

publications in peer-reviewed scientific journals including review articles with eminent neuroscientists Professor's Helen Mayberg and Karl Friston. He has presented his data at several international conferences and has appeared on BBC News. **Abstract** Psychedelic ('psyche'=soul/mind and 'delos'=to make visible or clear) drugs have been used for centuries in mystical ceremonies. In the 1950/60s they were used widely in psychotherapy, under the premise that they lower psychological defences and facilitate psychological insight. Since the 1950s, the psychedelic state has been considered a model of psychosis. Today, all of these properties of psychedelics are researched: a single high-dose of psilocybin (magic mushrooms) has been found to produce profound, personality-changing spiritual-type experiences in healthy participants<sup>1, 2</sup>, psilocybin has been found to be effective in psychotherapy for end-of-life anxiety<sup>3</sup> and the pharmacological pathways through which psychedelic effects are elicited (i.e. stimulation of the serotonin 2A receptor) continue to be linked with psychosis<sup>4</sup>. These variegated properties do not seem entirely consistent with one another – e.g. how can the same drug be both psychotomimetic and therapeutically useful? This presentation will attempt to resolve this apparent paradox. Evidence will be cited to support the hypothesis that the prodromal phase of first-episode psychosis, spontaneously occurring spiritual experiences and the psychedelic drug state rest on the same neurobiological state – hereafter referred to as the primitive state. This state is described psychologically as evolutionarily regressive, i.e. it is a state the mind and brain falls back to under certain conditions. This evolutionarily primitive state is characterised by magical thinking: i.e. fallacious thinking in which reality-testing is disavowed and thoughts are easily biased by wishes and anxieties. In the spiritual experience it is wishful fantasies that predominate (although not entirely) and in psychosis, it is paranoid thinking. In the psychedelic state, both wishful and paranoid thinking are common and the valence of the experience is highly sensitive to the environment in which it unfolds. That this state is so sensitive to environmental perturbation has important implications for both psychotherapy with psychedelics and treatment approaches for patients exhibiting signs of psychosis-risk – as it emphasises the importance of shepherding the experience in a positive direction. Underneath its sensitivity to suggestion however, is a more fundamental property of the primitive state: that the perception of difference or separateness breaks down. Evidence from functional brain imaging of a decrease in the orthogonality of different brain states in psychosis, the psychedelic-state and the meditative state is presented – and used to support the hypothesis that there is a breakdown of 'multiplicity' in the primitive state which lies at the base of descriptions of 'union' or 'oneness'<sup>5</sup>.

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doi:10.1136/jnnp-2013-306103.17

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After completing an undergraduate degree in Psychology in 2003, Robin studied psychoanalysis at Masters level, receiving his MA in 2004. In 2005, Robin began a four year PhD in Psychopharmacology at the University of Bristol. Working for Professor David Nutt and Dr Sue Wilson, Robin's thesis focused on sleep and serotonin function in ecstasy users. Robin conducted a clinical study involving sleep electroencephalography (EEG) and tryptophan depletion.

In 2009, working closely with the Beckley Foundation, he successfully coordinated the first clinical study of psilocybin in the UK and the first clinical study of a classic psychedelic drug in the UK for over 40 years. Also in 2009, Robin moved to Imperial College London to continue his work under the supervision of Professor David Nutt. With the collaboration of Professor Richard Wise at Cardiff University, Robin has since coordinated the first resting state fMRI investigation of a classic psychedelic drug and the first fMRI and PET investigations of psilocybin and MDMA. Robin is first author on a number of

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