



'The way colour works, and how colours change when they're next to others, is something artists have understood for centuries. Neuroscience only worked it out in the last 40 years'

Cosima Gretton

BY CHRIS HATHERILL PHOTOGRAPHY NINA MANDAHAR

26-year-old medical student and curator Cosima Gretton is founder of the AXNS Collective, a group exploring the intersection of art and neuroscience. She's fascinated by what art can reveal about neurological processes, and how changes in the brain can influence creativity.

What can art teach us about the brain?

Our first show, *Affecting Perception*, explored how changes to the brain can affect an artist's work and what you can learn about the production of art and creativity within the brain from looking at that work. You can also learn a lot about the experience of different conditions.

You've worked with artists with very rare, but fascinating, conditions.

Cecil Riley is a good example. He's been an artist all his life – he's over 90 now. He developed

macular degeneration – age-related loss of central vision – and started having complex hallucinations in his blind patches, which he began to paint. It's called Charles Bonnet syndrome. It's not strictly a neurological disorder but it's interesting how the brain 'fills in' the gaps.

Can you study art in a scientific way?

One of the things I'm interested in is the difference between the production and the perception of art. That often gets muddled up but I think we need to look at them separately. The production of art is a little easier to break down because you've got a few clearer stages, like generating ideas or visual processing. A lot of the time scientists look at it from a purely aesthetic point of view. They don't appreciate the cognitive aspect of a piece of art. They get stuck on landscape paintings and how you might think that was beautiful. There's

so much more to it and so many different levels to appreciate it on.

Does art have anything to teach science?

I think we can learn a lot from different movements in art. The way colour works, and how colours change when they're next to others, is something artists have understood for centuries. Neuroscience only worked it out in the last 40 years. The Cubists, for example, take one object and paint it from different viewpoints in one flat plane. That's similar to the idea of object invariance – the way the brain processes images. When you look at an object the brain knows it has many different viewpoints. A cup viewed side-on looks very different to a cup viewed from underneath, but somehow the brain knows it's the same. The Cubists were breaking this down artistically.

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