

Why Music? Is Music Different from the Other Arts?

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TRANSCRIPTS

The Purpose of Art and the Role of Music in Therapy

Professor Ray Tallis and Professor Nigel Osborne

Michael Trimble: We are going to pull out a number of the themes, which have been developing, and then as the afternoon goes on we are actually going to have some really quite lovely music. The next hour is going to be split into two. Ray Tallis and Nigel Osborne are going to give two separate presentations but both hinging around the issue of music, its purpose, and also possible therapeutic aspects of music. Ray Tallis, a number of you may know, he's written many books. I know him from neuroscience. He was a card-carrying neurologist with a great interest in the brain, and he underwent some kind of Damascene conversion for various reasons that he'll probably tell us about, so Ray if you'd like to take the podium first.

Ray Tallis: Well thank you very much Michael, and thanks a lot for having me to this fantastic conference, I've really been enjoying it so far. Of course I'm stopping enjoying it now, because I've got to stand up and say a few things. I'd better tell you some of my non-credentials. I don't compose music, I can't perform music and I can't read music, but I'm utterly besotted by music. I'm entirely at one with Nietzsche who said that 'without music, life would be a mistake' and the whole purpose of philosophy, he said, was to 'live after the music has stopped' and that's the real challenge.

So, my credentials are as a besotted consumer, rather than any kind of producer. And that's why I worry a little bit about what I see as the misrepresentation of the musical experience in neuroscience in particular, but the talk that follows has many faults. One fault is I guess, you won't say that it's too short, but it will be about 20-25 minutes, and in that period of time I'm going to talk about the purpose of art. It's a little bit like the famous competition in Monty Python: summarise Proust on the beach in sixty seconds, that kind of thing. Let me just fire away and narrow down the topic a little bit to *some* purposes of art, or some just about connected thoughts on some purposes of art - that's about all you're going to get, because I'm determined to leave some time for Q&A.

This is a slide I slipped in over lunch because some of the things I'm going to say have not only been said already, but they've been said better than I was going to say them, so grrr and double curse! I do have a hidden agenda because I am very aware of the intellectual framework of this meeting which is to think about whether or not our understanding of art, and in particular of music, can be advanced by neuroscience I'm going to reserve save my full fire power for the debate, which I expect to be a bare-knuckled fight between those who think that neuroscience can shine light on music, and those of us who feel quite differently. But nevertheless, that

is the not so hidden agenda in this talk because I'm going to approach art in a way that indicates how utterly irrelevant it is to think of it in neuroscientific terms..

The overall theme of the meeting is 'why music?' and 'is music different from the other arts?' but I'm going to sort of modify a little bit and say 'why art?' and 'what's special about music?'

J.S. Bach said that he wrote his music 'for the glory of the most high God' and also 'for the benefit of my neighbour'. Well, as an atheist I'm interested in Bach too, and these are the benefits enjoyed I presume by Johann Sebastian Bach's neighbours: sheer delight, pleasure, sharing, socialising, hooking up, escape, distraction and a good night out. All of those things matter enormously. But one hopes there are deeper, sources of art even within a secular world. I would suggest there are at least two sources; there are many others. One is to address what I call the Fourth Hunger and the other is to celebrate our uniquely human freedom, a freedom that is not shared by any other organisms.

Let me say a little bit about the Fourth Hunger. First, some general observations on life, none of which will come as a revelation to you. If you have read the Daily Mail this morning you will know that we die. What's more, those of us who think about it know that our days are precious and few. What's more, we are mysteries wrapped in mysteries. But most of the time we are busy, distracted, and utterly devoid of anything corresponding to wonder. 'Rarely, rarely comest thou spirit of delight' as Shelley said in his extremely poignant song. Our experiences often disappoint us; our hungers are consequently insatiable.

Let me say a little bit about our hungers. You can stratify hungers. Though to do so is rather artificial, it's useful to start a conversation going in a pub. The first hunger is for survival. Those that are related to food and drink and so on, things that keep you warm, etc etc. Biological hungers that we share with beasts, although we transform all hungers, even those that we share with beasts. The second hunger is for pleasure, and our pleasures are rather complex. We can elaborate the incidental pleasures we get from serving our biological needs, so we can enjoy a variety of drinks as opposed to just drinking to quench thirst. Other pleasures are more arcane, like the pleasure that people have in putting together a stamp collection over forty or fifty years - not one that I share.

So our pleasures are extremely complex. And then there is the third hunger, which is a very profound and important hunger. This is the one that Hegel identified as uniquely human: the need for acknowledgment by others. The need to be loved, admired, esteemed, the need not to think badly of yourself, the need to think well of yourself in other people's eyes, the need to be successful - all of those things. This is our hunger for others, for being admired, loved by others and so on.

