is more often than not limited time, in turn produced by limited funding), and also that there was time and money (and freedom) available to allow musicians to once again be creative in the recording studio, then we might find fewer and fewer musicians harbouring negative feelings about recordings and the recording process. They would feel they had a position of control in the recording process that is currently rare – it does

happen, but is usually the fruit of particular professional relationships that evolve into collaborative working practices.

There is also an element of restriction imposed on a recording by the need for perfection – it seems that it can stifle the creative intention of the performers. Most musicians are professional enough, and open-minded enough, to see that recording *is* a different thing, and to trust the producers and engineers to get the best result. Many musicians *do* want to record – for posterity, for ego, for a bit more money, to show that they are good enough to do it and to be asked again – so the challenge for the future is for the record companies, production teams, orchestral management and musicians to move forward into a situation where everybody is more or less happy with the fact that a recording *is not* simply a live performance captured, but that it *is* a different kind of product, and everyone has a stake in making sure that a good recording is made (both in artistic and technical terms).

We have seen the problems which contribute to musicians' dissatisfaction with the process and products of recording, and we can use the trumpeter Mackie's explanation of his view of how things are now and how they might change for the better in the future. He describes a situation in which twenty years ago the record companies had a strangle-hold: they were 'the money' and they made the artistic decisions, and in his opinion not always very good ones. At least now the decisions are made by the orchestra, in this case, the Philharmonia. They are self-governing, so they can more often choose to work with musicians with whom they are artistically happy to collaborate. So things are, in a way, getting better, but they are still not great. He feels that it is important for people to know this, and, as I stated earlier, that I would be doing musicians a favour by demystifying this, if I could show that they think the recording situation is highly unsatisfactory. Basically, even the biggest and best orchestras are in a way victims of the *status quo*: they

are not getting the time and money and support necessary to give them the opportunity to get something that they are really happy with down on record.

What is meant by this is that they have an artistic goal in mind for a recording that is simply not achieved often enough. We should recall at this point the statement made earlier by Tony Pay of the LSO, that 'the making of records *is* important, more important than present practice seems to allow.'[220] This resonates strongly with the conclusions I will come to here. [221] It seems as though because of limitations on time and money, musicians are expected to deliver the goods in a one-off live fashion, whilst also being expected to jump through the hoops of the recorded aesthetic. Present classical recording practice doesn't allow the time for recording to truly become a distinct medium. So then we must ask ourselves: what are we recording for? To capture the score, or the performance? To get another perfect Beethoven Symphony No. 5, or to capture for listeners now and for posterity the performances of the great musicians of our time? We might have to consider that musicians have different priorities to producers and record companies. Record companies are primarily interested in a product that will sell, and producers, albeit artistic, musical and very experienced in their craft, have to supply this product. Musicians, on the other hand, probably won't get rich from the recording,[222] so their priorities are still largely artistic, creative and musical. What if we opened the debate, created a space where all concerned parties could discuss new aesthetic possibilities that might also be commercially viable? I think the first step towards this is to emancipate recording from its live counterpart, in order for us to be able to view it as a discrete art form.

Theatre and Film

In order to consider the ontological differences between recordings and live performances, it will help to remember that concerts and recordings have some cousins from whom we may be able to learn something. If we compare this situation to theatre and film, for instance, it can help us to question our attitudes. As already suggested, perhaps the cause of people's negative attitudes to recordings is that they are often directly compared to live performance; one is comparatively judged against the criteria of the other. Why is it that classical music has never outgrown these early difficulties? People no longer compare films to theatre productions, or bemoan the fact that the film is not a good approximation of its live counterpart, but music recordings are still seen in comparison to (and judged against the criteria of) concert performances, and I feel that our reactions to them are thereby skewed by this lack of clear thinking.

Cook also observes this problem in his book *Beyond the Score*, spending the large proportion of a chapter discussing this in detail. He argues that live and recorded music can certainly been seen as different, and that nobody complains any more about painting and photography, or theatre and film, but that the process of conceptual transformation took decades.[223] However, he concludes that live and recorded music are so 'closely entangled' that perhaps a more integrated approach is necessary. He agrees with Auslander that that they are parallel forms that participate in the same cultural economy.[224] I think this still leaves space for live and recorded musical performance to be seen more individually than they currently are.

The analogy of a theatre play and a live music performance versus a film and a recording is a suitable one, but there are some points at which the comparison is not exact. These might be the very points which have made it difficult for recording to make the transition away from the concert aesthetic. It would take an entirely separate article to discuss this in detail, but it can be said quite surely that theatre and film have been

emancipated from each other in a way that classical concerts and recordings have not, and there are a few clear reasons that we might identify for this. The points of tension or non-parity are: the texts which form the starting point, the performers involved, and the transparency of the end product, or - put differently - what the end product reveals to us or purports to be.

Figure 3: Theatre and Film vs Live Music and Recorded Music

	Text	**People**	**Process**	**Multiple takes**	**Editing**
Theatre	Play/Script	Stage actors	Live – beginning to end	One take	None
Film	Screenplay	Film actors	In sections, not in order	Multiple takes	Part of storytelling – visible, obvious
Live Music	Score	Same musicians	Live – beginning to end	One take	None
Recorded Music			In sections, back and forth, not in order	Multiple takes	Invisible, trying to present the illusion of a start-to-finish performance

(Note: Where there is not a line through the box, full emancipation has not occurred and therein lie the points of tension.)

We can see from Figure 3 that those parts of the processes shown in the centre of the table are similar for both sets of comparisons: for the live mode (concert and theatre) the performance happens from beginning to end, and occurs essentially as one take or is played once through in front of an audience. In the mediatized mode[225] (film and recorded music) the work is recorded or filmed in sections, as multiple takes, and not usually in the order in which it was composed or written.

It is at the outer extremes of the processes that the practices diverge. Film and theatre have distinct texts, in one case the script of the play and in the other the screenplay which has been reconceptualised to work within the cinematic aesthetic.[226] In music, the starting point for both live and recorded performances is the composer's

score. Another instance in which film and theatre are separated but live and recorded classical music are not, is in relation to the performers. In the world of drama there are usually two different sets of actors working in either field.[227] Film and theatre are separate disciplines that require different talents and temperaments. This is not a luxury afforded to classical musicians; the musicians who give the concerts are generally the same ones who go into the studio to record, and they are expected to hop from one mode to the other at the switch of a red light. Film actors of course do cross over to work in the theatre, and vice versa, but from the outset the different expectations are more obvious in each case. In the classical concert/recording fields, the players have a pre-existing concept or memory of the live performance which precedes the recording, so there is more scope for a sense of difference or comparison to be felt. A film actor will not usually have a prior experience of performing the screenplay live, therefore the potential for a sense of what Sterne calls 'loss'[228] is much higher for classical musicians. It could be seen as similar to what Born describes as some people's feelings about the loss of authenticity when moving from analogue recording to digital - with analogue, there is some fragile connection to a prior musical event.[229] The fact that the same performers are trying to shoe-horn a pre-existing performance of a musical text through a completely different process might be one of the main elements that creates the tension and discomfort that many musicians feel when making recordings.

The latter sections of the processes show more points of tension. The public's reaction to multiple takes and editing is much more accepting in film than in music. If a classical musician admits to a splice every few bars (or even every few notes!), many would be up in arms saying that this was cheating (the implication being that multiple takes and editing are used simply to eradicate mistakes in execution).[230] In film, however, as the producer Andrew Keener tells Robert Philip: '[…] nobody berates Meryl Streep for wanting to do twenty takes of a single twenty-second shot. Each time she will bring

another nuance, another eyebrow raise, another eyelid-flash to a different part of the take.'"[231] Keener sees that his job as producer is not simply to put up a microphone and try to capture a live performance, but to create something; he agrees with Walter Legge who used to say that "'one of the roles of the producer is to collect all the jewels. I firmly believe this. It's one of the reasons for making a record'".[232]

However, what Keener misses is the fact that film is more obviously a different product from its theatrical counterpart than recorded music is from a live concert. Film doesn't claim to be a beginning-to-end performance – we can see that it is not (editing and angle changes, non-teleological storytelling), whereas a classical music recording still presents a semblance of a beginning-to-end performance. However, Cook describes that the way that a film presents itself is also applicable to sound recording:

> 'Nobody who sees a film thinks it was made by leaving the camera running for two hours: films consist of the traces of a large number of performative events taking place over a period of weeks or months […] But the film still references an event or series of events of which it presents itself as a trace: it is just that the diegesis, as film theorists call it, is fictive, and understood as such by audiences.'[233]

A classical recording aims to give a 'best seat in the house' experience, an image of a live performance, whilst obscuring all the work, necessary artifice, and creative production that occurs in order to achieve that end. There is a sense in which this may seem dishonest or at least a pale shadow of the live experience. However, a good producer would argue that multiple takes in a classical recording happen for exactly the same reasons as Meryl Streep's: to capture the best expressive moments. It is a problem of perception. Many listeners have the ideal of the live performance in mind and so think that any attempt to doctor this through editing is ethically wrong, thereby missing the fact that editing can take place for valid artistic reasons. However, we know, and performers feel this keenly, that it is also done in order to get rid of mistakes and blemishes, to achieve the perfection that is expected on recordings. But in classical recording, given enough time and money, multiple takes and editing *are* undertaken for

artistic reasons, but when time and money are limited, then the purposes of retakes and editing are also limited, to 'note-getting' and blemish-covering. Another element that adds to this perception of editing as hidden and wrong is that somehow the very true and unavoidable fact of mistakes is covered up in classical music, whereas for instance in a comedy movie they would be played at the end as out-takes or bloopers, or in a fantasy epic or war drama they would be put into a 'making-of' documentary on the DVD; the audience would have the option of going behind the scenes to see how these serious and convincing evocations had been produced. Cook argues that this is simply down to ideology: the Best Seat in the House (or BSH) paradigm, as he calls it, is an ideology: 'the BSH paradigm embodies a choice, but is not seen that way: rather it is taken for granted, as simply the way things are. In line with Sterne's discourse of fidelity, faithful reproduction is transparent, it effaces itself.'[234] He continues that the classical recording industry has been reluctant to grasp new opportunities because of an entrenched way of thinking – one that centres on what he discusses as the 'paradigm of reproduction', the 'discourse of fidelity', and the 'BSH ideology' – 'a way of thinking that rules out alternatives while not even acknowledging that there are alternatives to be ruled out.'[235]

Over the past century-and-a-half, concerns have been expressed about photography taking over from painting, or cinema from theatre, or recordings from concerts, but never have these prophesies been fulfilled. The reason for this seems to be that as each medium develops, it finds a place for itself, distinct and separate from its ancestor. Susan Sontag writes in *Film and Theatre*: 'If the painter's job had been no more than fabricating likenesses, the invention of the camera might indeed have made painting obsolete. But painting is hardly just "pictures", any more than cinema is just theatre for the masses, available in portable standard units.'[236] It is time that we learnt this lesson as it relates to classical recording and start embracing and exploring the differences instead of defending the barricades.

Let a Recording be a Recording

Having looked at the various situations that musicians have to deal with, their opinions about them, and the differences between live performances and studio recordings, I would like to suggest that we stop comparing one against the other – that we allow performances and recordings to be emancipated from each other – that we let a recording be a recording, and work on how that process and product can evolve for the benefit of the performers, the production team, and the listener. This appetite for classical recording aesthetics and practices to move forward and explore new territory is echoed by practitioners and scholars alike.[237] I would like us, as listeners, to be able to examine our expectations and see whether we might start to open our ears to different things. There are ways in which a recording can be more successful than a live performance, where a recording can help us hear and experience things which we often can't in a live context; they render audible passages which would normally be obscured in live performance, such as opera libretti inner lines (which clarify the theatrical action), quiet accompanied solo passages, more intimate ways of playing or singing which draw the listener in to the grain of the sound, finer details of orchestration, or complex soloistic passagework.[238] But aside from the obvious benefits of the current recording medium, there are other options which I would like to propose that we explore.

The main point to consider is that all the stakeholders in the recording (performers, production team, and by inference the record companies they work for, critics and listeners) need to go through a process of reconsideration and exploration - a reassessment of their place and purpose in the recording situation. If all parties could gain a better knowledge of the challenges that the others face, they might develop a deeper understanding of the whole process which would improve their experience of it. The problem is simply that we all approach the situation from our own point of view,

with our own assumptions and beliefs, not realising how different everyone else's perspective is.

Let us consider performers first. They would benefit from coming to terms with the fact that recording is a completely different craft; this would help them to feel less alienated by the process. It would improve their experiences if they could embrace the sound-world (accepting that it won't be a live balance) and more willingly exploit the possibilities offered by recording (instead of seeing editing as an ethical issue). It would help if they could change their concept of the producer and process as an interfering prism to seeing them as part of the artistic process, more in the sense of pop music producers (and of course this would be made easier if the producer were also reconsidering the whole situation). What would the result be, I wonder, if musicians were more regularly and fully involved in the process of choosing edits in collaboration with the producer? What kind of recording would that result in? Another matter worth considering might be for some musicians to specialize in making recordings much like there are film and theatre actors, or perhaps creating recording orchestras. However, the problem with this is that London's orchestras are already very close to being recording orchestras (considering how many film soundtracks they are hired to record) and the landscape of classical music would have to change significantly to enable this to happen. Furthermore, how many musicians other than Glenn Gould would choose to renounce the concert platform completely?[239] Also, as listeners, we will always want to hear the best orchestras of our time on record, and also have the chance to see them perform live. So perhaps the answer is to work towards instilling fuller studio recording skills in current musicians and thoroughly training students coming through the conservatoire system to be able to work as well and comfortably in the studio as they do on stage, which historically not been the case.

