

# **Psychdelic Research at the Frontiers of Prohibition: Moving Forwards**

## **Investigación Psicodélica en las Fronteras de la Prohibición**

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### **Abstract**

In this paper I am going to share some reflections on the fields of psychdelic research and drug policy reform, and my involvement in these areas in the last decades. Among other themes, I will describe the changes produced in drug policy reform and psychdelic research in the last few years; the historical value and role of psychdelics on different transformational rituals throughout history; the roots of my lifetime interest in the physiological mechanisms underlying altered states of consciousness and the ego and the set up of the Beckley Foundation in 1998, with two main aims: to investigate consciousness and its changing states, and to reform global drug policy. I will also describe some of the findings of the Beckley/Imperial College Psychdelic Research Programme, and the current projects in which the Beckley Foundation is currently involved.

**Keywords:** psychdelic research, LSD, psilocybin, consciousness, brain imaging.

### **Resumen**

En este artículo compartiré algunas reflexiones en los campos de la investigación con psicodélicos y la reforma de la política de drogas, y mi participación en estas áreas a lo largo de las últimas décadas. Entre otros temas, describiré brevemente los cambios producidos en la reforma de las políticas de drogas y la investigación con psicodélicos en los últimos años; el valor histórico y el rol de los psicodélicos en diferentes rituales de transformación a lo largo de la historia; los orígenes de mi interés de por vida en los mecanismos fisiológicos subyacentes a los estados alterados de conciencia y el ego, y la creación de la Fundación Beckley en 1998, con dos objetivos principales: para investigar la conciencia y los estados alterados de conciencia, y para reformar las políticas de drogas a nivel global. Describiré también algunos de los resultados del Programa de Investigación con Psicodélicos que están realizando la Fundación Beckley y el Imperial College de Londres, y los proyectos actuales en los que la Fundación Beckley esta involucrada.

**Palabras clave:** investigación con psicodélicos, LSD, psilocibina, conciencia, neuroimagen.

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In the last few years, the landscape has changed beyond recognition in both global drug policy reform and psychedelic science. Society seems to be entering a new, more balanced understanding of psychoactive substances and their possible role in medicine. Finally, psychedelics are a subject that can be discussed and even researched, and cannabis is slowly moving toward a regulated market in certain parts of the world - most notably the United States. Our long work, chipping at the rock face of the taboo, seems to be finally breaking through.

However, although there are many promising developments, the extent of the research is still very small, and the obstacles put in its way are immense. These include the problem of getting ethical approvals, the problem of obtaining the materials, which can cause years of delays and vastly inflate the costs, the problem of storage, and the problem of finding funding, among others.

It is an amazing indictment of human society that these naturally occurring substances that have played such a vital role in the cultural evolution of *Homo sapiens* -- aiding our development of language, spirituality, music, art and medicine -- became taboo. They have always been shrouded in mystery, but it is interesting how they became toxic in the mind of society - moving from being known as the food of the gods, the vine of the soul, the sacred leaf, to substances of damnation and criminalization.

It is a sad reflection on modern society that these compounds that formed the psychoactive essence of transformational rituals throughout history -- from the prehistoric caves, to the soma drunk by Shiva, the elixir of Eleusis and the brew of the Amazonian jungle -- should now be designated, by our highest authorities, the United Nations, as a Schedule 1 substance, i.e. highly dangerous, and with no medical benefit whatsoever. These substances are as tightly controlled as nuclear weapons, with trillions of dollars spent on trying to eradicate them from the face of the earth. Quite obviously an impossible task. So why try, one might well ask?

Interestingly, our latest research at the Beckley/Imperial Psychedelic Research Programme throws new light on this perplexing enigma (Carhart-Harris et al, 2014b; Lebedev et al, 2015). Our research shows that under the effect of psychedelics, there are changes in the brain that include a reduction in blood supply to the controlling repressive network of the brain, the so-called 'default mode network'- which is a modern, neuroscientific terminology for what Freud called

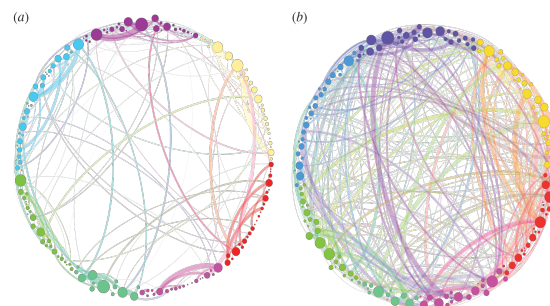
the 'ego'. By reducing its blood supply, its activity is reduced – censorship and tight control diminish, and a more open, primal state of consciousness takes over (Carhart-Harris et al, 2014b).