And the fourth is one that I called, rather lamely, the spiritual hunger. That's just a placeholder term really, I'm not too sure if it's a good term or not. But let me explore a little bit the source of this fourth hunger. We are animals. 98% of our DNA is in chimps, and all that sort of stuff, but we uniquely have woken, to a greater or lesser extent out of the state of an organism. It is completely inaccurate to describe most of what we do, or indeed feel, as the doings and feelings of an organism. But half-awakened, we try to find a unifying, or at least a non-local significance in our lives. And the significances we do find remain tantalisingly incompletely, and often stubbornly local. And that is connected with another feeling: that we haven't fully realised that we exist, despite the facts we die, that our days are precious and few, and that we are mysteries wrapped in mysteries. We don't feel that, and we don't fully

realise the scale and scope of what we are, and indeed of this gigantic human and natural world we live in.

This to me is connected to an ache to shake off what one might call an existential numbness. An ache to be truly awake, truly alert, truly alive. Now this ache becomes apparent, most often, when we're seeking experiences for their own sake. When you're rushing for a bus, or worrying about being beaten up, or starving, or sitting up all night with a child with a temperature, I don't think you're terribly worried about the quality of your experiences. You're not really worried about the fact that experiences don't match up to what you would hope for. When we go into The Kingdom of Ends, perhaps with a small 'e', when we cultivate things for their own sake, that's the time perhaps when our experiences seem to fall short of what we'd hoped for. There's a mismatch between the idea of our experiences and the reality of them. This is a motif, of course, that is explored extensively in literature: think about Leopardi, Flaubert, early Thomas Mann and so on and so forth. It's the feeling that we don't fully experience our experiences. Those experiences are not congruent with, or match our idea of what we expect them to be,. When we're having those experiences for their own sake, we're not as entirely there as we'd like to be. We never quite arrive, we always seem to be journeying. Our being, when it's not unbearably heavy (with hunger or illness or fear or grief or responsibility or all those other things) is, as Milan Kundera expressed, unbearably light.

There are wounds in the present tense of our distinctively human consciousness between our ideas and our experiences; between for example, the world of words, and signs in general, and our experiences; between what we are and what we know; between our experiences and the life and world of which they are a part. And the Fourth Hunger is a hunger for an experience, which is truly experienced, a hunger perhaps for an experience that is connected with other experiences. There are times I think, I don't think I'm alone in this, when we want to gather up together the four quarters of our consciousness. We don't want to be in a small parish of our own being, a small parish of the world. There is a hunger for a significance that links the small facts that detain us, with the big facts - our mortality, our mystery, that enclose us.

So that's one source, I would say, of impulse to create art, to perform it, and in my experience, to enjoy it. And there is another aspect of art, which is that it celebrates a uniquely human freedom. Let me just have a little glimpse at one aspect of human freedom. Think of the human gaze. Our gaze, when we look at the world, is offset from the world. As Heidegger said, 'like no other creatures, we *face* the world'. We are embodied subjects, related to a world of objects that are explicitly other than us, and in that sense we're uncoupled from the world. We can know the world from a distance. It's revealed to us from a distance, and of course vision is the paradigm example of that. And this leaves us much more free, much more wriggle room.

So with looking, we have the possibility of elective, or recreational looking. And let's consider, in a very simple-minded way, how that might play into one art - visual art. Think of a painting. It replicates that which we see - not exactly, of course. All art transforms that which we see, it isn't simply mirroring. Painting, however, finalises the separation between the see-er and that which is seen. When I look at you over there, I am separated from you. If I were to look at a picture of you in an art gallery that would be a further layer of separation. When the seen is transferred from its primary setting to a wall as in rock art, or a gallery, it becomes even more obviously an object purely for recreational seeing. When I see a tiger in a picture, I don't think I've got to scarper; when I see clouds in a picture I don't think I must buy

an umbrella – it's distant. It's about seeing for the sake of seeing, and realising the potential freedom of the see-er.

Now that's very superficial, very fast, but I hope you get my general drift. Paul Valéry, the great French poet said something very beautiful once. He was asked to specify the difference between poetry and prose (I would say it's the difference between literary discourse and all other discourse.) He said that it's like the difference between walking and dancing. You walk to get somewhere, and you dance to enjoy movement for its own sake. Now, this is shared with sport and other recreations. When people are running around on a rugby pitch, that is clearly enjoyment of movement for its own sake. But what art has to offer is a connectedness that these other recreations don't offer.

