

# The Musical Brain

## Arts, Science & the Mind

2014 CONFERENCE

# Mozart and the Power of Music

## *Memory, Myth & Magic*



Senate House, University of London, WC1E 7HU

Friday 24th October 2014

IN PARTNERSHIP WITH



# The Musical Brain

## Arts, Science & the Mind

*Artistic Director*

IAN RITCHIE

*Musicians*

JAMES GILCHRIST tenor

ANNA TILBROOK piano

IAN BROWN piano

*Speakers*

KIRSTEEN DAVIDSON KELLY

Professor JANE GINSBORG

Dr JESSICA GRAHN

Professor DALE HESDORFFER

STEPHEN JOHNSON

NIGEL OSBORNE

Professor MICHAEL TRIMBLE

MUSIC has inspired, entertained, comforted and moved us for thousands of years. But it is only recently that science has begun to shed light on the incredible impact that music and other art forms can have on the mind, brain and body. The Musical Brain is a registered charity committed to bridging the gap between the arts and sciences by encouraging discussion between neuroscientists, artists, medical professionals and performers, sharing and debating groundbreaking research with a public audience.

Our conferences and events demonstrate the life-enhancing effects of the arts on conditions such as depression, deafness, Alzheimer's disease, epilepsy, Parkinson's, and post-traumatic stress disorder as a result of conflict, highlighting the practical implications for medical professionals, therapists and arts practitioners.

On behalf of the Institute of Musical Research, I wish to welcome you to Senate House. The Institute of Musical Research is one of ten research institutes forming part of the School of Advanced Study, University of London which receives funding from the Higher Education Funding Council of England to promote and facilitate research in the humanities throughout the UK.

The Institute of Musical Research organises lecture series, symposia and conferences in Senate House, offers financial support to academic research events across the UK, and facilitates research training for postgraduate students. Its activities cover all areas of musical research: from ancient music to contemporary music, from music philosophy to music education, from ethnomusicology to performance studies and composition.

Collaboration is at the heart of the activities of the Institute of Musical Research. The institute works closely with academic music societies, conservatoires and universities. Furthermore it has developed associations with concert halls and orchestras to bring academic research to a wider audience.

The Institute of Musical Research has developed an online presence of some 60 music films for free download including lectures, documentaries and performances. These films have attracted an international audience of over 108,000 viewers on YouTube and iTunes U.

It is a great pleasure to collaborate with The Musical Brain and explore the artistic world of Mozart from the perspective of professionals from a wide range of specialities: music, medicine, history and science. I hope that you enjoy the conference.

Dr PAUL ARCHBOLD (Director, Institute of Musical Research)

Front cover image: Louis Carmontelle,  
Wolfgang Amadeus Mozart with his  
father Leopold and his sister Marie Anne,  
watercolour and bodycolour, London,  
1777 (version of a drawing of 1764)  
© Trustees of the British Museum.

Front cover score: Mozart's Sonata for  
Two Pianos in D Major, K448



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**W**OFGANG AMADEUS MOZART was 14 years old when he visited the Sistine Chapel in Rome and heard the sublime and secret music of Allegri's *Miserere* being performed within. Later, so the story goes, he wrote out his perfect recollection of every note and handed it to a colleague while on a trip to London soon afterwards, whereupon the work was published in 1771 and the Vatican authorities were powerless to preserve the ban. For performers, the learning and memorising of music are important matters – related but different – and we will consider various strategies that can be adopted by instrumentalists and singers.

The famous anecdote about Mozart's phenomenal memory and other contemporary accounts of his musical feats as both performer and composer, endorsed by the huge and wide-ranging canon of published works which still and perhaps forever form an essential part of Western cultural life, prove that his 'musical brain' was indeed extraordinary. Nobody could deny that Mozart was a technical 'prodigy' and many would describe him as a creative 'genius'. These terms are not synonyms, however, and their relationship is just one of the subjects of today's programme.

While it is evident that music is both created and interpreted by human brains, involving activity in various cerebral regions and both hemispheres, the corollary has become increasingly understood over the past 50 years: that music has contributed to the evolution of the brain and, furthermore, can improve or even repair damage to some of its functions. The media interest surrounding the concept which was superficially labelled 20 years ago as the 'Mozart Effect' did justice neither to the original research and findings nor to the 'power' of music as a whole. We shall be reviewing some of the 'magic' and 'myths' surrounding the latter.

As in all Musical Brain conferences, our musicians will have the last word in a concert designed to reflect much of the day's discussion. We are most grateful to them, to all our speakers and to our partner, the Institute of Musical Research and its Director, Dr Paul Archbold.