But there are also advantages to the disintegration of tight control: there is more contact and interaction *between* the different parts of the brain. Different networks, which normally have high integration within themselves but little communication between each other, start communicating; this explains the dissolving of the normal ego into a state which is looser and less controlled. A state more conducive to creative thought and problem solving, to the mystical experiences of unification, and to being able to reach and clear out repressed trauma.

By uncovering the mechanisms underlying the actions of these strange compounds that interact so intimately with the human body, we can learn much about why they can be such valuable tools in the healing of many of our most intractable diseases, such as depression and addiction. They interact with our neurotransmitter systems and bring about changes in consciousness, such as unblocking set patterns of negative or self-destructive thought – washing out long-embedded repressed trauma.

By combining the new science of brain imaging with psychedelics, which perturb the functioning of the brain to bring about changes in awareness, we have the luxury of correlating what a person is experiencing subjectively with the changes in blood supply and functional connectivity within the brain – an amazing new window of opportunity, similar in importance to the discovery of the telescope or the microscope (see figure 1).

**Figure 1.** This simplified visualisation of connectivity between functional areas and networks in the brain under the influence of psilocybin shows how the psychedelic state is associated with a less constrained mode of brain function.



Adapted from Petri et al. (2014). Homological scaffolds of brain functional networks. *J. R. Soc. Interface*, 11 (101).

The value of psychedelics is that they bring about states of consciousness different from daily consciousness. Before their use in research, normal daily consciousness would be compared with sleep or psychosis, and more recently, with meditation. Now, with psychedelics, the field of research has opened up to a much wider spectrum of conscious states.

A well-directed neuroscientific study can provide invaluable information about how a psychedelic substance changes brain function, and how this may be harnessed to treat disease and enhance health, well-being, and creativity. Brain-imaging studies are an ideal complement to clinical trials. They provide new discoveries to drive medical advances, as well as new explanations that give medical research a powerful neuroscientific underpinning.

To backtrack a bit in my personal life, in 1966 I had become passionately interested in the physiological mechanisms underlying altered states of consciousness and the ego. I had met a Dutch scientist of exceptional insight, Bart Huges, who had developed two new hypotheses: one concerning the irrigation of the brain, and the changes in blood supply to the brain underlying altered states of consciousness; and the second describing the physiological basis of the 'ego' as a conditioned reflex mechanism, based on word recognition, which directs blood to those brain centers most essential for survival, while repressing blood flow to other parts of the brain. This was the first time that a mechanistic explanation of the 'ego' had been given.

It also provided the first explanation of how brain functioning can be altered by such practices as yogic deep breathing and the ingestion of psychoactive substances, to name but two. The underlying theory is that these techniques bring about a change in blood supply to the brain, loosening the repressive control of the ego-mechanism over consciousness.

With an understanding of these mechanisms I found I could take control of the changing state of consciousness brought about by LSD - with a moderate dose, together with vitamin C and glucose (to maintain blood sugar levels), I could keep my mental concentration for creative thought and disciplined work. Higher doses would enable more mystical and psychological exploration. The expansion of awareness added sparkle to perception, allowing me to think deeper, see further, and feel more sensitively - a whole new world opened up. I was so inspired by this new knowledge that I decided to devote my life to researching and communicating it. In the

enthusiasm of the 1960s, we thought societal change was just around the corner.

This came to an abrupt end when the Establishment panicked, terrified at the new freedoms of the youth. The prison doors of Prohibition slammed shut. Scientific research came to an end, and prisons began to fill.

The new explanation of the ego, as a conditioned reflex mechanism superimposed over the rest of the brain, could not in those days be tested empirically. However, with the development of more advanced brain-imaging technologies, and particularly fMRI in the early 1990s, it became possible to observe the changes in blood supply and brain function, correlated with subjective experience, during both normal and altered states of consciousness.