Just to round up the little bit on art and freedom, a quote from Sartre. This is actually from fairly late on, by which time he was absolutely barmy and most of the things he wrote in the second half of his life were appalling, but actually this is not bad. This was a moment when the mists parted, and he said that 'art aspires to recover this world by giving it to be seen as it is, but as if it has its source in human freedom'. Art is the means by which we take hold of the world, that potentially has us in its grasp, although its grasp on us is much more feeble than it is in all other living creatures.

Okay, and not before time you might think, what about music? Well, I want to focus on the role of music as an experience that is fully experienced, and the role of music as a celebration of fundamental human freedom. In what sense is music a fully experienced experience, in the way that perhaps non-artistic experiences are not? Well it enables us to reconcile the idea of an experience with the actuality of experience. Every note is present as an actual, physical, 'now' event, and yet it is manifestly part of a larger whole, as a kind of acoustic story of a great form. There is connectedness in music across phrases, across melodies, across whole movements of a symphony; and in the case of some composers, I would think of Sibelius and Mahler as supreme examples, across an entire oeuvre.

When we listen to music we're engaged in a journey, in which we arrive at each moment. There isn't a difference between the journey and the arrival. We don't listen to the music to get to the end, to find out what happens. Sometimes one listens to the music just to get to the end, but that's Stockhausen. Within music there is both music and stasis. Past, present and future are impregnated with each other, and it seems to be in music that it is true that 'time becomes space'.

What about music and freedom? Well of course in music we create sound for it's own sake, and what's more, by some sort of mysterious alchemy that I don't know, we manage to generate emotions for their own sake, and I know that Stephen is going to talk about this in due course. This freedom is actually underlined, paradoxically, by our organising sounds and groups of sounds, according to certain freely chosen constraints. That is the utter joy of freedom: to choose to be constrained. These regulate our expectations when we're listening to music, and these expectations are largely fulfilled and interestingly occasionally overturned. Of course, the problem for me, when music went through a very bad period, a sort of Darmstadt period, was that no expectations were generated and no expectations were disappointed. You simply never knew what was going to happen next.

Music is about the joy of dancing within fetters, but chosen fetters, freedom from all but self-imposed constraints. It is the most beautiful example of elective necessity. I have a quote here from a contemporary philosopher of great eminence: Roger Scruton. And I hope I understood what Roger meant by this in his fantastic

book *Understanding Music: Philosophy and Interpretation*. Music, he said, ‘is not a succession of sounds, but a movement between tones governed by a *virtual causality*’ – I absolutely love that phrase – ‘a virtual causality that resides in the musical line. Only a rational being, one with self consciousness, intention, and the ability to represent the world’ – all of those things that neuro-maniacs would want to deny – ‘only a rational being can experience sounds in this way.’ Truly human freedom expressed most beautifully in music, is acting in accordance with a chosen necessity.

Now, I think it was Michael this morning who quoted Walter Pater’s essay on the School of Giorgioni, saying ‘all art aspires constantly towards the condition of music’. What is the basis that? Well the first thing is, and this touches on something that Roger was saying this morning, music miraculously achieves significance and meaning without reference or representation. Music doesn’t refer to anything. Music doesn’t represent anything. It doesn’t, as Roger said, have any semantics, in the way that ordinary language does. Music is about itself, but it still has an important aboutness, it has an important internal reference if you like. Of course then people will say well, what about programme music and what about lieder and what about opera? Well it seems to me that the essence of all of those things still lies in the music. I love many of the songs of Mikis Theodorakis and they move me enormously and I don’t understand a word of what they mean. So I would think, essentially, that when it comes to the relationship between words and music, as toyed with in *Capriccio*, music is definitely the top dog.

What’s special about music is that it has untethered meaning. Because it’s not pinned to a particular reference, it is potentially boundless. It IS meaning, rather than saying, indicating, asserting or protesting it. This makes poets jealous. There’s a famous story of the late 1890s. Mallarmé and Valéry are together listening to a Wagner opera, when Mallarmé turns to Valéry and says ‘how can we poets compete with this?’ One of the reasons they can’t compete, is not just a matter of scale, is that materials out of which music is made aren’t used elsewhere. The words we use in poetry are the same words we use in writing laundry lists or having domestic arguments and so on and so forth. Nor are its materials derived from the natural world, as in representational visual art. And that’s why I particularly like this passage from Levi-Strauss’ *The Raw and the Cooked*. ‘Music’, he says, ‘is a language by whose means messages are elaborated...that can be understood by the many but sent out only by the few’ – and I certainly resonate to that, as someone who can neither perform, nor read, nor compose music – ‘it unites the contradictory character of being at once intelligible’ – it has significance, it has meaning – ‘and untranslatable’ – you can’t say what the music is about – ‘these facts’ – and you may dispute what follows, but I rather like it – ‘make music the supreme mystery of human knowledge. All other branches of knowledge stumble into it, it holds the key to their progress.’