**IAN RITCHIE**  
*Artistic Director*

# CONFERENCE PROGRAMME

9.30 Registration

10.00 **Introduction**

IAN RITCHIE, *Artistic Director*

10.10 **Mozart's Life and Times**

STEPHEN JOHNSON

10.30 **Mozart and Musical Memory**

Dr JESSICA GRAHN

Musicians commit amazing feats of memory on a regular basis. How do they memorize thousands upon thousands of notes, reproducing them with millisecond accuracy? We will discuss the formation of musical memory, and its neural underpinnings. The topic will include cases of exceptional memory, such as those sometimes found in savants. Savantism appears in specific cognitive areas, often music or math. Different categories of savant abilities have been noted, but many questions remain. Are their abilities innate or the result of obsessive focus? What brain mechanisms support their special skills? And, would Mozart qualify as a musical savant?

11.00 **Break**

11.15 **Memorising Music**

*Chaired by Dr JESSICA GRAHN*

KIRSTEEN DAVIDSON KELLY,  
PROFESSOR JANE GINSBORG, with IAN BROWN,  
JAMES GILCHRIST and ANNA TILBROOK

How do singers memorise and perform from memory? Why do they sometimes have lapses in memory, and how can they prevent or mitigate them? Former professional singer-turned-music psychologist **Jane Ginsborg** will address these questions, with examples from performance and research into practice, rehearsal and performance from memory. She will discuss the interaction of words and melody in singers' memorisation and recall, and compare the results of repetition with the development of mental "maps" including landmarks for retrieval.

Learning and memorising are viewed by some musicians as two separate sequential processes and by others as integrated aspects of internalisation. In practice, it is difficult to define when 'learning' ends and 'memorising' begins. **Kirsteen Davidson Kelly** has found that distinctions between the processes are often blurred. She will discuss the practical frameworks used by pianists taking the two approaches and their views on the strategies they adopted.

12.45 **The "Mozart Effect"**

Dr JESSICA GRAHN

13.00 **Lunch**

14.15 **Music, Memory and Cognition**

*Chaired by Professor MICHAEL TRIMBLE*

14.15 **PART I · Therapeutic Applications of Music in Neurological Disorders**

*Professor MICHAEL TRIMBLE with NIGEL OSBORNE*

The idea that music stimulates the brain is an old one, and the possibility of using music in neurological disorders has a history going back at least to the earlier 20th Century. In recent years the various brain circuits involved in experiencing music have been explored, leading to an understanding of the potential mechanisms for a positive therapeutic effect. In this presentation Michael Trimble will look specifically at three disorders. These are aphasia (a speech disorder following stroke), dementia, and Parkinson's disease. The results will then be compared with the use of music in other conditions such as learning disability and epilepsy.

15.00 **PART II · Brainwaves and Sonification**

*NIGEL OSBORNE with Professor MICHAEL TRIMBLE and Professor DALE HESDORFFER*

Music of many kinds can trigger a seizure in some people with epilepsy. The first known reference to this was in the 16th century, referring to seizures induced by the sound of a lyre. Although musicogenic seizures are rare, they are interesting with respect to inducing abnormal brain activity. Surprisingly, several studies in animals and humans have shown that music also decreases seizure activity. This seemingly paradoxical relationship between music and epilepsy will be discussed as an illustration of the ability of music to stimulate the brain. The possibilities of using music in the therapy of epilepsy will be explored.

15.45 **Q & A**

16.00 **Tea**

16.20 **Prodigy to Genius: Nature or Nurture?**

*STEPHEN JOHNSON with Professor JANE GINSBORG and Professor MICHAEL TRIMBLE*

For many, Mozart is the archetype of the musical child genius. But does he deserve his mythological reputation? Was he in fact a slower, later developer than is commonly believed? Were legendary achievements like his writing out Allegri's *Miserere* from memory after one hearing really so phenomenal – are they even true? And what of the claim that Mozart's notorious scatological humour represents some kind of mental disorder?

17.10–18.00 **Panel discussion:**

*all speakers, chaired by IAN RITCHIE*

Further reflections on the power of music, prodigy and memory

# THE SPEAKERS



**Stephen Johnson** studied at the Universities of Leeds under Alexander Goehr and Manchester. He has written regularly for *The Independent*, *The Guardian* and *The Scotsman*, as chief music critic, and contributes to BBC Music Magazine. He is the author of *Bruckner Remembered* and studies of composers such as Mahler and Wagner. His work for radio includes frequent broadcasts for BBC Radio 3, as presenter of *Discovering Music*, and for other stations: his radio documentary *Vaughan Williams: Valiant for Truth* won a Sony Gold Award.