These kinds of courses are bit by bit making their way into the conservatoire curricula, and I can vouch for the fact that this is already showing promising results at the Royal Academy of Music[240] and the Royal College of Music in London,[241] as well as increasingly at other conservatoires and colleges internationally. This kind of training is certainly needed. One might think that the negative attitude towards recordings that we have been discussing was perhaps limited to an older generation of professional musicians who might be less comfortable with the technology, but even today's cohort of technologically savvy conservatoire students share this feeling. When a group of postgraduate performers taking the Studio Experience course at the Royal College of Music were asked, 'What is the first word that comes to mind when you think about recording?', they replied: 'Perfection; permanent; clean, tidy; exposing flaws; no audience; microphones; not natural, no visual [dimension], clinical, tiring'. The tutors then interjected, suggesting that they might want to think of some of the positive aspects offered by the recording process, and the students continued with 'commercial opportunity; pressure not to [do] too many takes; trying to fix things; self-criticism; time limits; experimental; part of your history; exciting, imaginative, no audience; performer becomes audience, too; intimacy; hearing yourself differently; daunting, expectation of perfection'. So we can see that the tone of their responses didn't lift very much, even when given this encouragement.[242] There is a spectrum of concepts here, but the negative feelings seem to be predominant. So we can see that from the beginnings of recording to the present day, the recording situation is far from a straightforward positive musical experience for the performers involved. The learning process must have had a significant impact, because these same students came out at the end of the course saying that for them recording was now: 'experimenting, trying different ways of doing something; time going fast, faster than you expect; concentration of the producer, [attention to] detail; stress, good stress; preparation [is important]; relief, because you've already captured

some good moments; pressure; detail; layers of detail; a lot more fun than expected; need forward planning and structure; good intensity, stressful and fun; not enough time; more creative than I was expecting; catalyst, crucible, transformational'. When asked who they felt was in control during the session, there was agreement that 'it changes all the time', 'it's like a husband-and-wife relationship'.[243] What is interesting and possibly most important about this teaching set-up is the fact that they were producing each other, and so gained experience from both sides of the musician/production team fence. This understanding of each party's challenges and priorities makes a huge difference to their experience in the studio and understanding of the process. Courses like this are gaining momentum as the classical music education community is recognizing that as the old systems no longer exist performers are increasingly going to have to organize and curate their own recording projects. To this end, I have been asked to create a post-Masters professional diploma at my institution, a Professional Diploma in Collaborative Recording Production, a year-long course which will prepare high-level performers to face this brave new world of recording. They will need to know enough about all aspects of the process to collaborate more closely with the producer or sound engineer they have hired, and very possibly make their own decisions about takes and complete their own editing, as well as marketing the product or finding a company to deal with the distribution.[244] Companies such as Linn Records, Deux-Elles and Avie are already working with current professional performers who engage in more collaborative working practices.[245]

The members of the production team also have to go through this reconsideration process. It would improve the situation significantly if they were to consider and understand that, despite their own perception of multiple takes as being liberating, many musicians feel differently and still fear or dislike the recording process. Producers could

think more about what performers have to deal with when coming into the studio, and find ways of working differently and of helping them overcome their fears. Could production teams and record companies consider working more collaboratively with performers when it came to choosing edits? Jonathan Freeman-Attwood, an experienced record producer, professional trumpeter, and principal of the Royal Academy of Music,[246] proposes what he calls 'the new studio', a place where 'we toy afresh with Glenn Gould's ideal of studio recording: "an art form with its own laws.'"[247] Freeman-Attwood believes that working with a performer involves 'identifying with their aspirations, questioning them and then gathering the fruits of their work with each "take" rather than toeing the company line.'[248] He states that 'the ideal conditions for our new studio require a dynamic convergence between artist, producer, and artwork.'[249]

Another aspect of studio work which producers need to examine is the value of recorded perfection. Is it absolutely necessary? Is it the best and only way? What if instead of being a place to achieve perfection, the studio became a space for risk and experimentation, what Born calls a 'crucible for creativity'?[250] Freeman-Attwood describes this – the risk and experimentation, if not literally the questioning of perfection - using George Steiner's words of 'commitment at risk'. He would like the 'new studio' to be a place where performers, 'properly equipped', can 're-invent the "studio" as a critical workshop for evaluating the ideals of previous generations' and stimulate 'a practical re-appraisal of modern musical interpretative values.'[251]

One issue that certainly needs to be dealt with (more so than it already is even in the best of circumstances) is this illusion presented by the final recording, the pretence that it is a beginning-to-end seamless performance. Not only is the process of recording made invisible, but so is the work of the producer and engineers. Remember the concept of the production team and recording process as an invisible prism through which the performance must pass. It might perhaps help everyone to change their concept of what

a recording is, and to judge it more realistically, if the production team's part in the process were celebrated instead of hidden. As Blake reminds us: 'Producers, too, make music.'[252] Freeman-Attwood describes the producer's role after the session:

> 'when the artists have left the studio […] the producer holds all these "voices" […] The one person who has not created the music must now sing for the artists and the work. The performers may challenge the producer's will in the studio, but in the cutting-room they must trust that the latter's "first edit" or "proof" will recognisably evince each layer of session in memory, hope and expectation. In an environment where as many artistic decisions are made after the event(s) as during the sessions, editing can only contribute to the creative process *if there is the quality and range of possibilities behind the decision to choose one take above another.*'[253]

It would thus seem that the two very powerful creative figures of the performer and the producer should certainly consider working together more closely, developing new models of collaboration. Cook's description of recordists being seen as mere technicians is followed by a discussion about whether the producer could in fact be called an 'auteur' in the sense that is used to describe film directors,[254] though he concludes that perhaps there are so many people involved in all parts of the recording process that perhaps it makes more sense to speak of a team of auteurs.[255] Of course there are many different types of producer, and engineer, and various factors to consider, but it seems quite clear from the discourse around the role of the production team (Cook, Freeman-Attwood, Savage, Blake),[256] that producers and engineers need to be more overtly recognized for the contribution they make to and the influence they have over the process and the product of recording.

If producers and engineers shared their expertise with musicians and listeners instead of being made to keep it what they call a 'black art',[257] there would be more chance of everyone embracing recording as an art form in its own right. Apart from the different working environment that this would produce in the studio, they could share their working practices and creative processes via production notes accompanying the recording (or an additional online resource), they could make the process more visible,

show what can be done with recording and why they do it. This would start to break down the feeling amongst listeners that they were being fooled and amongst performers that they were at the mercy of a powerful yet ultimately invisible producer.

We might also ask ourselves some questions about the current format and aesthetic of recording. The classical recording format has been in stasis for a while, and unfortunately recording music seems to be viewed simply as a process, whereas if it gained full emancipation it could come to be regarded more distinctly as an art form in itself. Cook dedicates the last chapter of his book to exploring the experiments that have pushed the creative boundaries of recording until now, stating that a few experiments 'hardly add up to a coherent trend, but at least they enable us to pose a question: Might such explicitly phonographic approaches create new options for the presentation of classical music within a culture increasingly attuned to the values of digitally mediated sound?'[258] Recording companies might take this opportunity to really explore possibilities and push the boundaries of what can be done in a recording. We have digital technology and multi-miked stereo surround-sound, and yet we stick largely to the sound-world of a live orchestral concert (violins on the left, cellos on the right, woodwind centre-stage). Why not try something much more experimental?

We have of course had precursors to this. For example the experiments of pianist Glenn Gould's highly-crafted studio recordings, and his 'acoustic orchestrations' (more recently edited and released by Paul Théberge) in which Gould used varied microphone set-ups and editing techniques to interpret the music one step further, using recording as a compositional tool.[259] Also in the early 1960s there was the Culshaw/Solti recording of Wagner's *Ring* cycle in which they tried to give the listener at home a sense of the live opera staging with movement and special effects. [260] But how is it that these experiments were happening in the 1960s and 1970s, and although they have had *some* impact on

recording styles, they haven't made their way into the mainstream aesthetic of recording? It doesn't seem that we have moved that far or that we are experimenting with many new ideas and current technological options. Why not? Why are we so married to the live aesthetic? How is it that the debate, at least, has not continued? What is interesting is that these particular experiments, Gould and the Culshaw/Solti *Ring*, come up again and again in the literature,[261] as well as The Beatle's 1967 album *Sgt. Pepper's Lonely Hearts Club Band*, widely deemed the first concept album which explored the possibilities of stereo multi-tracking techniques, liberated by the fact that The Beatle's did not intend to perform the songs live. We could decide to ignore these phonographic approaches to recording as mere flashes in the pan, referred to only by aficionados, academics, and recording nerds. But, if we look at the sales figures that Lebrecht was able to extract from record companies for his obituary of recorded classical music, we find an interesting surprise: the Culshaw/Solti *Ring* cycle was the best-selling classical album of all time, selling 18 million copies. 18 million copies is not too far off Michael Jackson's *Thriller* (26 million), Pink Floyd's *The Wall* (23 million) or Billy Joel's Greatest Hits (21 million).[262] And Gould's *Goldberg Variations* came in at number 17 with 1.8 million copies.[263] If these have been two of the best-selling classical records of all time, there must be something about them that people like, perhaps something about the aesthetic and resulting creative product that could be turned into something marketable that record companies could monetize. Seeing this surprising commercial success, we might begin to wonder whether a new stereophonic and digital approach to classical music might seem less of a theoretical argument and more of a practical one, and potentially worth exploring. Interestingly enough, there has been a recent appearance on the few remaining record store shelves of a re-issued box-set of Decca's 'Phase 4 Stereo' experiments from the 1960s. These were 10- and 20-channel recordings in which music was re-scored and split to separate channels in order to achieve some separation and movement.[264] Might this be

an indication that the record-buying public might be ready to accept some new experimental possibilities?

If the recording industry is suffering, Cook posits that a 'standard business response' would be to 'make your product different', 'if you're producing records then using production techniques to create distinct and distinctive phonographic experiences […] might seem an obvious route to explore […] some people are receptive to such approaches, and if others aren't, then that is in the nature of markets: you offer different products to different consumers'.[265] What about trying spatially deployed orchestra with implied movement in surround-sound, over-dubbing, or hyper-real positioning of instruments? Or maybe rethinking a score in order to explore new interpretations of the sonic picture, or new compositions commissioned to make the best of the opportunities that recording affords? We could think about using the multi-track techniques used for rock and pop music so that listeners could have the possibility of choosing their own mixing and balancing options at home, or release recordings with several editing options so the listener can choose their own edits.[266] Patmore posits that the future of recording will involve ever more technology, will be specialised, and will be consumer choice-driven.[267]

The reasons to record have changed over the last century. In the beginning it was necessary to capture the repertoire, to have every symphony, concerto or opera by every major composer in the catalogue. Then it was to keep up with the technology and the improvements in sound quality it offered: acoustic recording onto shellac, electrical recording, vinyl, tape, digital compact disc (and various formats in between which were less successful). We are at a point where there are no obvious significant and affordable improvements in technology on the horizon which would give the recording industry an excuse to re-record everything yet again. In fact, for possibly the first time in recorded

history the most popular emerging technology - the ubiquitous MP3 listened to on the iPod - presents a step *down* in quality, in the form of downloads and digital streaming.

There *are* high-quality download formats available, the lossless CD-quality downloads and 24-bit/96kHz FLAC (Free Lossless Audio Codec) which is better than CD, but they are not yet as widely used as MP3 which has a very low sound quality. The singer-songwriter Neil Young has been campaigning to raise the standard of recording formats. In his opinion 'CDs offer only 15 percent of the recorded information contained on the master tracks', and once converted to MP3, 'you've lost a great deal of richness and complexity.'[268] Young has now developed a music player called Pono, which plays the quality of audio that the artist and producer captured in the studio – far higher than MP3 or even CD. Another interesting trend is in the rise of vinyl sales in the last few years, to the extent that the UK Official Charts Company launched their new LP chart in April 2015.[269] Vinyl versus digital is an old debate, but wherever you stand on the issue, the thing that people are attracted to is what they perceive as a richer, deeper quality to the sound, and a more tactile listening experience.[270] Some people are still listening to sound, and they are looking for timbres that interest and excite them. So it might be that some corners of the market are starting to look for improved sound quality, but these are only ripples on the edges of the mainstream for now. Perhaps the next big change might instead involve a different performing style or artistic goal.

Despite the transitionary moment the recording industry is experiencing, it would be sad, and in fact wrong, to say that this is the end. Music is a basic part of the human experience, and there is little danger that as listeners we will cease to wish to experience recorded music, simply because there has been a hiatus in the distribution format and the industry that provides us with these recordings. Patmore firmly believes in 'humankind's insatiable desire to listen to music',[271] and Bergh and DeNora argue that recorded music isn't going anywhere. It is one of the ways in which we articulate our identities, it is

reflexive embodied praxis (dancing, crying, sleeping, making love), and live music cannot and will not take over from this.[272] They believe that the new technology is an augmentation, not a replacement for old ways of listening to music.[273] Cook identifies that classical music has never been so accessible, and in terms of total listening hours it is more widely disseminated than ever.[274] Botstein argues that recorded music as we have known it is dead and that live performance is taking over,[275] but the performers today will still want to reach out to their international audience, to try to put down their thoughts on record for posterity, no matter how difficult they might find the process to be. As listeners we will want to hear the great performers of our day, playing in a style which is familiar to us, or even slightly refreshing and surprising. Record companies are looking for ways forward, and commentators (Rogers, Kusek and Leonhard, mainstream press journalists) are identifying the ways in which the future of recorded music in the digital age can be a bright one. Some companies are making Super Audio CDs and working with the spatial distribution of sound in classical recording through 5.1 surround sound, for instance Harmonia Mundi or Linn Records, whose recordings are presenting us with fresh and exciting recordings which sound great.

