Hallucinations of musical notation

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Professor of neurology, physician, and author Oliver Sacks M.D. has outlined case studies of hallucinations of musical notation, and commented on the neural basis of such hallucinations, in a new paper for the neurology journal *Brain*.

In this paper, Dr Sacks is building on work done by Dominic ffytche et al in 2000, which delineates more than a dozen types of hallucinations, particularly in relation to people with Charles Bonnet syndrome (a condition that causes patients with visual loss to have complex visual hallucinations). While ffytche believes that hallucinations of musical notation are rarer than some other types of visual hallucination, Sacks says that his own experience is different.

"Perhaps because I have investigated various musical syndromes," writes Dr Sacks, "and people often write to me about these… I have seen or corresponded with a dozen or more people whose hallucinations include – and sometimes consist exclusively of – musical notation."

Sacks goes on to detail eight fascinating case studies of people who have reported experiencing hallucinations of musical notation, including:

- A 77 year old woman with glaucoma who wrote of her "musical eyes". She saw "music, lines, spaces, notes, clefs – in fact written music on everything [she] looked at."
- A surgeon and pianist suffering from macular degeneration, who saw unreadable and unplayable music on a white background.

- A Sanskrit scholar who developed Parkinson's disease in his 60s and later reported hallucinating ornately-written music, occurring with a Sanskrit script. "Despite the exotic nature of the script the result is still western music," he said.
- A woman who reported seeing musical notation on her ceiling upon waking in the morning.
- A woman who said she wasn't a musician, but would hallucinate when she had high fevers as a child. She said that the notes were "angry, and [she] felt unease. The lines and notes were out of control and at times in a ball."

It is striking that, of Dr Sacks' eight case studies, seven were gifted musicians. Sacks comments, "This is perhaps a coincidence, but it makes one wonder whether there is something about musical scores that is radically different from verbal texts." Musical scores are far more visually complex than standard (English) text, with not just a variety of notes, but also many symbols that indicate how the notes should be played.

Dr Sacks also says that he has a mild form of Charles Bonnet syndrome himself, in which he sees a variety of simple forms whenever he gazes at a blank surface. "When I recently returned to playing the piano and to studying scores minutely, I began to 'see' showers of flat signs along with the letters and runes on blank surfaces."

Another striking feature of these hallucinations is that – like text hallucinations – they are generally unreadable. They can seem playable at first, but on closer inspection it transpires that the music is often nonsensical or impossible to play, such as an example reported in one of the case studies: a melody line three or more octaves above middle C, and so may have half a dozen or more ledger lines above the treble staff.

Usually, the early visual system analyses forms and sends the

information it has extracted to higher areas, where it gains coherence and meaning. Normally, in the act of perception, the entire visual system is engaged. Paradoxically, according to Sacks, "one may have to study disorders of the visual system to see how complex perceptual and cognitive processes are analysed and delegated to different levels… and hallucinations of musical notation can provide a very rich field of study here."

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