**Dr Jessica Grahn** investigates how music affects our brain and our behavior. Her topics include: how music makes us move, how musical training changes brain structure, and whether music can benefit patients with neurological disorders, including patients with Parkinson's disease. Her lab is also investigating how music affects cognitive abilities, such as memory or reasoning. Dr. Grahn has degrees in Neuroscience and Piano Performance from Northwestern University, as well as a Cambridge PhD in Neuroscience of Music. She has received an award from the British Science Association among others. She also plays electric cello in a local band.



**Kirsteen Davidson Kelly** is a pianist, researcher and music educator based in South West Scotland. Kirsteen co-founded and spent 13 years with the ground-breaking ensemble Piano Circus, commissioning, performing and recording works by major composers and running an international education programme for diverse communities. She recently completed her doctorate on mental imagery rehearsal strategies for expert pianists; current projects include the two-piano duo KDKD and directing the Scottish Chamber Orchestra's outreach programme, SCO Connect.



**Professor Jane Ginsborg**'s positions at the Royal Northern College of Music include Associate Dean of Research and Director of the Centre for Music Performance. Winner of the British Voice Association's Van Lawrence Award in 2002 for her research on singers' memorizing strategies, she is Managing Editor of Music Performance Research and holds editorial positions with a number of other journals. She is President of the European Society for the Cognitive Sciences of Music, whose next conference will be held at RNCM in August 2015.



**Professor Michael Trimble** is Emeritus Professor of Behavioural Neurology at the Institute of Neurology, Queen Square. His clinical practice and research involved people with neurological and behavioural problems particularly related to movement disorders and epilepsy. He has been especially interested in our emotional responses to artistic experiences: his book *The Soul in the Brain* explores the cerebral basis of art and belief and his more recently published volume, *Why Humans Like to Cry*, discusses emotional responses to tragedy and the arts from an evolutionary and neurobiological perspective.



**Nigel Osborne**, a composer whose works are performed by leading musicians and ensembles around the world, pioneered the use of music in therapy and rehabilitation for children who are victims of conflict, in particular in the Balkans following the wars in that region during the 1990s. Until 2012, he was for many years Reid Professor of Music at the University of Edinburgh and co-director of its Institute for Music in Human and Social Development. His latest opera, *Nachiketa*, is being developed internationally by Opera Circus.



**Professor Dale Hesdorffer** is Professor of Epidemiology at the Gertrude H Sergievsky Center and Mailman School of Public Health at Columbia University. Her expertise is in the epidemiology of epilepsy. She has served on the International League Against Epilepsy and published more than 150 articles on epilepsy epidemiology. She has studied risk factors for and prognosis of epilepsy, including psychiatric comorbidity and mortality, and is exploring music as a treatment for epilepsy. She is currently collaborating with Professor Trimble on surveys of music and tears.

# CONCERT PROGRAMME

**7.30 James Gilchrist tenor  
Anna Tilbrook piano  
Ian Brown piano\***

**BACH** Concerto for Two Keyboards in C major, BWV 1061\*  
*Allegro* (1st movement)

Prodigy

**SCHUBERT** *Der Jüngling am Bache* D30  
**MOZART** *An die Freude* K53  
**MENDELSSOHN** *Pilgerspruch* Op 8 No 5  
                  *Maienlied* Op 8 No 8

## Memory

<b>SCHUBERT</b>	<i>Abschied (Schwanengesang)</i> <i>Des Fischers Liebesglück</i>
<b>BERNSTEIN</b>	<i>Plum Pudding (La bonne cuisine)</i>
<b>FINZI</b>	<i>The Comet at Yellam (A young Man's Exhortation)</i>
<b>RAVEL</b>	<i>Le Paon (Histoires Naturelles)</i>
<b>MOZART</b>	<i>Abendempfindung</i>

## The ‘Mozart Effect’

**MOZART**      Sonata for Two Pianos in D major, K448\*  
*Allegro con spirto – Andante – Allegro molto*

This programme reflects on the presentations and discussions taking place throughout the day. The first set of songs demonstrate the prodigious creative gifts of Mozart when he was eleven years old and both Schubert and Mendelssohn when they were teenagers. The second set compares and contrasts a range of different songs and the degrees of difficulty in memorising them: Schubert's *Abschied* illustrates the problems of strophic songs with no storyline, whilst *Des Fischers Liebesglück* is also strophic but has a storyline like a ballad and therefore is easier to recall; Bernstein's *Plum Pudding* is described by James Gilchrist as "a total nightmare to remember" and Finzi's *The Comet at Yellam* has no bar-lines for helping the singer to learn and navigate the work; Ravel's *Le Paon* tells a dramatic story with little repetition, but the problems are in remembering the musical notes and rhythms – and the words help.

