

Why Music? Is Music Different from the Other Arts?

Institute of Neurology, Queen Square

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TRANSCRIPTS

Debate and Open Forum: Neuroimaging is Important to our Understanding of Aesthetics and our Responses to Art

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Michael Trimble: We are now going to have a short debate and open forum, although I think I should like to make it more of an open forum with the limited time we have. So, what I'd asked one or two people to do was just to make a few moments of statements. I'm not sure how many members of the panel actually have a statement? I know that Ray Tallis has. Has anyone else brought a kind of document with them that they anxiously wish to present? What I'd like to do then, is to take the next twenty minutes is to let a couple of people make some comments which have to do with the proposition of the debate, and then I'd like the audience to come into this.

The proposition is as follows: neuroimaging is important to our understanding of aesthetics and our responses to art. How many people would agree with that statement? About 20%. So a number of you already have a winning ticket. All you can do Ray, is lose this debate, and I'll let you start by giving your three minutes.

Ray Tallis: Actually I think it was more than 20%, I think it was 90% so I've got to try to knock it down. I think the motion has got to be rejected, both on the present state of the art, and on any future state of the art – the art of neuroscience that is. Present state of the art: crude experiments, crude measures. They use music as repeated stimulus, it averages across people, irons out variations, clumps together modes of music and even types of pleasure that are importantly different, and tears apart components that are inseparable. For example, take the observation: brain areas that are activated when we listen to pleasurable music are also activated by drugs or during sex. Seeking beauty is seeking to reward your pleasure centres. Conclusion? Techniques that can't distinguish between you having a hit of coke or a dose of Bach or between hearing an organ played or having one's organs played with – and when you think about it, William Byrd and Sid Vicious are both fellow dopamine pushers in the brain.

And then we separate the inseparable, different brain areas are apparently responsible for responding to pitch, harmony, melody and other features of music. But in real life, these elements are not served independently, as a result of which we learn little about the perception of musical sound, even less about the experience of music, less still about the impact of great music. St. Matt's Passion vs Matt Monroe. Tempo, we're old, activates areas in the parietal, insular, frontal and pre-frontal cortex. Well, a crooked estate agent sells the same property to a whole pot of people, and so in fact, the same areas are activated when you're worrying about your bowels.

So what about the future state of the art? Well, supposing we got a complete print out of all the neuroactivity seen in a person through the course of an entire concert. I would think it would tell you as much about the meaning and significance of music as a complete read out of the electromyography activity of a dancer's legs would tell you anything about *The Rite of Spring*. Music belongs to a community of minds, to cultures, and it fits into singular histories of persons. Brain science looks straight past all that, to an an-historic, biological organism – Homo sapiens. In art, as I mentioned earlier, we are most remote from our biology.

Music has a significance that goes beyond the impact of the kind of stimuli that neuroscientists look at. Great music ain't just tingles, and J. S. Bach is more than a tingle-maker. So, neuroscience has little to tell us about music, its composition, performance and appreciation. It's a no-brainer. Thank you.

M.T: I must have some of my neuroscience colleagues in the audience who would be prepared to stand up and say something?

Question: I'm not a neuroscientist, I'm an animal behaviourist. I suppose my question to you is, what do you see the point of hard sciences, such as neuroscience, as, in relation to the arts? The way I see it is, the usefulness is not in completely describing or defining in every measure what the arts mean to people or what effect they have, but just providing a way of measuring something in a concrete and scientific way that shows us that there are effects that can be proven by scientific method, that therefore validates the ways people use music in a way that...being taken to the bank in effect. Science is a way of measuring something, it isn't claiming music for itself by saying that there are scientific effects that can be measured.

M.T: Alright, I'd like to just bring in the two Johns here to seek their view. Now, John Onians, you have looked through the history of this, and people have been seeking links between brain and music from the very beginning. And then John Sloboda, the question is the psychology of music, can you progress with that without actually moving into neuroscience? First of all, John Onians.

J.O: Yes, one thing I would say certainly is that from Aristotle onwards, through all the people like Leonardo, a lot of people have been looking at the brain with the tools they had available to them and perceiving things about human response in aesthetic contexts, which they would not have perceived unless they paid attention to the brain. Neuroimaging is simply the latest stage in a process which is demonstrably important because the greatest minds down the ages have used their knowledge of neuroscience to enhance their understanding of human behaviour. To me, it's simply not an issue. It's not a religion where you say, 'this is everything, problem solved.' We are becoming aware of one dimension after another. We're refining our own mental skills by attending to the number of layers in the complexity of our neural structures. That's really what it is and there are some outcomes which are absolutely specific where you can say 'this is happening', others where you say 'I sense that this is probably happening', but having this as a model is profoundly useful because it has a complexity and richness that great works of art have. It is unspeakably complex, and that in itself is revealed by modern neuroscience in a way that was never clear before.

M.T: John Sloboda?