So, if music has a purpose and of course it has millions of purposes; advertising jingles have a totally different purpose from other music and so on and so forth but I would put to you that one of the things it does is to help heal the wound intrinsic in human consciousness. A wound that becomes apparent, not when we’re running for a bus, not when we’re trying to keep a fretful child calm through a feverish night, but when we are seeking experience for its own sake. It offers the image of, the possibility of, that experience perfected and it is a supreme celebration of our uniquely human freedom.

So now we come to, as it were, speaker’s message. It’s this: I am profoundly skeptical about trying to find the mystery of music in the intracranial darkness of the human skull, because art or music, indeed, is our humanity at its furthest remove from

a state of an organism. So organism-based theories of music are highly unlikely to be illuminating. Music ain't mere brain tingles. J.S. Bach isn't just a tingle maker, and of this more presently. And there is a little bridge to what Nigel is going to talk about - and I know he's going to talk very movingly about his work with children who have problems - is, music as therapy? Brain therapy? I don't think so. Therapy for the *soul* or for the *person*? I think so. Thank you.

Michael Trimble: So, before hearing the mysteries of healing the soul, Ray is open to questions.

Ian Ritchie: I agreed with so much of what we've just heard, but there were just a couple of things I want to take very small issue with. Firstly, the assertion that music has materials, which are not derived from the natural world, because if someone were to ask me, in one sense, in what way is music different, I would say that that is one of the ways that it IS different. That it is, to some extent, derived from the natural world. For example, Mozart would keep a pet starling and would annotate the songs of the pet starling and build it into his music, Messiaen the same. But also it was extraordinary when I was working with many, many living composers this summer, no fewer than 19 from Australia, and some from New Zealand as well, that the vast majority of them had absorbed bird song, which was very much part of their daily lives in the places where they live. It was actually within their music, and was a fundamental part of it, and I understood that that was probably a reason why music might be different from the other art forms. And I have a slight concern for whether music therapy could be argued as not being good for the brain as well as for the soul, but maybe Nigel might say something about that.

R.T: Well yes the role of natural sounds in music is interesting. Everyone is familiar with the image of Messiaen wearing a beret listening to birdsong, but I think that's a very small part even of his compositional activity. I don't know that really Mozart should have ascribed his works to 'Mozart and Starling'. I do feel that it was only one composer, and if you look at a Mozart quartet or a great opera, it has so little to do with birdsong. I love birdsong. Nothing gives me more joy than round about late February when the blackbirds come, and they're the absolute virtuosi. But it seems to me that when we're actually composing music, we're not stringing together just natural sounds, and I think it was John who was talking about breath music from people in Mongolia, well I guess that's the nearest to music that is totally based on natural sounds, where people just imitate the wind, but that's pretty impoverished music. Composers do incorporate all sorts of sounds into their work: klaxons, and vacuum cleaners and helicopters, but they don't have a central role to play, it seems to me, in the putting together of music.

Question: But we're dependent on the natural world for sounds. We're dependent on the wood of the violin, we're dependent on a whole load of natural materials, and the statement that you've elaborated in this way couldn't have been made in other cultures because there, the relationship with the natural world, like in Mongolia, would have been absolutely clear. That abstraction is an abstraction born of Descartes.

R.T: I'm not too sure it is. Think about ragas for example. It seems to me that the raga is a good example of music from a totally different culture. It has very little,

again, to do with natural sounds. But of course you're right, we have to make the sounds with material objects, of course we do. You've got to scrape the bow across the violin, but it's the unnatural things we do with them that make music. The way we first of all, deliberately, artificially create notes that give us pleasure and then the way we put them together. This was what Roger was talking about when I referred to his concept of virtual causality. Like all human beings we subordinate natural objects to unnatural purposes and we transform all our biological needs into something quite different, and we're doing that all the time. This doesn't mean to say that we're, as it were, purely Cartesian ghosts, because I don't think for a moment that is, I mean we're flesh and blood, thank God.

M.T: You keep on going on about souls and God. As a devout atheist you use interesting language.

R.T: Why should the devil have all the good words?