However, the other possibility, and my main hope for this potential exploration of options, lies in the concept of perfection that we've already discussed. We've pushed for perfection of sound and of technical execution to the point where it is no longer impressive, but it is just the norm. And musicians, as we've seen, don't see it as the most worthy or rewarding aim. So I would like to propose that we try exploring this; that we question whether it might be possible to prioritize perfection less than we currently do in recording. People might very well be ready for it; many musicians certainly seem to be. Re-releases of historical recordings have become ubiquitous since they gradually started coming out of copyright, so listeners are used to and enjoy hearing performing styles

different to current mainstream classical styles. And listeners are also becoming increasingly used to the relatively new format of 'live' recordings.

Now that the recording landscape has changed, orchestras are finding new ways of making money, one of which is by making and releasing so-called 'live' recordings. This entails recording the live concert, but there is still some editing involved, as any blemishes are removed and patched-in by using parts of the rehearsal or if necessary being re-taken in a patching session.[276] With the decline of traditional commercial recording, these are now a financial necessity - they are much cheaper to produce - but they *are* also artistically preferable for some of the orchestra members. Some like them, and some don't, but this mixed attitude is probably not surprising, considering the mixed nature of this mode of performance/recording. The engineer Hallifax posits that whilst 'live' recording could be seen as offering the best of both worlds, it equally 'could be seen as possibly the *worst* of both worlds, because the musicians aren't comfortable with the hybrid performance situation, the clash of two mutually exclusive performance modes.'[277] This is because the musicians are trying to do more than one thing at once – they're stuck between being prepared for the excitement of a live concert and trying to attain the perfection of a recording. With this new type of product, recordings are now influencing performance in yet another way in the sense that the existence of recording is invading the concert hall. Musicians can no longer be as uninhibited as they used to be – again, the anxiety of perfection is creeping in. So we can see that this genre is mostly welcomed as an alternative to a straight recording session, but it is also creating entirely new problems. From some performers' point of view, 'live' recording is probably not the answer to their dislike of the recording studio and the particular kind of perfection expected therein. However, to follow the thread of my point about listeners having their ears opened up by old and 'live' recordings and therefore being ready for new things, this format does serve

a purpose. It opens our ears to the possibility that an imperfect recorded performance can be enjoyable, and artistically and commercially valid.

Finally we need to consider the critics and listeners. As stated earlier, we have become so accustomed to hearing perfect recorded performances that we have come to expect the same in the concert hall. However, could it be possible that perfection isn't really as important as it has been allowed to become? Perhaps what we really want is better defined as *mastery*, and not literal perfection. What do we all value in performance – perfection, or expressivity? Might we, even in the studio, begin to aim for something that is really exciting rather than something that is really flawless? 'Live' recordings are starting to offer this to a certain extent, but maybe a shift in taste, even for studio recordings, is on the horizon. If we as listeners find concerts and 'live' recordings (as well as early recordings) by and large much more exciting, and often prefer them for that very reason, perhaps we should reconsider what we expect from our studio recordings too. But as long as the public and the record critics (and musicians themselves) persist in thinking that a recording has to be perfect in a way that a live performance simply cannot be (and also project that expectation onto the live concert), and as long as there is so little money for recording projects that musicians feel enormous pressure to get it right the first time (potentially stifling the feeling of freedom and excitement), and the production team know there is no money to pay for relaxed studio time or really good (read: time-consuming) editing, then many musicians will continue to feel worried about and dissatisfied with their recordings.[278] But if this experimental or more expressive type of recording is something that listeners might like to hear, then the conditions need to be created to make it possible. Violinist Anne-Sophie Mutter very much dislikes editing, and 'would rather keep the string that doesn't speak or other minor imperfections than lose the spirit. Reality isn't perfect.'[279] But one of the reasons that musicians and producers are

reluctant to release a recording that prioritizes expression over perfection is that mistakes are the easiest thing for a critic or listener to spot and comment on. If we remember Brendel's term 'wrong note fiends',[280] we might recognize that the problem the perfection-centric producer faces is that a bad review means potentially fewer record sales, so critics need to open their minds and ears to new aesthetic possibilities for recording, and loosen up about perfection for its own sake.

There are many reasons why record companies might be reluctant to allow their production teams and performers to take these creative risks, especially in the context of the classical music profession which can sometimes seem to resist change: Leech-Wilkinson asks the question 'Where is the incentive to innovate when maintaining traditions is the very focus of everyone's professional engagement with music?'[281] One answer to this, Patmore offers, might be to explore a version of the recording society pre-order model, where people who want to try specialised things – in this case phonographically experimental recordings – must pay for it in advance, thus minimizing the financial risk to the record company.[282]

Conclusion

What needs to happen for the new concept of recording I am proposing - one which doesn't see perfection as the most important factor - to have a chance of being attempted? Perhaps if every group with a stake in the process – performers, production team, record company, critics, listeners – had some reason to believe that it might be an interesting experiment, it would be possible to convince people to try it out. This will most easily be achieved through opening the debate about the recording aesthetic and will require a willingness to let go of perfection in search of something more artistically interesting.

Everyone involved in creating and consuming recordings needs to create a space where there is freedom to experiment, to try other aesthetics and formats, to find other options that are more interesting and exciting for all concerned. If a new recording aesthetic were to be created that was successful, people might start going out to buy more recordings, and this would not only be good business for record companies, but would also translate into money and therefore more time in the studio for performers and production teams to achieve something more artistically satisfying.

We have taken the first major step here by listening to the opinions and concerns that performers have about the recording process, to acknowledge that the confusion about their place in the process and product of recording creates tension, questioned the aesthetic of recorded perfection, and we have then reconsidered our understanding of the ontologies of live performance and studio recording - to allow each medium to be what it is instead of being compared to its counterpart. As funding for the arts is being cut and the recording industry is undergoing its biggest metamorphosis in a generation, we have an opportunity here to think about how the concert and recording industries could use these shifts in the landscape to their advantage[283] – to move with or even seek to inspire these changes in taste that seem to be occurring. Perhaps the fact that the recording industry is no longer exactly as it was might provide the perfect opportunity for musicians and producers to work out new ways of conceptualizing, capturing and disseminating recorded music. This needs to be opened for debate; these questions need to be grappled with by the musicians, conductors, orchestras, managers, producers, engineers, record companies, critics, arts and government institutions, listeners, and scholars, for a really successful, enriching and interesting future to be forged for classical music, in both its live and recorded forms.

APPENDICES

Appendix 1: Interviews

Date	Name	Profession	Activity
February 24, 2006	Sir Charles Mackerras	Conductor	Interview (1)
December 14, 2006	Sir Charles Mackerras	Conductor	Interview (2)
May 31, 2007	Sir Charles Mackerras	Conductor	Telephone conversation (3)
January 19, 2007	James Mallinson	Independent Record Producer	Interview
April 4, 2007	Campbell Hughes	Balance Engineer, BBC Radio 3	Interview
August 21, 2007	Andrew Hallifax	Independent Recording Engineer	Interview (1)
October 3, 2007	Andrew Hallifax	Independent Recording Engineer	Informal discussion (2)
August 18, 2009	Jonathan Stokes	Sound Engineer, Classic Sound	Interview
December 7, 2007	Lisa Beznosiuk	Flute, Orchestra of the Age of Enlightenment	Interview
December 13, 2007	Alistair Mackie	Trumpet and Chairman, Philharmonia Orchestra	Interview
December 20, 2007	James Clark	Violin and Concert-Master, Philharmonia Orchestra	Interview
December 17, 2007 and August 9, 2009	Robert Tear	Tenor	Interview
January 5, 2006	Nigel Bewley	Operations Manager of the British Library Sound Archive Technical Services	Technical interview (1)
March 21, 2007	Nigel Bewley	Operations Manager of the British Library Sound Archive Technical Services	Conversation (2)
January 5, 2006	Bill Lowry	Recording Engineer, British Library Sound Archive Technical Services	Technical interview (1
March 15, 2006	Bill Lowry	Recording Engineer, British Library Sound Archive Technical Services	Conversation (2)
March 27, 2007	Richard Fairman and Jonathan Summers	Service Development Officer, and Curator, Classical Music, British Library Sound Archive	Meeting

Appendix 2: Table of performances, rehearsals, and recording sessions attended

(all conducted by Sir Charles Mackerras)

Date	**Work**	**Performers**	**Venue**	**Type of event**
April 5, 2005	Academic Festival Overture/Brahms Violin Concerto No. 5 in A K219/Mozart Symphony No. 4/Brahms	Philharmonia Orchestra, James Ehnes (vln).	Royal Festival Hall (London)	Live performance
October 8, 2005	*Fidelio*/Beethoven (concert performance)	Scottish Chamber Chorus and Orchestra; singers from the RSAMD	Barbican (London)	Live performance
October 19, 2005	Prelude and *Venusberg* Music from *Tannhäuser*/ Wagner Serenade for Strings in E Op.22/Dvořák The Walk to the Paradise Garden/Delius Enigma Variations Op. 36/Elgar	Berlin Philharmonic	Philharmonie (Berlin)	Live performance
November 17, 2005	*Un Ballo in Maschera*/Verdi	Royal Opera House Chorus and Orchestra	Royal Opera House, Covent Garden (London)	Live performance
January 12, 2006	*The Bartered Bride*/Smetana	Royal Opera House Chorus and Orchestra	Royal Opera House, Covent Garden (London)	Live performance
February 16, 2006.	Overture, *La clemenza di* Tito/Mozart Piano Concerto No. 25 in C K503/Mozart Symphony No. 4/Mahler	Philharmonia Orchestra, Piotr Anderszewski (pno), Sarah Fox (sop)	Queen Elizabeth Hall (London)	Rehearsal (and recording session for a 'live' recording)
February 16, 2006	Overture, *La clemenza di* Tito/Mozart Piano Concerto No. 25 in C K503/Mozart Symphony No. 4/Mahler	Philharmonia Orchestra, Piotr Anderszewski (pno), Sarah Fox (sop)	Queen Elizabeth Hall (London)	Live performance (and recording session for a 'live' recording)
April 25, 2006	*Le nozze di Figaro* – Overture/Mozart *Al desio di chi t'adora* (Figaro)/Mozart *Batti, batti, o bel Masetto* (Don Giovanni)/Mozart Rondo in A for piano and orchestra, K386/Mozart *Ch'io me scordi di te*, K505/Mozart *L'amero, sarò costante* (*Il re pastore*)/Mozart Serenade No. 9 in D KV320, Posthorn Serenade/Mozart	Orchestra of the Age of Enlightenment, Rebecca Evans (sop), Susan Tomes (pno)	Queen Elizabeth Hall (London)	Pre-concert talk only, unable to attend concert.
May 19, 2006	*The Makropulos Case*/ Janáček	English National Opera Orchestra	Coliseum (London)	Orchestral rehearsal
May 20, 2006.	*The Makropulos Case*/Janáček	English National Opera Chorus and Orchestra	Coliseum (London)	Live performance

June 10, 2006	Prelude and *Venusberg* Music from *Tannhäuser*/ Wagner Violin Concerto No. 3 in G K216/Mozart Symphony No. 9 in C D944 'Great'/Schubert	Philharmonia Orchestra, Janine Jansen (vln)	Queen Elizabeth Hall (London)	Live performance
June 20, 2006	Prelude and *Venusberg* Music from *Tannhäuser*/Wagner Piano Concerto No. 27 in B flat K595/Mozart Symphony No. 9 in C D944 'Great'/Schubert	Philharmonia Orchestra, Alfred Brendel (pno)	Queen Elizabeth Hall (London)	Live performance
September 8, 2006	Symphony No. 35 in D, K385 'Haffner'/Mozart Mass in C minor, K427/Mozart compl. Robert D. Levin	Orchestra of the Age of Enlightenment, Choir of the Enlightenment	Royal Albert Hall (London)	Rehearsal for TV
September 8, 2006	Symphony No. 35 in D, K385 'Haffner'/Mozart Mass in C minor, K427/Mozart compl. Robert D. Levin	Orchestra of the Age of Enlightenment, Choir of the Enlightenment	Royal Albert Hall (London)	Live performance
October 14, 2006	*In Nature's Realm* Op.91/Dvořák Piano Concerto No. 24 in C minor K491/Mozart *Dances of Galánta*/Kodály *Sinfonietta*/ Janáček	Vienna Philharmonic, Alfred Brendel (pno)	Wiener Konzerthaus (Vienna)	Live performance
November 2, 2006	Symphony No. 9 in E, Op.70/Shostakovich Serenade No. 9 in D K320, Posthorn Serenade/Mozart	Berlin Philharmonic Gábot Tarkövi (posthorn)	Philharmonie (Berlin)	Live performance
January 4, 5, 8, 2007	*Così fan tutte*/Mozart	Orchestra of the Age of Enlightenment	Watford Town Hall, Watford Colosseum	Recording session
March 1, 2007	*Orlando*/Handel	Orchestra of the Age of Enlightenment at the Royal Opera House	Royal Opera House, Covent Garden (London)	Live performance
March 11, 2007	*Taras Bulba*/Janáček	Rehearsal Orchestra	Grey Coat Hospital School (London)	Played in orchestra (1st violins)
May 10, 2007	Overture *The Hebrides (Fingal's Cave)* Op. 26/Mendelssohn Violin Concerto in D Op. 61/Beethoven Symphony No. 41 in C, *Jupiter* K551/Mozart	Philharmonia Orchestra, Viktoria Mullova (vln)	Queen Elizabeth Hall (London)	Live performance
May 21, 2007	Overture, Cockaigne/Elgar Glagolitic Mass/Janáček	Prague Symphony Orchestra	Obcení Dům (Prague Spring Festival, Prague)	Live performance
June 11, 13, 15, 2007	*Kát'a Kabanová*/ Janáček	Royal Opera House Chorus and Orchestra	Royal Opera House, Covent Garden (London)	Rehearsals
June 24, 2007	Overture: *Die Meistersinger von Nürnberg*/Wagner	Philharmonia Orchestra, Mitsuko	Royal Festival Hall	Rehearsal