In 1998 I set up the Beckley Foundation with two main aims: firstly, to investigate consciousness and its changing states, and secondly, to reform global drug policy. I invited some of the world's leading scientists - including Albert Hofmann, Alexander Shulgin, Colin Blakemore, Dave Nutt, Les Iversen, and Dave Nichols, among others - to form a Scientific Advisory Board. I realised that policy and science are intimately interrelated, and that it was essential to change policy in order to move the science forward. Now the positive results from the scientific research will, hopefully, begin to move the policy forward. They work in synergy. I also realised the enormous value of the very best science in breaking the taboo on these substances.

I won't spend time detailing 17 years of policy struggles, but after 50 devastating years of prohibition, the cracks in the edifice are beginning to show. When I founded the Beckley Foundation, all 'drugs' were inherently evil, destructive, and antisocial. People who used them were criminals, misfits, and unproductive members of society. There was no word for 'use', only 'misuse' or 'abuse'. No acknowledgement or research of their possible benefits. They are still in Schedule 1, and Theresa May, our Home Secretary in the UK, is currently planning a Bill to ban all psychoactive substances, other than those approved by the government (which include alcohol and tobacco - counted among the most harmful substances to self and society). As a minimal reform, psychedelics should be re-designated to Schedule 2, to facilitate research and to permit doctors to prescribe them.

Although changes on the ground are rare, I think the intellectual battle against the *War on Drugs* has largely been won. In the last few years the balance has changed, the hegemony of the United States has diminished, and Latin America

has gained strength. Presidents in the region, such as Pérez Molina in Guatemala, Santos in Colombia, and Mujica in Uruguay, have called for policy reform. Even President Obama has endorsed the need to explore alternatives.

Within the citadel of prohibition itself - the United States - over 50% of the population now live in a State which has embraced new approaches to cannabis. Beyond the U.S., countries such as Guatemala, Colombia, Uruguay, Czech Republic, Portugal, Spain, and now Jamaica are exploring a range of alternative policies to regulate cannabis. An additional factor is that the U.S. no longer needs the War on Drugs to enter the countries it wants to; it now has the 'War on Terror'.

Reforming Policy has always been my duty. My passion is the science. Surely, the best game in town is to better understand our consciousness and how to enhance its functioning. In the Beckley Scientific Programme, perhaps one of my greatest triumphs was in 2005 persuading David Nutt that we should set up a collaboration to research the psychedelics. This gave birth to the current Beckley / Imperial Psychedelic Research Programme. I am delighted to be working with two such great scientists, David Nutt, my co-director, and Robin Carhart-Harris, our lead investigator, and now an expanding team (Carhart-Harris et al 2011, 2012a, 2012b 2013a, 2013b, 2014a, 2014b, 2014c; Kaelen et al, 2015; Levedeb et al, 2015; Morgan, Noronha, Muetzelfeldt, Fielding, & Curran, 2013; Muthukumaraswamy et al, 2013; Roseman, Leech, Feilding, Nutt, & Carhart-Harris, 2014).

To date we have had a very productive partnership, and we finally have just completed our first LSD research, which I have wanted to do ever since I experienced its immense potential in the 1960s (Carhart-Harris et al 2014a; Kaelen et al, 2015). We are also midway with our groundbreaking pilot study investigating the use of psilocybin in the treatment of depression.

The studies so far are only opening the door. The future holds much to look forward to. It is fascinating to compare and contrast the underlying actions of the different compounds: psilocybin, LSD, cannabis, ayahuasca, DMT, and MDMA, among others. These explorations throw new light on their amazing effects and teach us more about their potential benefits. Some of the other exciting projects that I am currently involved in include:

- A series of studies in collaboration with Jordi Riba in Barcelona, investigating ayahuasca and DMT.
- A study with Val Curran at UCL, investigating the different effects of cannabis with and without cannabidiol (CBD).
- A study with John Bisson and Ben Sessa at Cardiff, investigating the effects of MDMA in war veterans suffering post-traumatic stress disorder.
- With Yuri Moskalenko, in St. Petersburg, continuing our many years of collaboration investigating changes in cerebral circulation and age-related diseases, plus developing the cranial compliance monitor, and researching the effects of trepanation.
- A follow-up study of the amazingly successful pilot study at Johns Hopkins with Roland Griffiths, using psilocybin as an aid to psychotherapy in the treatment of nicotine addiction.
- With Michael Bogenschutz, at NYU, we are in the process of developing a study using LSD in overcoming alcohol addiction.

How lucky we are to be in such a rich orchard, with so much lower hanging fruit that can bring about so much change.

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