The closing work is the great *Sonata for Two Pianos*, which was singled out to demonstrate music's power to move and improve the human condition – the 'Mozart Effect'. The undeniable benefits that music can bring, however, are not confined to this or other fruits of Mozart's creativity: therefore the concert begins with Bach, some of whose music has also demonstrably transformed the workings of the human brain and body.

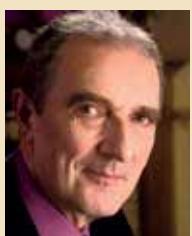
# THE MUSICIANS



**James Gilchrist** tenor began his working life as a doctor, but since 1996 has enjoyed a busy international career working with major conductors and orchestras including the Concertgebouw, Tonhalle, San Francisco and Detroit Symphony Orchestras, Sir John Eliot Gardiner and Sir Andrew Davis. He enjoys prolific recital partnerships with accompanists Anna Tilbrook, Julius Drake and harpist Alison Nicholls. Forthcoming engagements include *Messiah* with the SCO conducted by Richard Egarr, and *Hercules* with the English Concert at Théâtre des Champs Elysées, Theater an der Wien, Birmingham Town Hall and the Barbican Centre, London.



**Anna Tilbrook** piano performs regularly in major venues at home and abroad. She collaborates with leading singers and instrumentalists, including James Gilchrist, Lucy Crowe, Willard White, Mark Padmore, Stephan Loges, Christopher Maltman, Ian Bostridge, Barbara Bonney, Christine Rice, Iestyn Davies, Natalie Clein, Nicholas Daniel, Adrian Brendel and the Fitzwilliam, Elias and Sacconi string quartets. With the distinguished tenor James Gilchrist she has made acclaimed recordings of 20th-century English song and the song-cycles of Schubert and Beethoven.



**Ian Brown** piano has a versatile career in chamber music, solo playing and conducting. He has partnered many distinguished soloists, among them Rostropovich, Szeryng, Galway, Vengerov and Dame Felicity Lott. During a long association with the Nash Ensemble he has performed an exceptionally large chamber music repertoire. As soloist he has played with major orchestras and at the BBC Proms. He works regularly as conductor and pianist with the Stuttgart Chamber Orchestra and recently directed a series of concerts with the Philharmonia Orchestra.



**Ian Ritchie**, Artistic Director of The Musical Brain, is an interdisciplinary curator and festival director. Following vocal and academic studies at the Royal College of Music, Trinity College, Cambridge, and the Guildhall School of Music & Drama, he has led a number of performing arts companies over many years, including Scottish Chamber Orchestra, Opera North, St Magnus Festival and City of London Festival. In 2011 he set up the Setúbal Music Festival (Portugal), of which he is Artistic Director, and currently chairs the UK board of Musicians without Borders, which uses music to rebuild communities divided by conflict, and is an Associate Fellow of the Institute of Musical Research.



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# The Musical Brain

## Arts, Science & the Mind

### Looking forward

These are still early days for The Musical Brain, a young organisation with five annual Conferences under its belt. The range of topics which we have so far covered in these programmes and plan to explore in the future has alternated between ideas that resonate with the music and the minds of particular great artists from the past – all composers, to date – and subjects that are more generic. There are three common factors in all our events: multi-disciplinary programming, bringing together leading experts from different fields; accessible communication of fascinating but often complex ideas; and musical performances of the highest calibre to illuminate and conclude each day's discussions.

The Musical Brain is regularly invited by organisations as a partner and contributor to events which can be enhanced by combining music with medical, scientific, philosophical or historical subject matter. These might take the form of study days, of seminars (sometimes drawing upon the highlights of our annual conferences) or, most simply, of 'talking programme notes' that introduce carefully curated concerts with words of wisdom from a multi-disciplinary panel of experts.

Fortunately some people travel considerable distances to attend our London-based conferences, but we know that there are many music-lovers with wide-ranging curiosity who are interested but cannot easily attend. Therefore our teams welcome invitations to tour and to play an increasing number of away matches!

We are developing plans for our next two annual Conferences. In 2015 we intend to address the vital question of *Why do we Sing?* In 2016 great composers will give way to Shakespeare – and the importance of music to his creative mind – as the focus of The Musical Brain.

[www.themusicalbrain.org](http://www.themusicalbrain.org)

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Trustees: Michael Pugh, *Chairman*; Hilary Bartlett MBE, *Secretary*;

Professor John Cox; Ian Ritchie, *Artistic Director*;

Professor Michael Trimble; Marina Vaizey CBE.

Contact: Hilary Bartlett, 32a Halford Road, Richmond TW10 6AP

T 0208 404 1327 E [hilary@themusicalbrain.org](mailto:hilary@themusicalbrain.org)

Chairman: Michael Pugh: [pughmj@btinternet.com](mailto:pughmj@btinternet.com)

Administrator: Greg Harradine

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