	Piano Concerto No. 25 in C K503/Mozart *Sinfonietta*/Janáček	Uchida (pno)	(London)	
June 24, 2007	Overture: *Die Meistersinger von Nürnberg*/Wagner Piano Concerto No. 25 in C K503/Mozart *Sinfonietta*/Janáček	Philharmonia Orchestra, Mitsuko Uchida (pno)	Royal Festival Hall (London)	Live performance
June 25, 2007	*Kát'a Kabanová*/ Janáček	Royal Opera House Chorus and Orchestra	Royal Opera House, Covent Garden (London)	Live performance
December 17 & 20, 2007	*Salome*/Strauss	Philharmonia Orchestra	Watford Town Hall, Watford Colosseum	Recording session
April 3, 2008	*Till Eulenspiegels lustige Streiche* Op.28/Strauss Piano Concerto No. 4 in G Op.58/Beethoven Symphony No. 3 in E flat Op.97, *Rhenish*/Schumann	Philharmonia Orchestra, Lars Vogt (pno)	Royal Festival Hall (London)	Live performance
June 30, 2008	*Le nozze di Figaro*/Mozart	Royal Opera House Chorus and Orchestra	Royal Opera House, Covent Garden (London)	Live performance
February 5, 2009	Overture, *A Midsummer Night's Dream*/Mendelssohn Piano Concerto No. 24 in C minor, K491/Mozart Symphony No. 6, *Pathétique*/ Tchaikovsky	Philharmonia Orchestra, Yefim Bronfman (pno)	Royal Festival Hall (London)	Live performance

Appendix 3: Generic interview question plans for musicians and production team

Interview Questions

**It must be kept in mind that these were semi-structured interviews, so the questions below were loose plans, and the conversations took their natural directions, with this list providing a rough guide.*

Interview Questions – Musicians:

[If you feel you have no particular comment to make on a certain topic, or that you think I'm mistaken in my line of enquiry, please do tell me]

Sir Charles:

- What is it like to work with Sir Charles? What kind of conductor is he?
- What is he like in the recording studio?
- What is he like in the concert hall/opera house?
- What are rehearsals with him like?
- Is there any way in which he is un-typical/unique?

General performance:

- Of your professional engagements, what is the proportional split between live concerts and studio recordings?
    - How does the remuneration compare?
- Is your performance affected by outside circumstances – how you feel, events that day, mood, world events?
- Do you think that the performance venue and/or situation affect your performance? Do you often or ever think about this? (or do you just do it?)

Live concerts:

- Can you describe how you feel about live concerts? (what do you aim for?)
- How does the rehearsal and concert process unfold – take me through it.
    - How do you prepare? How do you like to work, what actually happens, what problems do you come up against, what do you enjoy?
- What effect do the audience and the occasion have on you?

Studio recordings:

- Can you describe how you feel about studio recordings? (what do you aim for?)
- How does a recording session unfold – take me through it.
    - How do you prepare? How do you like to work, what actually happens, what problems do you come up against, what do you enjoy?
- What effect does an audience-less recording studio have on you? What is your relationship with the microphone?
- Do you think a recording should approximate the performance in the concert hall, or is it a different thing?
- Do your interpretations change with each performance, or do you stay faithful to one interpretation from one concert to the next? Does this affect your work in the studio? Would one way work better than another?

Comparison:

- What works and what doesn't? Can you think of anything that you generally do differently depending on the performance situation?
- There are certain details that I'm particularly interested in – can you think if it's ever struck you that some performance details are at all affected by the performance situation?-
    - **Acoustic** –
        - Do you change what you do depending on acoustic?
        - Is there any general way in which the acoustics of concert halls and recording studios are different?

        - Acoustically, what is the difference between playing in an empty hall (rehearsal) and in a full hall (concert).
    - **Tempo –**
        - Have you noticed that tempi have to be modified or tend in hindsight to be different live or recorded?
        - Why are orchestral performances often quicker live?
        - Why are vocal performances often slower live?
        - [or 'do you think vocal performances generally tend to be slower when live? Why might this be?]
        - Might performers be varying their tempi depending on acoustic; difficulty; breathing; occasion/adrenaline?
    - **Balance –**
        - Does the balance of an orchestra have to be different for a recording?
    - **Expression (declamation)** and **issues of staging (dramatic timing) -**
        - is it easier to project the spirit of the performance (or work) in a concert or when making a studio recording?
        - Rec – standing and singing – are you inspired to do better because you don't have to rush around, or are you inspired by the dramatic situation and have to work extra hard to get what you want in the studio?
        - Do opera singers have to under-act in a studio recording?
        - Do you hold back in a rec and give 'more' in a live performance?
    - **Articulation**
        - Do you think you have to articulate differently for a concert hall than for a microphone?
    - **Ornaments –**
        - Who chooses ornamentation?
        - Is it ever changed going from a live concert to a studio rec?
        - Is it ever improvised? Studio or live?
    - **Mistakes/perfection** –
        - In which instance (live or rec) do you feel more obliged to play perfectly?
        - Do you take more risks in a live performance or a recording?
        - I'm interested in finding out which situation is more nerve-racking or constricting – can you tell me how a live concert makes you feel about mistakes and trying your best for perfection, and how a recording studio makes you feel?
    - **Re-takes and editing** – do you have an opinion on this – should it be more like a live event, or an opportunity to craft something?
        - do you have an opinion on either of the above – mistakes or editing?

Production team:

- As an _____, what is your working relationship with the producers and engineers – what do you ask of each other?
    - Do you have much knowledge (or take much notice) of recording technique and microphone placement? How much control do you have?
- Are there certain *kinds* of producers that you like or dislike working with – no names – just helpful and unhelpful traits.
- Have you ever worked on a so-called 'live' (concert) recording project (like LSO Live)? How do you feel about these situations?

Recs in general:

- Do you listen to your own recordings?
    - Would you be more inclined to listen to a published studio recording or a recording of a live concert?
- Do you think your recordings are a just representation of you?
    - Are your studio recordings representative of your live performance?
- Do you think that the process of recording and listening to yourself has changed your performance?
- Do you listen to other people's recordings? How do you use them?
- Can I get a bit philosophical for a moment? - Music is an art that exists in time – if you were to perform the same piece twice in a row, the second time would be different from the first. But the recorded performance is always the same. How do you feel about this?

- What do you feel is the value of recordings and why do you make them?
- If you could lead your career exactly as you wanted, would you be primarily on the stage or in the recording studio?

Interview Questions – Production Team

- What do you do?
- Could you explain your job to me?
- How do you view your role?
- What *is* a recording for you?
- What kind of product are you aiming for?
- What sound are you trying to capture?
    - Mike placement
    - Balance on day
    - How are mikes different from ears? (recorded concert sounds different)
    - Acoustics
- Describe a typical recording session
- *Così* sessions – Jan 2007 –
    - Remember any details?
    - Was it typical?
    - Mike layout (diagram?)
    - What is CM like to work with? What is he looking for?
- Working relationships within a recording session?
    - Whom do you deal with?
    - How do you communicate with each other?
    - What makes a happy studio musician?
- Big picture – conflicted relationship – value-laden (recording dishonest, editing cheating …)
    - Many musicians still seem to prefer concerts – power? Control?
    - Positive and negative aspects of recording?
    - Do you have an opinion on how the situation could be improved? (maybe allow performances to be performances and recordings to be recordings – not judge one in relation to the other…)
    - What are ideal factors for a good recording (or a bad one)?
    - The value of recordings? Why do you make them?

- Editing:
    - What software?
    - Who does it – how? Process …
    - How long does it take?
    - What kind of product are you aiming for?
    - How important is the editing – what difference can a good or bad editing job make?

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[2] See Roger Beardsley and Daniel Leech-Wilkinson, "A Brief History of Recording to ca. 1950," accessed August 19, 2015, www.charm.rhul.ac.uk/history/p20_4_1.html. Also Daniel Leech-Wilkinson, *The Changing Sound of Music: Approaches to Studying Recorded Musical Performance* (London: CHARM, 2009), chapter 3, accessed on August 19, 2015, www.charm.rhul.ac.uk/studies/chapters/chap3.html#fnLink08.

[3] Fred Gaisberg was an early sound engineer and record producer, known as the first A&R man, initially working for The Berliner Company. He was known for, amongst other things, his recordings of Enrico Caruso and Adelina Patti.

[4] *The Legend of 1900* (Medusa Produzione, 1999), Giuseppe Tornatore, dir..

[5] Timothy Day, *A Century of Recorded Music: Listening to Musical History* (New Haven: Yale University Press, 2000).

[6] Mark Katz, *Capturing Sound: How Technology has Changed Music* (Berkeley: University of California Press, 2004).

[7] Robert Philip, *Early Recordings and Musical Style: Changing Tastes in Instrumental Performance, 1900-1950* (Cambridge and New York: Cambridge University Press, 1992) and Robert Philip, *Performing Music in the Age of Recording* (New Haven: Yale University Press, 2004).

[8] In this article, the term 'performer' denotes players and singers, whereas 'musicians' includes everyone such as producers and sound engineers, except for when the term 'orchestral musicians' is used, which is a generic term applying to members of an orchestra.

[9] Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' (1936), in *Illuminations*, ed. Hannah Arendt, (Bungay, Suffolk: Fontana/Collins, 1982), 219-53.

[10] Theodor W. Adorno, *Essays on Music*, ed. Richard Leppert, (Berkeley, Los Angeles, London: University of California Press, 2002). It this anthology Leppert brings together, under the heading of 'Culture, Technology, and Listening', Adorno's developing ideas on recording technology, its uses, and its effects: 'The Curves of the Needle' (1927/revised 1965), 271-276; 'The Form of the Phonograph Record' (1934), 277-282; 'On the Fetish Character in Music and the Regression of Listening' (1938), 288-317; 'The Radio Symphony' (1941), 251-270; 'Opera and the Long-Playing Record' (1969), 283-287. Leppert's commentary on these writings, in the same volume, is also enlightening, 213-250.

[11] Glenn Gould, in *The Glenn Gould Reader*, ed. Tim Page, (London: Faber and Faber, 1987).

[12] Philip Auslander, *Liveness: Performance in a Mediatized Culture* (London and New York: Routledge, 1999).

[13] I have explored these issues in my thesis: [anonymized author], "Live Performance - Studio Recording: An Ethnographic and Analytical Study of Sir Charles Mackerras" (PhD diss., King's College, University of London, 2010).

[14] Eds. Christoph Cox and Daniel Warner, *Audio Culture: Readings in Modern Music* (London: Continuum, 2004), 5. Also Andrew Blake, 'Recording Practices and the Role of the Producer,' in *The Cambridge Companion to Recorded Music,* eds. Eric Clarke; Nicholas Cook; Daniel Leech-Wilkinson; and John Rink, (Cambridge: Cambridge University Press, 2009), 45-47.

[15] For the analytical part of my research on concerts and recordings, which will not be discussed here, my comparative case studies were based on directly corresponding pairs of live and studio recordings of the same piece with the same performers, ideally recorded at around the same time. If we take for example the performances I worked on, when heard in direct comparison to each other, even for just a few seconds, and considering how many factors they have in common (piece, performers, date, and often venue), it is amazing how obvious the difference is between the sound of the live and studio recordings, and the differences can be heard in every aspect of performance. The timbre of the two performances significantly differs due to the acoustic space and the presence (or lack) of the audience. A live performance tends to be much more expressive and overt in terms of declamatory style and characterization. There is more scope for dramatic timing in a concert. Phrasing and articulation are typically more sustained in the recording studio. Tempo is surprisingly consistent in the performances by Mackerras under investigation, but when it does differ, the live performance tends to be quicker. Finally, in terms of working process and expected

final product, perfection is a big issue in the recording studio, whereas in the concert expression is more important. The Sir Charles Mackerras Collection (C961 and C1189), British Library Sound Archive, London, UK. These case study recordings are available for listening at the British Library Sound Archive, shelfmarks: CD 1: 1CDR0032905, CD 2: 1CDR0032906, CD 3: 1CDR0032907, CD 4: 1CDR0032908. For a detailed analysis of these issues, see [anonymized author], "Live Performance - Studio Recording: An Ethnographic and Analytical Study of Sir Charles Mackerras" (PhD diss., King's College, University of London, 2010).

[16] Nicholas Cook, *Beyond the Score: Music as Performance* (Oxford and New York: Oxford University Press, 2013), 366-67.

[17] Personal communication: Interview with Alistair Mackie, trumpeter and chairman, Philharmonia Orchestra, Thursday December 13, 2007.

[18] Pers. comm.: Interview with Robert Tear, tenor, December, 17, 2007 and August 9, 2009.