Question: I have a question about the non-representational character of music. Can we say that it represents the harmony within us and the universe and the music of the spheres and all that, and in that sense do we not look into music as if it were a mirror then, to understand ourselves better?

R.T: That of course has been a longstanding and highly respected theory of music right from the time of Pythagoras. But when you think of an actual piece of music, that seems a lot for it to take on, to actually echo the harmony of the universe as such.

Roger Scruton: You would also have the consequence that all music means the same.

R.T: Yes, that's true. You get a better answer from the philosopher.

M.T: If now we could move ahead in the programme. Nigel Osborne, professor of music in Edinburgh. He has had a huge amount to do with music therapy and has a lot of helpful information to give us but also, I think, to add an important perspective to the overall programme.

Nigel Osborne: Good afternoon, and thank you Ray, and my heart warms towards 99.9% of what you say. I want to talk about 'Why Music?' from a therapeutic point of view. I'm not a music therapist, though I worked as one before qualifications existed, and I've been a humble fellow traveller in the world of music therapy in my life. Where I spend most of my time working, in relation to music therapy, is with children with trauma, in conflict situations. I thought as I'd spoken about this at these conferences before, I'd speak about something different, and that is uses of therapeutic method in special education. I'm going to talk about a project which was actually part of a NESTA funded project to develop a new instrument for children with special needs, and one of the reasons I've chosen it for today is that our boss, our supervisor from NESTA was Ian Ritchie who is the artistic director of our show today, so there's a rather nice circularity in that.

I've got a little handout that is in your pack, and the reason is that I don't like PowerPoint. All the stuff's there, you can take it away, and I can show you the film.

It is looking at the project from three different perspectives. These are: looking at it from a biological point of view: what is it that music can do that might help our bodies, if we need help? Looking at it from a mind perspective, the psychological bit, are their things in our mind, which includes our soul, I presume, that we can help? And then finally, in our relationship to other beings, other people socially, the old, traditional medical paradigm: Bio, Psycho, Social - though interestingly the bits for music are often the bits in between: Psychobiological. Psychosocial. Biosocial. The bits where these interests join are often interesting for music. We mustn't get hung up on these words.

The first example I want to pick is from a school called Hillside School in Cumnock in Ayrshire, and it is working in a swimming pool. You'll see two young people. I'm not going to talk about what their problems are, whether they're autistic or what their problems are, because I'm a musician. I'm meeting them as people; it is not my job to diagnose, my job is to be sensitive to limitations, but not to diagnose, I'm not going to talk about that. But of the two young people you'll see, one is a boy who, under normal circumstances, has great problems in unfamiliar spaces and can get very, very violent and unhappy in those spaces, and yet a swimming pool is wonderful place for him to be. So how do we make it easier for him to be in a swimming pool? Also he has some rather, for him, distracting habits like flapping his hands in front of his face. People here will understand what that means. I'd like you to watch what happens to that as well. And then we have a young lady who is full of anxiety, and as a result of that and also because of some physical problems, she is very rigid, and so we need to find some way of helping her to move. You have to listen to some horrible fiddle playing – that's me, but you try changing to fifth position in 95% humidity, see how in tune you are! I play Scottish music, but I didn't know before I started which tune I was going to play. I'm choosing, as I see the situation of the children, what I think might help them.

[Video is played.]

Anyway, you get the general idea. I'm using highly rhythmic music to get her legs moving, and they move, and the boy who normally would be very disturbed is not only very happy in the water but is playing the violin. He's transformed his flapping behaviour into a creative one, which we're very proud of.

Well, what's happening there? Lots of things, because you can't isolate music to the biological domain - rubbish, it's everything the whole time. However, I do think there are one or two things here that neuroscience has helped me with. So this is the other side of the argument - Roger's folding his arms now. Neuroscience has helped me because I always thought that through music I was helping people activate their centres of emotion and much more than that, I thought sometimes it was helping them to gain more power. I work with a lot of people with cerebral palsy and I've been astounded at how soon we can actually get people moving way beyond what they're supposed to do, in terms of power as well as extension. So obviously, if MRI and brain imaging are now identifying the high activations of the premotor cortex through musical stimulus and other relevant areas, that is a great help to me. As was, in the other domain of relaxation that was happening here, was the neuroscience of the neuroendocrinology, which gave me evidence that musical experiences of certain kinds could also help to regulate our hormones of stress and cortisol levels, and also the myriad of neurotransmitters and hormonal actions that take place as people listen to music - plus the autonomic nervous system, its activation, relating directly to heart-

waves and so on. Those things were a great encouragement to me as a practitioner because it made me think maybe it wasn't rubbish. Like, what I saw, maybe I really was seeing, and it made me speculate and helped develop my practice. It also means, if we think about what this is, then almost in a sense there is another musical score, which isn't the one on the paper and isn't the one played. It's the score inside the body that we can notate in terms of endocrine activity, neurotransmission, and activation of parts of the autonomic nervous system - there's a score. It doesn't tell us much, but it tells us that the body is busy doing things. But it also means that if we are trying to change things in the body, so for my traumatised children for example, getting their heart rates down is really quite important. Music is quite a strong regulator of these things.