J.S: Wow, this is so difficult and there is so much to say. Although a psychologist, I consider myself to be a scientist who has specialised in a certain kind of method. Science is about answering questions, usually questions with a theoretical edge to them, by the collection of systematic data. So I could actually see science as one thing, running from the archeological and historical data at one end, through the collection of behavioural data in the middle, to the collection of physical data, among them neuroscience data, at the other. I don't think one should be making any distinction between these different types of data. They are all data which can be relevant in certain situations in answering certain questions. The nub is, what kind of question? The kind of question I think science can answer, would be a question like, how do we explain the fact that there are differences in musical accomplishment and ability in the general population? What would be the right explanation for that? Science is perfect for answering those kinds of questions. But when it comes to what is the meaning of Beethoven's *Appassionata Sonata*? Science is not even the right tool to even begin to answer a question like that. I think a lot of the confusion in the room is because we've not been clear about which questions science can answer, and which questions science can't answer. Neuroimaging cannot answer any part of the second question. It can make a contribution, a small contribution in my opinion, to the first.

M.T: Thank you. Roger Scruton, would you like to side with Ray Tallis or not?

R.S: I've never disagreed deeply with Ray about anything except his atheism, which is an entirely superficial aspect of his thinking anyway. That was a brilliant rhetorical performance and I'm inclined to say at the end, yes, that's right, neuroscience is not going to tell us what we really want to know about music, and I agree with John about that, that we must make a distinction between the questions that it can and can't answer. There is, however, a tendency, which is very widespread in modern societies, to think that questions that can't be answered by science shouldn't be asked. This I think is a very poisonous thing, because it is confiscating that which is most important to us, namely our personal lives and the culture that gives sense to them. So I think one must be very careful not to use neuroscience in the context where it has nothing to say. That doesn't mean to say that one should dismiss it in a context where it has a lot to say, and it does have a lot to say about some aspects of music I suspect, but not the ones that interest me.

M.T: And Nigel, you were putting in a few chips on the positive side earlier on, would you like to have a few final comments?

N.O: We can think of the musical brain in two aspects. One is experience – how we've lived, what music we've heard, the cultures that we've been brought up in, the things we've made - which you can know nothing about...because in terms of the purest brain science and the brain's plasticity, people relocate those things in different places sometimes. You have an accident, and your brain will relocate some of the musical functions. You won't know those things, and you can only know them by getting to know a person. So part of our musicality is completely ourselves, and I do think that's the part of us that Ray and Roger are protecting, and I applaud them for protecting it.

Then, there's another part of the musical brain which is universal and belongs to everybody – our basic systems for recognising pitches, our core emotional centres, the things that make you 'BUH' jump when I do that, our acoustic startle responses, also many more sophisticated things. They're there in all of us, our universals, and are equally dignified. I think what's dignified about music is that there are things to do with us, ourselves, and there are things to do with everybody. That's what makes music powerful. I think that neuroscience is quite good at the latter. And that's why it's useful to me, because I'm working with traumatised children. I'm interested in their heart-rates, I'm interested in how they move, and neuroscience can tell me a lot about that. So I would make a defense at that level.

And finally, to come back to animal behaviour. I was very lucky as a young man to visit Niko Tinbergen on Walney Island when he was doing the earliest research on gulls, and there was a really silly question: why do gulls have an orange spot on their beaks? A whole load of science went into that, and of course fledglings peck there to tell that they want to be fed. This is a completely useless piece of knowledge, but incredibly interesting about colour, perception, motivation, response, nurturing. There are some times, which may initially seem not that significant, but can in fact tell us an awful lot about the world we live in. That's also part of the joy of being alive.

M.T: So we've heard the panel, and we now have two minutes left, let's just have a few comments.

Question: I'm going to criticise your motion in that had you said neuroscience doesn't help us to appreciate music. I would say yes, I'm totally with that, it means nothing to me when I'm appreciating music or watching it. But I'm fascinated by neuroscience. I'm a psychotherapist. And most of my colleagues aren't, and so I find that using my fascination with neuroscience to challenge them, actually really helps our understanding of our fieldwork, and here we have a conference that has been challenged by neuroscience and its ideas. Of course it's going to help our understanding, even if we reject whatever it brings - so I think it's a nonsensical motion.

M.T: Well, you may say that, but it was very carefully worded you see. I'll repeat it again, to make it clear what the motion was: 'neuroimaging is important for our *understanding* of aesthetics and our *responses* to art.' But thank you.

Ian Ritchie: Just one question, which perhaps goes back to the question of the conference, is music different from the other arts? Does your proposition give a different answer if we were to take out the word 'art' and put in the word 'music'? Would the vote still come out the same?

M.T: Well, that will have to be for another debate. I've had a fantastic day and I've learned a lot and would like to thank everyone who's come along, my colleagues here and of course the audience. I can tell that the majority of people are still here, so I hope you've really enjoyed it, and I'm just going to ask Michael Pugh to come and wrap this up finally, but I'm very thankful for everyone who's contributed to such a very interesting day.

Michael Pugh: Yes, I'm going to ask you to repeat that round of applause to give our very warmest thanks to our excellent speakers and musicians and to Michael Trimble for leading us so ably through the day. And thank you all for giving the day a great buzz. It may be that we've been present at an event that has posed more questions than it provided answers but actually I'm rather left with the feeling that the search goes on for both questions and answers on this subject. I find that all rather encouraging because it justifies all the more future Musical Brain events of this kind and branching out into other areas where the search for these questions and answers can be further pursued. I hope that you agree with me and that we will see you on many future occasions.