[19] Pers. comm.: Interview with James Clark, violinist and concert-master, Philharmonia Orchestra, December 20, 2007.

[20] Pers. comm.: interview with Lisa Beznosiuk, principal flautist, Orchestra of the Age of Enlightenment, December 7, 2007. She continued by giving the example of a recent Desert Island Discs programme in which Sir Simon Rattle said that 'listening to your own recordings is like a dog going back to sniff the mess it just made.' She added: 'This is a good description'.

[21] Pers. comm.: Mackie.

[22] Cook, *Beyond the Score,* 3. See also Leech-Wilkinson, *The Changing Sound of Music*, accessed on August 20, 2015, http://www.charm.kcl.ac.uk/studies/chapters/intro.html.

[23] Cook, *Beyond the Score*, 3.

[24] Cook, *Beyond the Score*, 1-24.

[25] Mine Doğantan-Dack, 'Recording the Performer's Voice,' in *Recorded Music: Philosophical and Critical Reflections,* ed. Mine Doğantan-Dack, (London: Middlesex University Press, 2008), 302.

[26] As Cook writes, it has been helped in part by the research funding structures in the UK over the past decade or so, and the work of research centres such as the AHRC Research Centre for the History and Analysis of Recorded Music (CHARM, 2004-2009, and the AHRC Research Centre for Musical Performance as Creative Practice (CMPCP, 2009-2014), (Cook, *Beyond the Score*, 252.) and also the Orpheus Instituut performance research centre in Ghent, Belgium, accessed on August 20, 2015, http://www.cmpcp.ac.uk. Accessed on August 20, 2015, http://www.orpheusinstituut.be/en.

[27] Cook, *Beyond the Score*, 250.

[28] *Ibid.*, 252. See also: accessed on August 20, 2015, http://www.charm.rhul.ac.uk/index.html.

[29] Cook, *Beyond the Score*, 250.

[30] Bruno Nettl, *Heartland Excursions: Ethnomusicological Reflections on Schools of Music* (Urbana and Chicago: University of Illinois Press, 1995). Henry Kingsbury, *Music, Talent & Performance: A Conservatory Cultural System* (Philadelphia: Temple University Press, 1988). Jonathan Stock, "Documenting the Musical Event: Observation, Participation, Representation," in *Empirical Musicology*, eds. Eric Clarke and Nicholas Cook, (Oxford: Oxford University Press, 2004): 15-34. Stephen Cottrell, *Professional Music-Making in London: Ethnography and Experience* (Aldershot and Burlington, Vt: Ashgate, 2004). Stephanie E. Pitts, 'What Makes an Audience? Investigating the Roles and Experiences of Listeners at a Chamber Music Festival,' *Music & Letters*, Vol. 86, No. 2 (2005): 257-69. Gregory F. Barz, 'Confronting the Field(note) In and Out of the Field: Music, Voices, Texts, and Experiences in Dialogue,' in *Shadows in the Field: New Perspectives for Fieldwork in Ethnomusicology*, eds. Gregory Barz and Timothy J. Cooley (Oxford: Oxford University Press, 2008): 206-223.

[31] Stock, 'Documenting the Musical Event,' 19.

[32] Including salient articles by Bayley, Dobson and Pitts, Ramnarine, and Beckles Willson. *Ethnomusicology Forum*, Vol. 20, No. 3 (2011). Ed. Laudan Nooshin, *The Ethnomusicology of Western Art Music*, (London and New York: Routledge, 2013).

[33] Nettl, *Heartland Excursions*, 1.

[34] *Ibid.,* 1.

[35] Atkinson and Hammersley describe that 'in practical terms, *ethnography* usually refers to forms of social research having a substantial number of the following features: [1] a strong emphasis on exploring the nature of particular social phenomena, rather than setting out to test hypotheses about them; [2] a tendency to work primarily with "unstructured" data, that is, data that have not been coded at the point of collection in terms of a closed set of analytic categories; [3] investigation of a small number of cases, perhaps just one case, in detail; [4] analysis of data that involves explicit interpretation of the meanings of human actions, the product of which mainly takes the form of verbal descriptions and explanations, with qualification and statistical analysis taking a subordinate role at most.' Paul Atkinson and Martyn

Hammersley, 'Ethnography and Participant Observation', in *The SAGE Handbook of Qualitative Research,* eds. Norman K. Denzin and Yvonna S. Lincoln, (London: SAGE, 2011).

[36] The fieldwork was undertaken between 2005 and 2009, the last years of Mackerras's career and life, as he died in July 2010. Venues included Watford Town Hall (Watford Coliseum) for the recording sessions, and for the concerts and 'live' recordings the Royal Festival Hall, Queen Elizabeth Hall, Barbican, Royal Opera House Covent Garden, English National Opera (Coliseum), Royal Albert Hall, Vienna Konzerthaus, Prague Obcení Dům, and Berlin Philharmonie.

[37] Stock, 'Documenting the Musical Event,' 31.

[38] Cook comments on this – Nicholas Cook, *Music: A Very Short Introduction*, (Oxford: Oxford University Press, 1998), 100 - but for more detailed examples see Anthony Seeger, 'Theories Forged in the Crucible of Action: The Joys, Dangers, and Potentials of Advocacy and Fieldwork,' in *Shadows in the Field: New Perspectives for Fieldwork in Ethnomusicology*, eds. Gregory Barz and Timothy J. Cooley, (Oxford: Oxford University Press, 2008), 271-288, and Salwa El-Shawan Castelo-Branco, 'Epilogue: Ethnomusicologists as Advocates,' in *Music and Conflict, eds.* John Morgan O'Connell and Salwa El-Shawan Castelo-Branco, (Urbana: University of Illinois Press, 2010), 243-52. Although she is speaking of sites of conflict resolution, it can still apply more widely, for instance when Castelo-Branco writes that 'Ethnomusicologists can contribute […] by applying their in-depth knowledge of local musical cultures and the wide-ranging contacts with different agents involved in music making gained through ethnographic research [… and] can provide information on the musical cultures in strife […] drawing attention to their value and to the common grounds on which future cooperation can be built.' (Castelo-Branco (2010), 249). One could quite easily see this as a metaphor for the arguments put forward in this article – identifying a site of conflict within experiences of recording music, and providing information about various parties and arguments in order to suggest common ground for future developments.

[39] Paul Willis, Professor of Social and Cultural Ethnography at Keele University, echoes this when he says that in ethnography there is a tension between your experience in the field and knowing that you are going to write about it afterwards. He reminds us that we must consider the ethics of our interactions in the field, as we and our subjects know that these will eventually become data. However, as ethnographers, we are interested in the meaning of the behaviours, in the contexts, we don't simply send out questionnaires and count up the statistics. Further to this we self-consciously act as filters, generating our own accounts based on our observations. But what is most important is that we are concerned with the interpretations that the people in the situations make of the facts; we are looking at how the people involved understand what they are doing. Paul Willis, 'Ethnographic Approaches to Organisational Study', keynote address to the *Approaches to Collaborative Doctoral Awards* conference, (Globe Theatre, London), November 24, 2008.

[40] Theodore Gracyk, 'Listening to Music: performances and recordings,' *Journal of Aesthetics and Art Criticism* 55 (1997), 139-50. Stan Godlovitch, *Musical Performance: A Philosophical Study* (London: Routledge, 1998). Stephen Davies, *Musical Works and Performances: A Philosophical Exploration* (Oxford: Clarendon Press, 2001).

[41] Adorno's works are collected in Leppert (references in note above). Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' (1936), in *Illuminations,* ed. Hannah Arendt, (Bungay, Suffolk: Fontana/Collins, 1982), 219-53. E. M. Forster, 'The Machine Stops', first published in: *Oxford and Cambridge Review,1909*, accessed on January 6, 2016, http://brighton.ncsa.uiuc.edu/~prajlich/forster.html; E. M. Forster, 'Not Listening to Music' (1939), in *Two Cheers for Democracy* (New York: Harcourt, Brace & Co., 1951), 127-30; Constant Lambert, 'Chapter 4: The Mechanical Stimulus', in *Music Ho! A Study of Music in Decline* (1934), (London: Hogarth Press, 1985), 200-234. Especially (a) The Appalling Popularity of Music and (b) Mechanical Romanticism; Benjamin Britten, *On Receiving the First Aspen Award (1963)* (London: Faber & Faber, 1964), 19-20; Hans Keller in Eric Clarke, 'Listening to Performance,' in *Musical Performance: A Guide to Understanding*, ed. John Rink, (Cambridge: Cambridge University Press, 2002), 185-96.

[42] Philip, *Early Recordings and Musical Style.* Auslander, *Liveness*; Christopher Small, *Musicking: The Meanings of Performing and Listening* (Middletown, Conn.: Wesleyan University Press, 1998). Day, *A Century of Recorded Music.* Eric Clarke, 'Listening to Performance,' in *Musical Performance: A Guide to Understanding,* ed. John Rink (Cambridge: Cambridge University Press, 2002), 185-96. Philip, *Performing Music in the Age of Recording.* Katz, *Capturing Sound.* Dorottya Fabian, 'Classical Sound Recordings and Live Performances: Artistic and Analytical Perspectives,' in *Philosophical Reflections on Sound Recordings*, ed. Mine Doğantan-Dack, (London: Middlesex University Press, 2008), 232-260. Anthony Gritten, 'Performing after Recording,' in *Philosophical Reflections on Sound Recordings*, ed. Mine Doğantan-Dack, (London: Middlesex University Press, 2008), 82-99; Leech-Wilkinson, *The Changing Sound of Music* – http://www.charm.kcl.ac.uk/studies/chapters/intro.html - accessed on January 6, 2016. Peter Johnson, 'Illusion and Aura in the Classical Audio Recording,' in *Recorded Music: Performance, Culture and Technology*, ed. Amanda Bayley, (Cambridge: Cambridge University Press, 2010), 38-51. Leon Botstein, 'The Eye of the Needle: Music as History After the Age of Recording,' in *The Oxford Handbook of the New Cultural History of Music*, ed. Jane F. Fulcher, (Oxford and New York: Oxford University Press, 2011), 523-550. Cook, *Beyond the Score.*

[43] For a detailed discussion of these issues, see: [anonymized author], "Live Performance - Studio Recording: An Ethnographic and Analytical Study of Sir Charles Mackerras" (PhD diss., King's College, University of London, 2010).
[44] Glenn Gould, in *The Glenn Gould Reader*, ed. Tim Page, (London: Faber and Faber, 1987); Susan Tomes, 'A Performer's Experience of the Recording Process,' in *Beyond the Notes: Journeys with Chamber Music,* (Woodbridge, Suffolk and Rochester, NY: The Boydell Press, 2004), 140-150. Alfred Brendel, 'A Case for Live Recordings,' in *On Music: His Collected Essays*, Alfred Brendel, (London: JR Books, 2007), 345-351. Michael Haas, 'Studio Conducting,' in *The Cambridge Companion to Conducting*, ed. José Antonio Bowen, (Cambridge: Cambridge University Press, 2003), 28-39. John Rushby-Smith, 'Recording the Orchestra,' in *The Cambridge Companion to the Orchestra*, ed. Colin Lawson, (Cambridge: Cambridge University Press, 2003), 169-179. Andrew Hallifax, *The Classical Musician's Recording Handbook*, (London: SMT, 2004). Jonathan Freeman-Attwood, 'Still Small Voices,' in *The Cambridge Companion to Recorded Music,* eds. Eric Clarke, Nicholas Cook, Daniel Leech-Wilkinson, and John Rink, (Cambridge: Cambridge University Press, 2009), 54-58.
[45] Philip, *Early Recordings and Musical Style.*
[46] David Milsom, *Theory and Practice in Late Nineteenth-Century Violin Performance: An Examination of Style in Performance, 1850-1900*, (Aldershot: Ashgate, 2003).
[47] Day, *A Century of Recorded Music.*
[48] Leech-Wilkinson, *The Changing Sound of Music* - accessed on October 12, 2015, http://www.charm.kcl.ac.uk/studies/chapters/intro.html. Cook, *Beyond the Score.*
[49] Katz, *Capturing Sound.*
[50] Philip, *Performing Music in the Age of Recording.*
[51] Eds. Clarke et al., *The Cambridge Companion to Recorded Music.* Ed. Amanda Bayley, *Recorded Music: Performance, Culture and Technology* (Cambridge: Cambridge University Press, 2010). Ed. Mine Doğantan-Dack, *Recorded Music: Philosophical and Critical Reflections* (London: Middlesex University Press, 2008). Ed. John Rink, *The Practice of Performance: Studies in Musical Interpretation*, (Cambridge: Cambridge University Press, 1995). Ed. John Rink, *Musical Performance: A Guide to Understanding*, (Cambridge: Cambridge University Press, 2002). Eds. Simon Frith and Simon Zagorski-Thomas, *The Art of Record Production: An Introductory Reader for a New Academic Field* (Aldershot and Burlington, Vt: Ashgate, 2012). Simon Zagorski-Thomas, *The Musicology of Record Production* (Cambridge: Cambridge University Press, 2014). Michal Chanan, *Repeated Takes: A Short History of Recording and its Effects on Music* (London: Verso, 1995, reprinted 2000). Evan Eisenberg, *The Recording Angel: Music, Records and Culture from Aristotle to Zappa* (New Haven and London: Yale University Press, 2005; first published 1987).
[52] Gracyk, 'Listening to Music: performances and recordings'.
[53] Godlovitch, *Musical Performance.*
[54] Davies, *Musical Works and Performances.*
[55] Katz also finds these theoretical comparisons unsatisfying: 'It is not enough to compare the two solely in value-laden terms, as is often the case. While some say that CDs sound better or are more aesthetically satisfying than live concerts, and others insist exactly the opposite, such arguments tell us little about the impact of the technology. Instead of asking which is better, the more revealing question is this: How are live and recorded music *different*?' Katz, *Capturing Sound*, 4.
[56] Leech-Wilkinson, *The Changing Sound of Music*, chapter 3.7, paragraph 107 - http://www.charm.kcl.ac.uk/studies/chapters/chap3.html – accessed on October 12, 2015.
[57] Cook addresses these and related issues in Chapters 11 and 12 of his book. He writes 'Yet even in the twenty-first century there is a continuing reluctance on the part of musicologists to accept recorded music as a musical phenomenon in its own right rather than an *ersatz* form of something else.', Cook, *Beyond the Score*, 353-54.
[58] Adorno, 'The Form of the Phonograph Record', 278.
[59] Adorno, 'The Form of the Phonograph Record', 277.
[60] Adorno, 'Opera and the Long-Playing Record', 283-87.
[61] Benjamin, 'The Work of Art in the Age of Mechanical Reproduction'.
[62] *Ibid.*, 223.
[63] *Ibid.*, 223.
[64] *Ibid.*, 223.
[65] Forster, 'The Machine Stops'.
[66] Britten, *On Receiving the First Aspen Award.*
[67] Lambert, The Mechanical Stimulus'.
[68] Forster, 'The Machine Stops'. *The Matrix* (Groucho II: 1999), Andy and Larry Wachowski, dirs.; WALL-E (Pixar: 2008), Andrew Stanton, dir., information from IMDb – accessed on January 6, 2016, http://www.imdb.com.