So if it is a cheesecake, it is one, which not only settles in the gut rather tastefully, but also changes your heart rate, breathing patterns, levels of stress, hormonal basal metabolism and also your abilities to move as well. So it's a pretty monstrous cheesecake down there in your stomach that's doing that.

So that's one kind of generally biological area I'm interested in. Now let me show you another example that's from Whichhill School in Kilmarnock. This is a school just opposite the Johnnie Walker factory; long may it rest in peace. This is a dreadful thing I hope you realise that has happened, and a terrible late capitalist rip-off. Adam Smith would be very angry, but anyway, no more of that. Whichhill School is for children who have profound difficulties. None of these children can speak. Terrible words like 'cabbage' and 'vegetable' used to be used for these young people. I'm so glad we don't use that stupid language anymore, and think in terms of the glorious potential as human beings many of them have, as you will see. One or two are accident victims, but most have these as developmental difficulties.

Sean you will see first of all, and Sean has difficulties in his relationship with the world around him, particularly in interacting with us physically in any way. If you are lucky enough to get Sean to pick up an object he will promptly put it in his mouth, and that's about it. When you see us working with Sean, you will see we've managed something a little bit different. Then we have Melanie. Melanie lives in permanent anxiety. The only thing that offers her any comfort beyond music is a mirror, and so we combine the mirror and the music, as you will see. And Paul, who does understand language but is not able to speak, has limitations in his movement but loves to drum and so we're setting up a situation where Paul can drum. What I'm doing here, instead of picking out of the air some Scottish tunes I'm co-improvising. This is a traditional music therapy technique - I'm trying to work out how the person I'm meeting feels. I'm trying to find a musical way of relating to them. As we can't talk to one another, we can make music together. I'm trying to do that and I'm improvising whilst teaching my students who are with me to improvise at the same time. It comes out quite popy I'm afraid, but that's fine, because it's what works, so I do that.

[Video is played.]

Next Saturday in St. Cecilia's Hall in Edinburgh we are celebrating the 80th birthday of Colwyn Trevarthen, one of my mentors, one of the fathers of psychobiology. I found in Colwyn's work - and it's born in part from neurology - I find in this sort of work, that Colwyn's work helps a lot. The theory of communicative musicality, there again, for me, acted as a kind of confirmation. I can say, actually, this isn't quite as mad as it looks, and maybe things are happening here

that are useful. The theory of communicative musicality descends from Colwyn's mother's work in mother-infant interaction. The dialogues that mothers have around the world with young children, with much the same pitches and tempi at different ages of development - that take place, and seem to be an early communication of movement, as Roger mentioned, of emotional, somehow empathetic, possibly to subjective communication - can't prove that - but it seems to be happening, and a whole host of other things to do with speed of thought, with thinking, things happening and experiences in the mind that thoughts can then be attached to - that kind of thing, possibly.

If that's the case, it may be some kind of re-run of our evolution, who knows? If evolution exists as opposed to creationism or whatever else, then so probably do, a little bit, re-run evolution and our growth from embryo to adult. And if that's the case then we re-run mother-infant relationships, possibly an early stage in our development as mammals, I don't know, then it would be the chance for sound to be the medium of one person sharing emotion with another, of understanding what another person feels but also maybe changing what that person feels. That's the interesting point I think, helping them to change - that's the music therapy premise: maybe you can change what somebody else feels. The great thing is that it doesn't happen if you don't consent. You cannot force somebody to change the way they feel through music; it's one of its beautiful things. They consent to be changed by music.

So in a sense, these neurology based theories have been a great help for me in getting the confidence to develop it, because I can see the results of exchanging thoughts, rhythm times, body times and emotional things and so on.

So therefore, this cheesecake now, sitting there deliciously in our stomach has not only altered our heart-rate, breathing patterns, level of autonomic nervous system, the flow of neurotransmission, the hormones in our bodies but it is also possibly providing a basis, in subjective terms, understanding one person, what really one person understands, what another feels, maybe in a different way of how I can tell you: I'm fed up today.... (*slouches*)....you learned much more from the second, than from the first indication. Maybe it's that kind of thing that this cheesecake is doing, helping us to change one another.

