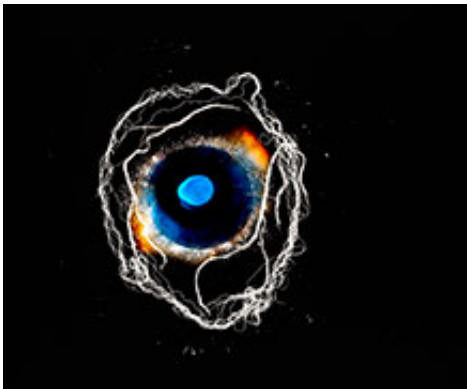


Can't count sheep? You could have aphantasia

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Heartbeat 1, Susan Aldworth, 2010. Credit: Courtesy of the artist and GV Art gallery, London

If counting sheep is an abstract concept, or you are unable to visualise the faces of loved ones, you could have aphantasia – a newly defined condition to describe people who are born without a "mind's eye".

Some people report a significant impact on their lives from being unable to visualise memories of their partners, or departed [relatives](#). Others say that descriptive writing is meaningless to them, and careers such as architecture or design are closed to them, as they would not be able to visualise an end product.

Cognitive [neurologist](#) Professor Adam Zeman, at the University of Exeter Medical School, has revisited the concept of people who cannot

visualise, which was first identified by Sir Francis Galton in 1880. A 20th century survey suggested that this may be true of 2.5% of the population – yet until now, this phenomenon has remained largely unexplored.

Visualisation is the result of activity in a network of regions widely distributed across the brain, working together to enable us to generate images on the basis of our memory of how things look. These regions include areas in the frontal and parietal lobes, which 'organise' the process of visualisation, together with areas in the temporal and occipital lobes, which represent the items we wish to call to the mind's eye, and give visualisation its 'visual' feel. An inability to visualise could result from an alteration of function at several points in this network. This problem has been described previously following major brain damage and in the context of mood disorder. Now, Professor Zeman and his team are conducting further studies to find out more about why some people are born with poor or diminished visual imagery ability.

The recent research came about by serendipity. The American science journalist, Carl Zimmer, wrote an article in *Discover* magazine about a previous paper by Professor Zeman reporting a man who lost his mind's eye in his sixties following a cardiac procedure. Professor Zeman was then contacted by 21 individuals who recognised their own experience in the *Discover* article, but had never been able to imagine. Professor Zeman and colleagues describe these patients' experience in a paper just published in the journal *Cortex*.

Dame Gill Morgan, from Devon in South West England, made contact with Professor Zeman as a result of this coverage. The Chair of NHS Providers first realised that her ability to conjure a mental picture differed from her peers during management training in her 20s. She said: "We were told to 'visualise a sunrise', and I thought 'what on Earth does that look like' – I couldn't picture it at all. I could describe it – I could tell you that the sun comes up over the horizon and the sky changes

colour as it gets lighter, but I can't actually see that image in my mind."

Dame Gill has a successful career and does not feel hindered by her lack of a "mind's eye". But she said: "I became more aware of it when my mum died, as I can't remember her face. I now realise that others can conjure up a picture of someone they love, and that did make me feel sad, although of course I remember her in other ways. I can describe the way she stood on the stairs for a photo for example, I just can't see it."

Dame Gill believes her excellent memory may have developed in part to compensate for her lack of visual imagination. "If I have to recount something that's absent, I have to reconstruct it from the facts I know about it, rather than view it in my mind."

Niel Kenmuir, 39, from Lancaster in the UK, first realised he could not visualise images at primary school. "I can remember not understanding what 'counting sheep' entailed when I couldn't sleep. I assumed they meant it in a figurative sense. When I tried it myself, I found myself turning my head to watch invisible sheep fly by. I've spent years looking online for information about my condition, and finding nothing. I'm very happy that it is now being researched and defined."

Niel works in a bookshop and is an avid reader, but avoids books with vivid landscape descriptions as they bring nothing to mind for him. "I just find myself going through the motion of reading the words without any image coming to mind," he said. "I usually have to go back and read a passage about a visual description several times – it's almost meaningless."

Niel studied philosophy, which is rich in visual imagery, but this aspect was lost on him. The way he explains it, though, he does understand the mechanics behind it. He said: "The mind's eye is a canvas, and the neurones work together to project onto it. The neurones are all working

fine, but I don't have the canvas".

Asked if it had impacted on his life, he said: "I have never been ambitious, and wondered if an inability to 'imagine myself in a place ten years from now' as a concrete image has affected this. I also find it difficult to jump from abstract thought to concrete examples, although I think a positive consequence is that I am perhaps better at thinking abstractly than many other people."

Professor Zeman said: "This intriguing variation in human experience has received little attention. Our participants mostly have some first-hand knowledge of imagery through their dreams: our study revealed an interesting dissociation between voluntary imagery, which is absent or much reduced in these individuals, and involuntary imagery, for example in dreams, which is usually preserved."

More information: "Lives without imagery – Congenital aphantasia," *Cortex*, Available online 3 June 2015, ISSN 0010-9452, [dx.doi.org/10.1016/j.cortex.2015.05.019](https://doi.org/10.1016/j.cortex.2015.05.019)

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