[69] Lambert, The Mechanical Stimulus', 205-6. This reference to canned music is by no means the only one. Fred Gaisberg 'quoted Bruno Walter, who thought "canned music tastes a little of the metal that preserves it. It is not fresh fruit, but even so, it is a great blessing."' Gaisberg, *Music on Record*, 151, cited in Day, *A Century of Recorded Music*, 40. Auslander and Gritten both quote Jacques Attali who wrote: 'A concert is a representation, but also a meal à la carte in a restaurant; a phonograph record or a can of food is repetition.' Auslander, *Liveness*, 26, and Gritten, 'Performing after Recording', 85.

[70] Britten, *On Receiving the First Aspen Award,* 19-20.

[71] Hans Keller in Eric Clarke, 'Listening to Performance,' 194. Clarke is referring to Hans Keller, 'The gramophone record', in *The Keller Column: Essays by Hans Keller,* ed. Robert Matthew-Walker, (London: Alfred Lengnick, 1990), 22-5. Elsewhere Keller writes 'the gramophone record with its repeatability represents our age's most potent anti-musical force, counteracting as it does the indispensable singularity and spontaneity of any performance that is entitled to call itself musical'. Hans Keller, *The Great Haydn Quartets: Their Interpretation* (Oxford: Oxford University Press, 1995), 3.

[72] Michael Chanan hints at this in his discussion of Adorno, Chanan, *Repeated Takes*, 117.

[73] Even for those who lived earlier or who were not directly affected by the terrible experience of wartime Germany, recordings potentially represented a different kind of threat. Robert Philip describes a situation during the early twentieth century in which musicians began to fear that recordings would put them out of work. Musicians were needed to provide music in cafés, restaurants, theatres, hotels, dance halls, ships, and cinemas: 'Around 20,000 musicians were employed in cinemas in Britain by the late twenties' Philip, *Performing Music in the Age of Recording*, 13. This threat to the musical fabric of society, as well as the fears of mechanization, must have had a potent effect on the commentators of the day, and is arguably part of the cause for their strongly-worded views.

[74] Small, *Musicking.* Philip, *Liveness.* Gritten, 'Performing after Recording'. Clarke, 'Listening to Performance'. Fabian, 'Classical Sound Recordings and Live Performances'. Johnson, 'Illusion and Aura in the Classical Audio Recording'. Botstein, 'The Eye of the Needle'. Ananay Aguilar and Terrance Curran have also completed doctoral theses on these issues: Curran's PhD was completed at Oxford, and he also wrote and presented a BBC documentary on the subject, 'Performing to the Red Light', BBC Radio 4, June 2 and 9, 2009. Episode 1 explores how performers cope with the demands of making a first recording, and episode 2 explores how more seasoned performers approach recording. Ananay Aguilar's thesis, *Recording classical music: LSO Live and the transforming record industry*, PhD dissertation (Royal Holloway, University of London, 2011) focuses on the subject of classical recording practices which will address this issue. She writes: 'I will relate musicians' and recordists' ideas of classical music to their recording practices, and conversely, investigate how recording practices construct and perpetuate the culture of classical music. I will argue that the practice of classical music recording revolves around a discourse of technological transparency, where the phonographic work centres on the recreation of a staged (live) performance: while some musicians and recordists hide or downplay the use of technology, are apologetic about it and talk about cheating, others, among the most known of whom were John Culshaw and Glenn Gould, have embraced the creative use of technology as a means to construct virtual performances, seeing no limit to its creative possibilities other than the implicit values of classical music.' Aguilar, Ananay, *CHARM Annual Newlestter, Issue 4, May 2008*, - http://www.charm.rhul.ac.uk/content/resources/2008newsletter.pdf - accessed on January 6, 2016.

[75] Auslander, *Liveness,* i.

[76] Fabian, 'Classical Sound Recordings and Live Performances', 236. Leech-Wilkinson also does not see a huge difference between how performances and recordings are experienced: 'I don't, therefore, entirely accept the argument that studio recordings are not performances. Of course, in an obvious and literal sense they are not. They are (nowadays) compiled from bits of many (usually incomplete) performances. […] But when we listen to a recording we listen not to its construction but to its effect. And so the argument that a recording isn't a performance (however it was made) misses the point. If it didn't sound like a performance it wouldn't be issued on disc, and if it sounds like one then it is one. What matters is that it's experienced as a performance. Because it's the sound that offers the proof of the pudding. Performance sounds, and if it sounds like performance then that's the appropriate measure of whether it is. Recordings do what performances do well enough that we hear them as performances. This should encourage us to take the details of a recorded performance as the material for studies that seek to explain how music works, even though they may not represent any reality that could exist in a live performance.' Leech-Wilkinson, *The Changing Sound of Music*, chapter 3.7, paragraph 107 - accessed January 6, 2016, http://www.charm.rhul.ac.uk/studies/chapters/chap3.html.

[77] Gritten, 'Performing After Recording', 82.

[78] *Ibid.*, 92.

[79] Clarke, 'Listening to Performance', 194.

[80] Johnson, 'Illusion and Aura in the Classical Audio Recording', 37.

[81] *Ibid.*, 37.
[82] *Ibid.*, 39.
[83] *Ibid.*, 48.
[84] Botstein, 'The Eye of the Needle',529.
[85] *Ibid.*, 535.
[86] *Ibid.*, 530.
[87] *Ibid.*, 538.
[88] Brendel 'A Case for Live Recordings'. Rosen, *Piano Notes*. Susan Tomes, 'A Performer's Experience of the Recording Process'.
[89] Tomes, 'A Performer's Experience of the Recording Process' in *Beyond the Notes'*, 142.
[90] *Ibid.*, 141-2.
[91] Rosen, *Piano Notes,* 184.
[92] Gould, 'The Prospects of Recording'.
[93] Gould, 'Music and Technology', 353-57.
[94] Rushby-Smith, 'Recording the Orchestra', 177.
[95] Eisenberg, *The Recording Angel,* 93.
[96] Haas, 'Studio Conducting', 28.
[97] Haas, 'Studio Conducting', 35. He also writes: 'A conductor should be able to use the studio as an expressive aid.' Haas, 'Studio Conducting', 31). However, he continues by saying: 'The days of allowing an orchestra and conductor to create in the studio are slowing down and could conceivably disappear altogether. Sales of orchestral repertoire are lower than virtually any other genre, yet remain the most expensive to make (apart from opera). […] recording sales do not justify the money spent.' Haas, 'Studio Conducting', 39.
[98] For discussions of how people listen to recordings, see: Tia DeNora, *Music in Everyday Life* (Cambridge: Cambridge University Press, 2000). Clarke, 'Listening to Performance'. Fabian, 'Classical Sound Recordings and Live Performances. Arild Bergh and Tia DeNora, 'From Wind-Up to iPod: Techno-Cultures if Listening', in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 102-115. Johnson, 'Illusion and Aura in the Classical Audio Recording'.
[99] Brendel, 'A Case for Live Recordings'.
[100] Brendel 'A Case for Live Recordings', 345-46.
[101] See Appendix 3 for the full interview questions. I identify my interviewees by the position they held at the time of the research, understanding that these positions are often subject to change (for example concert-master or chairman).
[102] Pers. comm.: Interview (2) with Sir Charles Mackerras, conductor, December 14, 2006.
[103] Pers. comm.: Mackerras 2.
[104] Pers. comm.: Mackerras 2.
[105] For example see: Haas, 'Studio Conducting'. Rushby-Smith, 'Recording the Orchestra'. Andrew Hallifax, *The Classical Musician's Recording Handbook*. Robert, *Performing Music in the Age of Recording*, 54-55. Freeman-Attwood, 'Still Small Voices'. Michael Haas, 'Broadening Horizons: "Performance" in the Studio,' in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 59-62.
[106] Pers. comm.: Informal discussion (2) with Andrew Hallifax, independent recording engineer, October, 2007. (Hallifax has worked with Decca, Deutsche Grammophon, Hyperion, Linn, Virgin Classics, and King's College London).
[107] Pers. comm.: Interview with James Mallinson, independent record producer, January 19, 2007. (Mallinson has worked with Decca, EMI, Telarc, Sony, Chandos, and LSO Live).
[108] Pers. comm.: Mallinson.
[109] Andrew Hallifax, *The Classical Musician's Recording Handbook*, 41. Hallifax was quoting from John Culshaw, *Putting the Record Straight* (London, 1982). Day also quotes Culshaw when describing how recording can be independent and creative in its own right, Day, *A Century of Recorded Music*, 31. Patmore and Clarke have written an article about Culshaw's studio techniques: David N. C. Patmore and Eric F. Clarke, 'Making and Hearing Virtual Worlds: John Culshaw and the Art of Record Production', *Musicae Scientiae*, Vol. 9, No. 2 (Fall 2007), 269-93.
[110] Pers. comm.: Interview with Campbell Hughes, balance engineer, BBC Radio 3, April 4, 2007.
[111] Pers. comm.: Tear.
[112] Pers. comm.: Mackie.
[113] Pers. comm.: Beznosiuk.
[114] Pers. comm.: Clark.
[115] Pers. comm.: Mackie.
[116] Pers. comm.: Clark.
[117] Pers. comm.: Mackie.

[118] Pers. comm.: Beznosiuk.
[119] Pers. comm.: Beznosiuk.
[120] Pers. comm.: Beznosiuk.
[121] Pers. comm.: Clark.
[122] Pers. comm.: Mackie.
[123] Pers. comm.: Tear.
[124] Suvi Raj Grubb describes Klemperer in the recording studio seeing it somewhat in this way: 'The technical processes of recording were a complete mystery to him. On one occasion when he wanted to repeat a complete movement because of a momentary inaccuracy, I explained to him the advantages of tape editing—that I would cover the passage from a previous take. When at last it dawned on him that the final master would not be of one complete take but made up of sections of various takes he was outraged: "you mean the performance is not by me?", he asked indignantly. I assured him that of course it was but he would not be consoled and turning to his daughter he said in the most melancholy tones, "Lotte, ein Schwindel !"' (translates as 'a deception' or 'a swindle'), *Gramophone*, (August, 1973), 18. I am grateful to Daniel Leech-Wilkinson for bringing this quote to my attention.
[125] I am speaking here of traditional studio recordings, as distinct from the more recently-adopted format of 'live' recordings, such as LSO live, which will be discussed briefly later.
[126] Botstein, 'The Eye of the Needle', 530 and 546. Born, Georgina, 'Afterword – Recording: From reproduction to representation to remediation', in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 287. Norman Lebrecht, *Maestros, Masterpieces and Madness: The Secret Life and Shameful Death of the Classical Record Industry* (London: Penguin, 2007), 130-40.
[127] Haas, 'Studio Conducting'. David Patmore, 'Selling Sounds: Recordings and the Record Business', in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., (Cambridge: Cambridge University Press, 2009), 120-139, especially 134.
[128] Pers. comm.: Interview with Jonathan Stokes, sound engineer, Classic Sound, August 18, 2009. (Stokes also works with Chandos, LSO Live and Philharmonia Live).
[129] Pers. comm.: Clark; and echoed by a comment by the flautist, Pers. comm.: Beznosiuk.
[130] Pers. comm.: Mackie.
[131] 'For an orchestra such as the LSO, recording had been a steady and substantial source of income since the mid-1920s. Of course the process whereby new CDs of the same old symphonies could be churned out again and again was recognised to be unsustainable. Nevertheless, many orchestral musicians were startled to see just how swiftly and brutally a major, long-established record label such as EMI or Decca could reduce its classical operation to a mere trickle of predominantly "crossover" or populist albums, mostly featuring photogenic young violinists or string quartets who seemed more interested in *Top of the Pops* than the Proms. The effect of this abrupt change in direction on the economics of the orchestral business was devastating, and the problem was compounded by the virtual disappearance of the symphony orchestra from mainstream television. All this contributed to the orchestras' sense of crisis, and to their gradual realisation that, whether they liked it or not, they had been plunged into a fight for their very lives.' Richard Morrison, *Orchestra – The LSO: A Century of Triumph and Turbulence* (London: Faber and Faber, 2004), 233.
[132] Nick Clarke, 'British Orchestras Are in Danger of Losing Top Billing Despite Rising Ticket Sales', Sunday 26 January, 2014, accessed on August 2015, http://www.independent.co.uk/arts-entertainment/classical/news/british-orchestras-are-in-danger-of-losing-top-billing-despite-rising-ticket-sales-9085502.html. David Pountney, Austerity and the Arts: the hidden cuts that are bad for our cultural health', *The Guardian,* Tuesday 21 April, 2015, - http://www.theguardian.com/music/2015/apr/21/david-pountney-arts-funding-bad-for-our-cultural-health - accessed on August 20, 2015.
[133] Katie Allen, 'Piracy Continues to Cripple Music Industry as Sales Fall 10%', *The Guardian*, Thursday 21 January 2010, accessed Aug 20, 2015, http://www.theguardian.com/business/2010/jan/21/music-industry-piracy-hits-sales.
[134] Mark Vanhoenacker, 'Requiem: Classical Music in America is Dead', *Slate,* Tuesday January, 2014, accessed on August 20, 2015, http://www.slate.com/articles/arts/culturebox/2014/01/classical_music_sales_decline_is_classical_on_death_s_door.html.
[135] Lebrecht, *Maestros, Masterpieces and Madness,* 131 & 140.
[136] This is based on my own experience as well as mentioned in Cook, *Beyond the Score*, 377.
[137] Lebrecht, *Maestros, Masterpieces and Madness*, 130-40.
[138] Patmore, 'Selling Sounds', 134.
[139] Pekka Gronow and Ilpo Saunio, *An International History of the Recording Industry* (London and New York: Cassell, 1998). David Kusek and Gerd Leonhard, *The Future of Music: Manifesto for the Digital Music Revolution* (Boston: Berklee Press, 2005). Lebrecht, *Maestros, Masterpieces and Madness*. Patmore, 'Selling Sounds'. Jim Rogers, *The Death and Life of the Music Industry in the Digital Age* (London: Bloomsbury, 2013).