The next example is from Woodstock School. This is a group of kids who are not only excluded from other schools but will never be in other schools. Their behaviour is so bad, wonderfully bad, that they'll wreck anything that they come into contact with and have to be in a special unit where there isn't too much damage they can do by wrecking their environment, with lots of helpers to prevent it from happening. They're not spoilt middleclass children drawing attention to themselves, those of you who know the problems of these children will recognise them. The question here was: can we use music to make this environment a bit more functional? So we create a drum circle, a music circle really, where, as you'll see, we managed to make a group from these young people, who behave rather well and creatively. I choose a repertoire from familiar songs, I think I sing a West Indian song that enables me to introduce their names, I sing an Angolan song. Why Angola? Do I have some pretentious leftwing music philosophy? No! Angola because "Na-na-na-na-ay-ai" gives me a chance to work with open vocalisations with kids who can't vocalise, and magnetise them to vocalise so that they can't resist. Schubert doesn't do that. They do do Schubert, even *Die Schöne Müllerin*, we've done the whole cycle in the group. Schubert wrote it for the guitar by the way, not the piano. Fits very well under the fingers on the guitar. But on this day we did the West Indies and Angola, and watch the behaviour, watch the individual behaviours as well in this, because the beauty of

the music circles are that music wraps everybody up. Everyone gets wrapped up in the beautiful warm thing – a warm towel around everybody. And then, as the warm towel is on you, you can contain the situation. Then you can be looking at individuals' needs in that too, because the music is powerful enough for you to be able to go in there and help people, you'll see us doing this. One girl has a ritualistic behaviour, which is going for your throat. And I worked out that she goes for your throat to feel the vibration of your voice box. The school had been busy stopping her, I said, don't stop her, give her something vibrating and interesting to touch, and I encouraged her to touch the guitar. There is another boy who never vocalises, and he is vocalising his head off, in a moment as you'll see. So this is the next film, from Woodstock School.

[Video is played.]

So this is an area that neuroscience has yet to develop further. It's beginning. In fact the accursed mirror neuron theory is quite useful from this point of view for looking at ways in which it is possible for there to be a way in which there is a social-biological link in people. We also think about the psychological. Actually, our bodies and our social lives are also somehow quite linked up. Music links them up a lot by joining us together into a space. So I think there's a kind of challenge for neuroscience in this area. It's developing and it'd be really interesting to see if we can explore more the hotline from our body to our social being in this kind of thing. Everybody who works with kids and music knows what I'm talking about. In fact, we've actually done a lot of good by cutting out the psychological areas as much as possible. Let's not have psychology, let's just have our bodies and a bit of social action, and that's what makes it work.

So the cheesecake, now sitting in your stomach does all of those things, and does social things as well. So, why music? Why do we have music? Well, I'm suspicious of over-adaptive interpretations, although I think there are some adaptive aspects there. I do think it's likely that music evolved in human beings for various purposes as well as for fulfillment and pleasure and our spiritual growth. I think it also does things that have been useful to us over time, as a species; coordinating us, making us feel better, helping us communicate, that kind of thing.

M.T: Thanks very much Nigel. Great videos there, and great tragedies there too. Some questions, please.

Mitch Benn: It may sound like a weird person to bring up at this junction, but are you familiar with the work that Richard Stilgoe does on the Orpheus Ranch?

N.O: Absolutely, I've worked with Richard for years. I was his partner in crime for years and years and years and in fact, the only negative thing with the Orpheus Ranch is that it took all of his generosity and money to keep it going, which means that we couldn't keep Cham Music going, but the good thing is that he does great work, yes absolutely.

M.B: I did one of his songwriting workshops at a residence weekend, it was just extraordinary. Richard Stilgoe, I'm sure you've all heard of, I think he basically spent all of his Starlight Express money on turning this farmhouse that he owns in Godstone in Surrey, into a sort of community for young people with varying degrees of handicap, some with some pretty extreme levels of physical and mental handicaps.

The whole thing is based around music, and trying to communicate through music. Once a year he has this week-long songwriting workshop. I've done one, Howard Goodall's done one. You basically move in with them for a week and get them to write songs. You don't write the songs with them, you get them to write the songs. I was getting them to write funny songs, and at the end he's got this little theatre in the barn and we get all their relatives in and we put the songs on. An extraordinary thing.

N.O: And the other thing about that is its apprentice system. He's giving young people who are interested in creative arts a chance to actually have a residency and develop their skills with proper mentoring. So, hats off to Richard Stilgoe, great man.

