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75 YEARS
LSD WHERE DOES THE TRIP LEAD?
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FROM PROBLEM CHILD TO WONDER CHILD:
AN EVOLVING STORY...
BY
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Hello everyone. I wish I could be with you today.

What a wonderful day to celebrate: the 75th anniversary of Albert's amazing discovery. It has brought insight and happiness to millions of people around the world, and its magic is only just beginning to be felt again. A new Eleusis is arising over the horizon. How lucky we are that such a wonderful man as Albert Hofmann discovered LSD. A great alchemist and mystic. He gave us a tool to transform ourselves.

LSD and psilocybin are wondrous, non-specific medications of the future. They hail a revolution in psychiatry. They can not only potentially treat a wide range of physical disorders, but also facilitate transformation and inspiration that can leave an indelible mark. What amazing compounds! - the food of the gods indeed! They interact with the human brain in a way that fundamentally alters our mood, perceptions and abilities.

Our ancient ancestors recognised the power of these compounds and used them to facilitate culture, create art and music, spirituality and language. We instead have criminalised them, sad, mistaken creatures that we are. Hopefully, we are slowly, through the modern religion of science, regaining our contact with them. Our work is finally coming out of the shadows, and gaining widespread recognition which, in time, will make research easier, and most importantly, contribute to the *rescheduling* of these compounds – cannabis, the psychedelics and MDMA – from Schedule I to Schedule II, so that doctors will be able to prescribe them, and clinics, and retreats, provide them.

When I met Albert, I thought he was the happiest man I had ever met, and I can see why. It must be truly joyful to know that you have given such a wonderful gift to humanity.

I first met him in the 1990s at a conference in Amsterdam, Conscious Dreams. I asked him if he'd ever thought that LSD might increase the overall capillary volume of blood in the brain. He answered in his humble way, that he was 'just a little Swiss chemist, not a physiologist', but that he and Anita hung from their feet every day 'to get more blood in their brain'.

My passionate interest in LSD had begun nearly 30 years earlier when I was first introduced to it in 1965. In 1966 I met and started working with an outstanding natural scientist, Bart Huges, who had developed two important new hypotheses about the mechanisms underlying consciousness and its changing states. One was about proposing that the *level of consciousness* is dependent on the *volume of blood in the brain capillaries*, and the other described the 'ego' as a *conditioned reflex mechanism*, which controls the distribution of blood in the brain, and thereby controls what enters consciousness and what does not.

These hypotheses changed my life for the better, and for the next 30 years, or so, I worked with Bart Huges and Joey Mellen exploring consciousness, and developing our understanding of the mechanisms underlying its changing states, and how one can use this knowledge to become a *wiser* animal, and to work at a higher level. Our passion was exploring how LSD could improve cognitive functioning, as well as reaching the hidden depths of the psyche.

Over many years we lived on LSD, and studied psychology, physiology and the science of consciousness – psychoanalysing ourselves. For relaxation in the evenings we played endless games of Go, an ancient Chinese game, which has more possible permutations than the number of atoms in the universe squared, and then squared again. I found that Go provided a perfect test for exploring cognitive functioning, including intuitive pattern recognition, a basic element of creativity.

It was many years later that, with Ann and Sasha Shulgin, we visited Albert and Anita at their beautiful mountain retreat. I had the great honour of his beloved cat Amadea, who as Albert said *never liked* strangers, immediately jumping on my lap and purring all over me. I presume the fact that I was on a microdose made him recognise me more as an equal! 'Anita, look at this!' Albert kept repeating. Following this encounter, Albert and I started a most lovely friendship, and he told me I was welcome to come and stay at their beautiful house whenever I liked. Amazingly, although he was in his late 90s my work with the Beckley Foundation was so pressing I stupidly always put the visit off...something I greatly regret.

I told him that since 1966 I had dedicated my life to gaining a better understanding of how LSD works, so we could better harness its powers to improve the human condition. I promised that for his 100th birthday I would obtain the first official permissions to carry out scientific research with LSD, thereby breaking the spell which had excluded his 'wonderchild' from its natural role, as an invaluable tool for neuroscience and psychotherapy.

We obtained the approvals by his 101st birthday, but sadly, I underestimated the Taboo, and the research was never completed. Indeed, it took me almost another *decade* before finally we undertook the first brain-imaging study of LSD in human subjects, as part of the *Beckley/Imperial Research Programme*. In 2005 I had persuaded Dave Nutt to collaborate with me, on setting up a research programme into psychedelics, but it took us 10 years before we had climbed our way through cannabis and psilocybin, and finally felt confident that we would get ethical approvals for LSD. By this time Robin Carhart-Harris had joined us, and together we carried out the research, and later presented the findings at the Royal Society in London. I thought it was an appropriate place to launch Albert's great discovery.