[140] IFPI (International Federation of the Phonographic Industry) figures, as quoted by Gronow and Saunio *An International History of the Recording Industry*, 193, and Rogers *The Death and Life of the Music Industry in the Digital Age*, 51.
[141] IFPI numbers, in Gronow and Saunio *An International History of the Recording Industry*, 193. There are various sources for the figures discussed here, as reported statistics by the IFPI seem to differ slightly from source to source, however the general trend represented is consistent – decline. (Examining the IFPI's digital music report for 2014 is tantamount to detective work; in a seeming attempt to show that there is good news for the industry despite these turbulent times, they do not report the statistics in a straightforward way, and they certainly do not report the full statistics.) It is possible to glean more thorough information from their 'Recording Industry in Numbers' publication, which is freely available online for 2010 and 2011, - http://www.snepmusique.com/wp-content/uploads/2014/01/rin2010.pdf - accessed on August 20, 2015. http://www.snepmusique.com/wp-content/uploads/2013/01/RIN-2012-SNEP-copie.pdf. However, their 2015 edition is only available at a cost of £750, or £375 for academic use.
[142] Lebrecht, *Maestros, Masterpieces and Madness*, 137.
[143] IFPI figures in Rogers, *The Death and Life of the Music Industry in the Digital Age*, 32.
[144] IFPI, 'Recording Industry in Numbers 2010', 5, accessed on August 20, 2015, http://www.snepmusique.com/wp-content/uploads/2014/01/rin2010.pdf.
[145] IFPI Digital Music Report 2015, - http://www.ifpi.org/downloads/Digital-Music-Report-2015.pdf - accessed on August 20, 2015, and IFPI website, accessed on August 20, 2015, http://www.ifpi.org/global-statistics.php.
[146] For these arguments, see in particular: Gronow and Saunio, *An International History of the Recording Industry;* Kusek and Leonhard, *The Future of Music*; Lebrecht, *Maestros, Masterpieces and Madness*; Patmore 'Selling Sounds', Rogers, *The Death and Life of the Music Industry in the Digital Age*; and Cook, *Beyond the Score*, specifically 348-405; as well as any article in the mainstream press.
[147] Kusek and Leonhard go as far as to say that the big record companies have acted as a cartel, Kusek and Leonhard, *The Future of Music*, 7.
[148] Lebrecht, *Maestros, Masterpieces and Madness*, 132.
[149] Lebrecht, *Maestros, Masterpieces and Madness*, 133; and Haas, 'Broadening horizons', 59-62.
[150] Rogers, *The Death and Life of the Music Industry in the Digital Age*, 16.
[151] Nicholas Cook, 'The Economics and Business of Music', in *An Introduction to Music Studies*, eds. J. P. E. Harper-Scott and Jim Samson, (Cambridge: Cambridge University Press, 2009), 280.
[152] IFPI figures, in Gronow and Saunio, *An International History of the Recording Industry*, 193.
[153] Rogers, *The Death and Life of the Music Industry in the Digital Age*, 16.
[154] Gronow and Saunio, *An International History of the Recording Industry*, 193.
[155] Botstein, 'The Eye of the Needle', 530.
[156] Michael Church, 'Classical: An industry in crisis? Not quite', *The Independent,* August 21, 1998, accessed on January 5, 2016, http://www.independent.co.uk/arts-entertainment/classical-an-industry-in-crisis-not-quite-1173062.html. Martin Kettle, 'The classical recording industry is in crisis. Norman Lebrecht has even pronounced it dead. Is he right? And if so, should we mourn?', *The Guardian,* April 3, 2007, accessed on January 5, 2016, http://www.theguardian.com/music/2007/apr/03/classicalmusicandopera.martinkettle. Martin Buzacott, 'Death and transfiguration: the classical music recording industry in the digital age', May 12, 2015, accessed on January 5, 2016, http://www.abc.net.au/radionational/programs/earshot/the-classical-music-recording-industry/6463312.
[157] Pers. comm.: Mackie.
[158] Pers. comm.: Mackie.
[159] Pers. comm.: Beznosiuk.
[160] Pers. comm.: Beznosiuk.
[161] Pers. comm.: Mackie.
[162] Pers. comm.: Mackie. Cottrell, *Professional Music-Making in London*, 65-69.
[163] Pers. comm.: Tear.
[164] Pers. comm.: Tear.
[165] Pers. comm.: Clark.
[166] Pers. comm.: Beznosiuk.
[167] Pers. comm.: Mackie.
[168] It is a well-known attitude in musical circles that a conductor needs an orchestra but an orchestra doesn't necessarily need a conductor. Any book of interviews with orchestral musicians will include comments to this effect. In his article 'The Orchestra Speaks, the cellist Robert L. Ripley explains the many ways in which the mass entity that is the symphony orchestra exercises its power and displays its dissatisfaction, from the 'delayed response' to the downbeat to 'applauding' sarcastically by the scraping of feet when a conductor uses the same word too often. Robert L. Ripley, 'The Orchestra Speaks,' in *The*

Cambridge Companion to Conducting, ed. José Antonio Bowen, (Cambridge: Cambridge University Press, 2003), 79-90.

[169] There is more freedom in a chamber session, to run on if you are close to getting something good down on record, whereas orchestral sessions are highly regulated (The Musicians' Union regulations, by which the UK's professional musical community usually run their activities, state that recording sessions should be no more than three hours long, with a break of 15 minutes approximately half-way through, and that they must start and finish exactly on time (if they finish late, overtime charges are immediately incurred, and permission has to be sought and agreed upon before they run over). 'There is to be one fifteen (15) minute interval during each three (3) hour period hereunder and no Musician shall be required to play continuously for more than two (2) hours.' Recording Session Agreement document between The British Phonographic Industry and the Musicians' Union, 2007. I am grateful to the Musicians' Union for providing their Orchestral Agreement details for 2007-08). These kinds of agreements can be good because they protect the musicians from being overworked, but it can also be frustrating if you are forced to take a break when another two takes would have allowed you to capture your best at that moment.

[170] Johnson's description of performers' involvement in the editing of their recordings is, in the view of my reseearch, representative of the extent to which performers are kept separate from the editing process. Johnson, 'Illusion and Aura', 42 and associated footnote.

[171] Pers. comm.: Beznosiuk.

[172] Pers. comm.: Beznosiuk.

[173] Pers. comm.: Mackie.

[174] Pers. comm.: Tear.

[175] Philip *Performing Music in the Age of Recording*, 12-13.

[176] *Ibid.,* 25.

[177] *Ibid.,* 56.

[178] Day, *A Century of Recorded Music,* 48.

[179] Adorno, 'On the Fetish Character in Music and the Regression of Listening', 301.

[180] *Ibid.,*301.

[181] *Ibid.*, 301.

[182] Auslander, *Liveness*, 2-3.

[183] *Ibid.*, 11, 57.

[184] *Ibid.*, 23-38.

[185] Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis, Minn.: University of Minnesota Press, 1977/2009), 85.

[186] Katz, *Capturing Sound*, 26.

[187] Botstein, 'The Eye of the Needle', 523.

[188] *Ibid.,* 530-31

[189] *Ibid.,* 533.

[190] Leech-Wilkinson, *The Changing Sound of Music,* chapter 2.1, paragraph 6-7, - www.charm.rhul.ac.uk/studies/chapters/chap2.html - accessed August 20, 2015.

[191] Johnson echoes this reading of the situation, Johnson, 'Illusion and Aura', 41 and 44.

[192] Pers. comm.: Mackerras 2.

[193] According to two relatively new members of Manchester's *Hallé* orchestra, their main concern and worry when practising is to play as well as possible, with as few mistakes – *none*, if possible. Of course the musicality is important, but your colleagues (or your conductor or audience) will hear your mistakes more than they will hear the levels of more or less musical expression. Pers. Comm.: Anonymous interviewees, 2009.

[194] Johnson, 'Illusion and Aura', 44.

[195] Blair Tindall, "Just one more to calm the nerves," *The Guardian,* Thursday June 5, 2008, accessed on January 8, 2012, http://www.guardian.co.uk/music/2008/jun/05/classicalmusicandopera.news. Documentary film: Thomas Grube, *Trip to Asia: The Quest for Harmony* (a documentary about Sir Simon Rattles's tour with the Berlin Philharmonic Orchestra), (Axiom Films, 2009).

[196] Recorded for the Chandos label, sponsored by the Sir Peter Moores Foundation January 2007, at the Colosseum in Watford Town Hall. My observation of this project took place over eight days, and I attended three of the sessions; in those three days, 20 numbers were recorded (including recitatives, solo arias, ensemble numbers, orchestral movements, and numbers involving the chorus).

[197] The conductor was Charles Mackerras and the producer was James Mallinson.

[198] For a fuller list of comments made when takes were stopped, see the Appendices of: [anonymized author], "Live Performance - Studio Recording: An Ethnographic and Analytical Study of Sir Charles Mackerras" (PhD diss., King's College, University of London, 2010).

[199] Dorottya, 'Classical Sound Recordings and Live Performances', 244.

[200] Miha Pogacnik in Harvith and Harvith, *Edison, Musicians, and the Phonograph: A Century in Retrospect* (1987) quoted in Hallifax, *The Classical Musician's Recording Handbook*, 16.
[201] Bill Lang in ed. André Previn, *Orchestra* (London: Macdonald and Jane's, 1979), 187-8.
[202] Pers. comm.: Mackie.
[203] Pers. comm.: Clark.
[204] Pers. comm.: Mackie.
[205] Pers. comm.: Clark.
[206] Brendel, 'A Case for Live Recordings', 347.
[207] Rushby-Smith, 'Recording the Orchestra', 177-8.
[208] Brendel, 'A Case for Live Recordings', 347.
[209] *Ibid*., 349.
[210] Harvey Sachs, 'Six Famous Ears: Emanuel Ax, Alfred Brendel and Andras Schiff Tell How They Listen," (interviews gathered for the Orpheus Instituut, Ghent, Belgium, and presented as a paper at the conference 'The Musician as Listener', May 22-23, 2008).
[211] Pers. comm.: Mackie.
[212] Pers. comm.: Clark. The clarinettist Colin Lawson has written briefly about his experience with Nimbus, saying that the company encouraged 'artists who were willing and able to approach recording without recourse to the edit, which the company regarded as "destructive, indefensible and fraudulent". Colin Lawson, 'Recreating History: A clarinettist's retrospective,' in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 263-4.
[213] Pers. comm.: Informal discussion with Stephen Johns, independent record producer (formerly for EMI Classics – Vice-President, Artists and Repertoire), and Ben Connellan, independent recording engineer, (works with Chandos and Hyperion labels, amongst others), October 2011.
[214] Pers. comm.: Mackie.
[215] Pers. comm.: Stokes.
[216] Rushby-Smith, 'Recording the Orchestra', 178.
[217] Tony Pay in Previn, *Orchestra*, 191. The emphasis is mine.
[218] Fabian, 'Classical Sound Recordings and Live Performances', 242.
[219] Although of course not infinite freedom – you cannot retake and edit forever. He says that even if you can retake something, that two-bar bit may not work when it's dropped in, it might feel 'like hitting a brick wall', like it has become 'stagnant for two bars'. Pers. Comm.: Anonymous production team member.
[220] Tony Pay in Previn, *Orchestra*, 191.
[221] Modern editing practice in general has its critics, but these days it is accepted as an integral part of making and releasing a good recording. Editing is seen by production team members as a way of galvanizing the best possible performance, not simply correcting mistakes or stitching together bits of substandard material. This, however, doesn't stop people within the industry from seeing some of its potential faults. Hallifax writes: 'If the purpose of editing is to repair intrusions – whether noise or accidental error – that disturb or inhibit the music, one might suppose that, like an old pair of jeans, music editing calls for the occasional patch', however, 'it is important to distinguish between editing to improve an already fine performance and knitting together all the correct notes in the right order. Whereas the former might even create a great record, the latter will never be more than simply correct.' Hallifax, *The Classical Musician's Recording Handbook*, 16.
[222] See Ananay Aguilar, "Recording classical music: LSO Live and the transforming record industry," (PhD dissertation, Royal Holloway, University of London, 2011), 48-51.
[223] Cook, *Beyond the Score,* 357.
[224] Cook, *Beyond the Score,* 357-72, and citing Auslander, *Liveness.*
[225] The term 'mediatized' is taken from Auslander. Auslander, *Liveness.*
[226] Haas suggests that it also has to do with the texts being used. 'When theatre moved into the studio, it created the new genres of film and television. So separate have the genres become, that there is now no debate of the advantages of live theatre over film and television, or vice versa. In the transition from concert hall to studio, the nature of the musical narrative would seem not to change to the same extent as that of the theatrical narrative, if only because stage plays that transfer to the screen are rewritten to accommodate the move.' Haas, 'Studio Conducting', 28. 'A play when turned into a movie or a TV drama undergoes a chance of fundamental text, while a Beethoven sonata, once moved from the concert hall to a studio undergoes a change of fundamental *context*.' Haas, 'Broadening horizons: "Performance" in the studio', 60. For a more thorough look at film and theatre see Susan Sontag, "Film and Theatre," *The Tulane Drama Review*, Vol. 11, No.1 (Autumn, 1966): 24-37.
[227] I am grateful to Lindsay Wright, an undergraduate student on my course *Music in Performance* (King's College London), for suggesting this idea.
[228] Born, Georgina, 'Afterword – Recording: From reproduction to representation to remediation', 290.