Question: I wondered if you'd come across a newly established organisation called Arts for Dementia?

N.O: Yes I have. It means a lot to me, I had to nurse both my parents through dementia.

Question: It's the other end of the age scale, but there's a similar approach to the chemical relationship with music.

N.O: Absolutely. An area we really have to develop a lot. There is so much need, and a lot that we can do as musicians, in the terrible conditions of dementia.

Question: Nigel, thank you, the videos were terrific. What came over was both the pleasure of the people participating but also the musicians and the staff, they enjoyed it. When you are thinking about the beneficial effects of this sort of work, presumably that is a crucial ingredient? That it is most of the time, a pleasurable, optimistic activity?

N.O: Yes. It's very interesting how often we get special requests. In the work we do in hospitals for example, with dementia, we got a request recently from the nurses, saying can you do a workshop just with us? Because we need feelings like this too, we need to have some fun and explore our emotions a little bit. So yes, we very often get them. It's critical that we integrate the care staff with the teachers. That's another often tricky issue in special education. But in this kind of activity we can invite the care staff into the activity, actively together with the teachers.

Question: Nigel, I'm not clear about the assumption that seems to be present that we know what the word music actually refers to. In your case, it's a participating, self-referencing system that has no audience. Except here we are, an audience being moved by performances that were not intended for us. But that falls into that overall category with that vague word 'music' that includes us sitting silently and reverentially listening to Beethoven or participating actively and candle-waving at a pop concert. I'm not clear about that assumption about that word 'music' and its meaning. I wonder if you could speak to that?

N.O: Well there are two things to say. One is that music is all things to all men. You choose your music. You choose your musical activity. I think there are lots and lots of versions of the way you can relate to music, even in our society. If you

broaden it to the world, then there are a massive number of models of music and the roles it plays in people's lives. It's to do with a personal pleasure, satisfaction and a communication that you can put together in whatever little constellation you want to in your life. Of course, many societies don't have a word for music. In Indonesia for example, musik is stolen from Dutch - there wasn't a word for music. Many parts of the world do not have words for music. Why? - Because it's too damned obvious. Why would you want to give it a name? It's what we do in our lives. So, I think that's another thing, we have semantic issues, and also I think it is what you make it. And just do it as well as you can when you make it.

M.T: With the iPod and other means of delivering music so easily, difficult with the population you've been showing us, but do you actually see the new technologies as leading to a huge interest and indeed experimentation with regards to music therapists?

N.O: Yes. First of all, music therapy is essentially a mediated experience; it's a person bringing music to another person, whereas in perhaps music medicine, if we accept that term, there are certain interventions in hospitals. I've worked with a lot of chronic pain, I've worked with orthopedic departments on things like that where we are simply playing music to people to help them feel less pain. And yes, absolutely, I think that's one of the benefits of the otherwise dubious accessibility of a great deal of music. I think you really should have to look for it more, but anyway, that's a very positive output of it. In fact I'm designing a system that I hope will help with that, for use in hospitals, drawing upon a large repertoire, because we have lots of different tastes. That's important – the great thing is to have an available music that anyone can enjoy.

Ray Tallis: I find those videos incredibly moving and the effects absolutely apparent and so I was surprised throughout that you kept on finding reassurance in neuroscience. It's almost like the old joke – it works in practice, but will it work in theory?

N.O: I'm not a doctor, I'm just a musician. I try to catch up with as much medical science as I can in my life, but not very much and not very well and very amateurishly, so I feel that I have a duty, if I'm in situations with vulnerable people, I have to try to learn as much as I can about it, and also make the medical staff confident that I've tried, I'm not jumping in here in some arrogant role. And the other thing is my own confidence – we do do things on a wing and a prayer, we think we see things. Sometimes you can convince yourself you've seen things you haven't really seen. So a little bit of science where there's been an attempt to objectify the observation is helpful. Finally: money. If we want to persuade people that this has any value, we have real problems with drug company style quantitative blind testing randomised control stuff, and all of that disective stuff. We really have a problem with doing that we don't have enough numbers. But we can do hard science. We can measure cortisol. I can do an autonomic system print out, I can do a galvanic skin conductance output for them, and they can see that it's changed. I can do their heart rate, you can see it's changed. So I've got hard evidence that can convince people that this is not total nonsense that some change for the better has taken place in the person using it. So it's just that. Mainly I'm overcompensating, that's what it is. I should have been a doctor, and I'm not, so I'm overcompensating.

Michael Trimble: Ray would have liked to have been a musician.

Ray Tallis: Utterly right, yes.