Our brain imaging studies of both psilocybin and LSD significantly deepened our understanding of the mechanisms underlying consciousness and its altered states. Using fMRI and MEG we saw, to our surprise, that one of the most notable changes was a *decrease* of blood in the Default Mode Network (DMN). The DMN is a high-level network in the brain consisting of hubs that are highly connected to other areas of the brain. It has a very *high* metabolic activity, which means it receives a large volume of blood and consumes more energy than any other areas of the brain. This network is mostly active during rest and is associated with self-referential thought. Also, it has been shown that this network is *overactive* in psychologically-based illnesses, such as depression, addiction and anxiety. Using fMRI, it has been shown that the *integrity* within the DMN is *decreased* during the psychedelic state.

This *disintegration* of the DMN can *reset* the brain, and be part of the mechanism underlying the therapeutic effects experienced by the patient. Also, the **decrease** in **ensorship** exerted by the DMN over the rest of the brain, allows for a great increase in global functional connectivity, which correlates with the sense of 'ego loss'. Psychedelics, thus, can provoke a state of '*ego-dissolution*' – meaning lowering of boundaries between the self and the external world, feelings of unity with the outside world, yourself and others.

This psychological phenomenon is highly correlated with the 'mystical-state', or 'peak experience', which has been shown to mediate long-term improvements in mental health. They also cause increases in such personality traits as 'openness' and 'mindfulness'. We found that these mystical-type experiences could predict the

efficacy of treatment in our psilocybin study for treatment-resistant depression, which we published in 2016.

Another important aspect of the psychedelic experience is to have the right set and setting, such as music. It was found that listening to music influenced the psychedelic experience positively, by providing a sense of guidance and safety. Participants' experience of music correlated with mystical-type experiences and ratings of insightfulness. Participants' emotional response to the music was enhanced by LSD, especially feelings of 'wonder', 'transcendence', 'power', and 'tenderness'. The parahippocampal cortex, an area functionally connected to the DMN, seems to be important in the interaction between music and psychedelics.

One of the most exciting findings in our LSD study, published in 2016, was that with the reduction of the repressive control of the DMN there is a *dramatic* increase in **connectivity** between the whole brain. In this particular picture the visual part of the brain has connectivity with over 20 other brain areas, making the experience much deeper and richer... with many more memories and unconscious emotions colouring the experience.

My great interest, from 1966 onwards, was investigating the interaction between LSD and improvement of cognitive functioning. During the 1960s and 70s, I often took daily LSD to improve my insight and productivity. The level I loved best was hitting that 'sweet spot' where mood and creativity are at a high point, while maintaining control of one's concentration and behaviour. Taking a daily dose of even a fairly substantial dose can create a similar effect to 'microdosing', a habit which has recently become highly popular, particularly in Silicon Valley, where increased productivity has such a high-rating.

Although microdosing is a craze spreading around the world, oiling the hinges of the doors of perception, there has been no scientific research into its effects. About 6 years ago I decided to do such a study and now finally we are doing the first study as part of the *Beckley/Imperial Research Programme*. Apart from looking at changes in mood, wellbeing and cognitive function, I suggested using Go as a perfect test for creativity and intuitive pattern recognition – that 'ah-ha' moment when in a flash your unconscious brain sees the answer. Does a microdose increase one's intuition? make one more determined? help one rise above depression?

I am also putting together the *Beckley/LSD Research Programme* with scientists in Maastricht, Brazil and the US, in order to further our understanding of LSD's mechanisms of action, and to evaluate its therapeutic potential. These studies are investigating LSD at both the macro- and micro- levels using fMRI, and are also exploring its potential to increase *neuroplasticity* and *neurogenesis*, and reduce *inflammation*.

Poor suffering humanity is currently entering an epidemic of mental illness, and the best that psychiatry has to offer over the last 30 years is antidepressants, such as SSRIs. These *at best* suppress the symptoms, while being ineffective for 30% of patients... 15% of whom commit suicide. Suicide is the highest killer of young people; and the World Health Organisation has declared that *depression* is the leading cause of disability.

The legal drugs such as alcohol and tobacco kill approximately 8 million people worldwide each year – psychedelics kill *almost no one*, and can bring about lasting changes for the better.

Psychedelic-assisted psychotherapy gives us a new framework to build a paradigm shift in psychiatry. Helping to unravel memories and emotions, in just one or two sessions, these compounds can support people in turning to face and address the traumas at the root of their suffering, at the same time '*resetting*' the brain to overcome maladaptive pathways.

Instead of criminalising LSD and psilocybin, let us welcome these great medicines, revered by our ancestors. Let us be grateful to Albert for bringing his wonderful gifts to the world. The most fitting vote of gratitude will be to remove the shroud of taboo from the letters L-S-D, so that the world can see this compound for what it is: *not a problem child, but a Wonder child.*