[229] *Ibid.*, 291.
[230] Day writes that 'not surprisingly, few performers (or their record companies) have been eager to divulge that this particular disc was recorded in sections of no more than ten bars at a time, or that the master-tape of this particular work required 186 splices. "Don't you wish *you* could play like that" is what cynical sound engineers are supposed to say to incompetent artists as they listen to immaculate, stitched-together tape masters.' Day, *A Century of Recorded Music,* 27.
[231] Philip, *Performing Music in the Age of Recording*, 54.
[232] *Ibid.*, 55.
[233] Nicholas Cook, 'Methods for Analysing Recordings', in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 243. See also Cook, *Beyond the Score*, 366-68.
[234] Cook, *Beyond the Score*, 385.
[235] *Ibid.*, 390.
[236] Sontag, 'Film and Theatre', 33.
[237] Freeman-Atwood, Cook, Born, Patmore, Johnson, Gronow and Saunio. Even in 1969 Adorno was dismayed that even as late as 1934 the record hadn't given rise to anything unique to it. Adorno, 'Opera and the Long-Playing Record', 283
[238] See Johnson, 'Illusion and Aura', 39 and 48.
[239] Glenn Gould was one of the rare classical musicians who was happiest in the recording studio. In his essays Gould challenges many of the common views on recording of his time. But although he provides a fully positive account of recording and its 'prospects', he does not argue against the accusations that recording is dishonest (Gould, 'The Prospects of Recording'), but says that this potential must be creatively exploited (Gould, 'Music and Technology'). In 'The Prospects of Recording' he explains that if for instance recording can improve on concert hall acoustics, then it is silly to limit yourself to realism. He ridicules anti-recording arguments made by 'indignant purists', for instance that recording is dishonest and dehumanizing, that it is a forgery, that it will put musicians out of work or break the mystical communication between concert performer and public audience. He defends editing by saying that 'you cannot ever splice style' (Gould, 'The Prospects of Recording', 338), and even writes an article for which he conducts listening tests to prove that most of the time these edits are imperceptible. (Glenn Gould, "The Grass is Always Greener in the Outtakes: An Experiment in Listening," in *The Glenn Gould Reader*, ed. Tim Page, (London: Faber and Faber, 1987), 357-68).
[240] This knowledge is based on the experience of [anonymized author] whilst teaching the 'Studio Performance' postgraduate course, offered at the Royal Academy of Music since 2014. In addition to this course, postgraduate students at the Royal Academy of Music are regularly instructed – both through seminars and recording sessions – in the implications and practicalities of the studio. They reflect on how to reproduce the adrenaline of a live performance in the "controlled" environment of the studio, on the understanding that even without an audience, a recording is no less "live". Their teacher [Jonathan Freeman-Attwood], who is not only a performer but also a producer, asks: "Can a recording be a live performance?" and answers the question with "Yes. Treat every take as if it is. A recording constitutes many live performances, many inflections, messages, nuances, with the chance to do your best every time. This leads to a range of artistic possibilities quite different from the 'spur of the moment' events in the concert hall.'" (Pers. comm.: Jonathan Freeman-Attwood, Postgraduate Seminar, Royal Academy of Music, November 15, 2005).
[241] This knowledge is based on the experience of [anonymized author] whilst teaching the 'Studio Experience' postgraduate course, offered at the Royal College of Music and taught by [anonymized author] (2011-14), Ben Connellan, and Stephen Johns, the research findings of which have been published as [anonymized author] 'The Studio Experience: Control and Collaboration', published in the Proceedings of the International Symposium on Performance Science (Vienna, August 2013). August 2013, ISBN 978-2-9601378-0-4. The course has also been researched and written about by Aguilar, 'Recording classical music', Chapter 2.
[242] I would like to thank my students on the Studio Experience course 2011-12 for their input and insights, and for their permission to use these quotes.
[243] Based on research undertaken by [anonymized author] whilst teaching this Studio Experience course at the Royal College of Music, London, 2011-12.
[244] For more details about the Royal Academy of Music's Professional Diploma in Collaborative Recording Production, beginning in September 2016, see: accessed on January 6, 2016, https://www.ram.ac.uk/study/studying-at-the-academy/programmes-of-study/postgraduate-programmes/prof-dip.
[245] Avie publicises its 'unique, artist-ownership model', accessed on January 6, 2016, http://www.avie-records.com/. Deux-Elles states that 'We believe that music is more than just a series of sounds - it's a performance too. We therefore make recordings that are engaging and exciting to listen to and which

preserve the real-life ambience, continuity and musicality of the performance […] We encourage our artists to select their own programme material and to participate actively in the production process', accessed on January 6, 2016, http://www.deux-elles.co.uk/AboutUs.html. Accessed on January 6, 2016, http://www.linnrecords.com/linn-about-us.aspx.

[246] Jonathan Freeman-Attwood is principal of the Royal Academy of Music, but also a professional trumpeter and record producer, working for companies such as 'Naxos, BIS, Chandos, Hyperion, Harmonia Mundi USA, Channel Classics and AVIE. Several of his productions have won major awards, including 'Diapasons d'Or', eight Gramophone awards and numerous nominations', - http://www.ram.ac.uk/about-us/staff/jonathan-freeman-attwood - accessed August 20, 2015.

[247] Freeman-Attwood, 'Still Small Voices', 56.

[248] *Ibid.,* 57.

[249] *Ibid.,* 57.

[250] Born, 'Afterword – Recording: from reproduction to representation to remediation', 296.

[251] Freeman-Attwood, 'Still Small Voices', 54.

[252] Blake 'Recording Practices', 53.

[253] Freeman-Attwood, 'Still Small Voices', 57.

[254] Cook, *Beyond the Score,* 377.

[255] Zagorski-Thomas similarly highlights that this team of collaborators who help the performer achieve a captured performance are more readily accepted in film than music recording, citing issues of agency and authenticity of mediation. Zagorski-Thomas, *The Musicology of Record Production,* 74-75.

[256] Cook, *Beyond the Score;* Freeman-Attwood, 'Still Small Voices'; Blake 'Recording Practices'; Steve Savage, 'It Could Have Happened?: The Evolution of Music Construction', in *The Cambridge Companion to Recorded Music,* eds. Clarke et al., 32-35.

[257] Pers. comm.: Mallinson, though this term, or ones similar, is widely applied by production team members.

[258] Cook, *Beyond the Score,* 374-413.

[259] Gould is shown experimenting with different microphone placements and editing options in the film *Glenn Gould:The Alchemist* (EMI Classics, IMG Artists, Idéale Audience International, 1974), Bruno Monsaingeon, dir., at Track 02-06, 32:00 and 39:40. A few moments of this footage of Gould mixing Scriabin can be seen at: accessed February 28, 2015, https://www.youtube.com/watch?v=mhdJZyDhjHs. These recordings, which were not released in Gould's lifetime, have recently been re-mixed by Paul Théberge and released as: Glenn *Gould: The Acoustic Orchestrations. Works by Scriabin and Sibelius,* Recorded in 1970 by Glenn Gould and unknown sound engineer (possibly Fred Plaut), produced and mixed in 2012 by Paul Théberge (Sony Classical, 88725406572, 2012).

[260] Richard Wagner, *Der Ring des Nibelungen*, Sir Georg Solti (conductor), Wiener Philharmoniker, Wiener Staatsopernchor, originally released in 1959, 1963, 1965 and 1966, produced by John Culshaw (Decca, 455 555-2, 1997). John Culshaw wrote about his work on these landmark recordings in Culshaw, John, *Ring Resounding: The Recoridng of Der Ring des Nibelungen* (London: Pimlico, 1967/2012). For a detailed analysis of this recording milestone see: David Patmore and Eric Clarke, "Making and hearing virtual worlds'.

[261] These experiments are variously cited by Patmore, Botstein, Clarke and Patmore, Freeman-Attwood, Johnson, Lebrecht, Gronow and Saunio, amongst others.

[262] Lebrecht, *Maestros, Masterpieces and Madness*, 136.

[263] Lebrecht, *Maestros, Masterpieces and Madness*, 136.

[264] Re-released in September 2014, and discussed in Cook, *Beyond the Score,* 380. http://www.mdt.co.uk/blog/box-sets/phase-4-stereo-decca-box-sets - accessed August 20, 2015.

[265] Cook, *Beyond the Score,* 390.

[266] I am following this up with a broader research project to find out what musicians and production teams would like to try instead. Some experiments are already being conducted into these possibilities at the moment as part of the AHRC 'Classical Music Hyper-Production and Practice-As-Research' project, led by Simon Zagorski-Thomas at the University of West London, with myself and others as co-investigators. http://www.uwl.ac.uk/classical-music-hyper-production/about-project - accessed on January 6, 2016.

[267] Patmore, 'Selling Sounds', 135.

[268] Michael Calore, "Why Neil Young hates MP3s - and what you can do about it," *Wired*, February 3, 2012, accessed on January 5, 2016, http://www.wired.co.uk/news/archive/2012-02/03/neil-young-hates-mp3s.

[269] BBC announcement, accessed on January 5, 2016, http://www.bbc.co.uk/news/entertainment-arts-32251994. Official Charts Company, accessed on January 5, 2016, http://www.officialcharts.com/charts/vinyl-albums-chart/.

[270] David Greenwald, 'Does vinyl really sound better? A sound engineer explains', accessed on January 5, 2016, http://www.oregonlive.com/music/index.ssf/2014/11/does_vinyl_really_sound_better.html. Mark

Richardson, 'Does vinyl really sound better?, accessed on January 5, 2016, http://pitchfork.com/thepitch/29-vinyl-records-and-digital-audio/.
[271] Patmore, 'Selling Sounds', 136.
[272] Bergh and DeNora, 'From Wind-Up to iPod, 111. See also Ola Stockfelt, 'Adequate Modes of Listening' in Christoph Cox and Daniel Warner, eds., *Audio Culture: Readings in Modern Music* (London: Continuum, 2004), 88-97.
[273] Bergh and DeNora, 'From Wind-Up to iPod, 115.
[274] Cook, *Beyond the Score,* 403.
[275] Botstein, 'The Eye of the Needle', 530.
[276] Ananay Aguilar's doctoral thesis focuses on the phenomenon of 'LSO Live', the London Symphony Orchestra's 'live' recording label. Aguilar, *Recording classical music.*
[277] Pers. comm.: Hallifax (2007).
[278] For a more detailed discussion of editing, see [anonymized author], "Live Performance - Studio Recording: An Ethnographic and Analytical Study of Sir Charles Mackerras," 147-151.
[279] In Day, *A Century of Recorded Music,* 27.
[280] Brendel, 'A Case for Live Recordings', 347.
[281] Leech-Wilkinson, *The Changing Sound of Music:* - paragraph 3.3.
[282] Patmore, 'Selling Sounds', 135.
[283] Nicholas Kenyon, "Arts cuts: Time to stage a revolution," *The Independent*, Wednesday 22 September, 2010, accessed on January 5, 2016, http://www.independent.co.uk/arts-entertainment/arts-cuts-time-to-stage-a-revolution-2085596.html#.

Example Captions:

Figure 1: Reasons for stopping takes – in diminishing order of occurrence
Figure 2: Takes stopped list – comments made by conductor (CM) and producer (JM)
Figure 3: Theatre and Film vs Live Music and Recorded Music
Appendix 1: Interviews
Appendix 2: Table of performances, rehearsals, and recording sessions attended
Appendix 3: Generic interview question plans for musicians and production team