

In fact, almost all of us have had experiences during our life when we sense with great clarity and power a tremendously heightened state of presence, of *being there*, an immediate and unforgettable sensation of *I am*. Perhaps it is a moment of great danger or even impending death, or a moment in a strange place or foreign country, or a moment of indescribable joy or a moment with no apparent cause at all when suddenly we are stopped within ourselves and feel our sense of identity more intensely, calmly and purely than anything our everyday life has to offer. Such moments occur more frequently, perhaps, in childhood. These great moments of pure presence are vividly etched in our memory as though they happened yesterday.

Cultivating Spiritual Experience

Our culture does not know how to interpret these moments, these experiences. Maybe they are called “peak experiences” or “mystic moments” or “breakthroughs”—we lack any precise words for them. In fact, they are, so to say, “messages” from our genuine Self as though saying to us: “I am You. Let me into your life.”

The work of cultivating such experiences until they become more accessible is part of the essential nature of genuine spiritual discipline. These are moments, at the very least, of approaching the experiential verification that there does exist something Higher within and perhaps also outside of ourselves. Moments at the very least of approaching what the religions call God.

Every human being is born with an intrinsic yearning to understand, to contact and, eventually, to serve something higher in ourselves and in the universe. Plato calls this yearning *eros*. It defines us as human beings—even more than our biological nature, our social conditioning or our ordinary reasoning capacity. Our modern world-view tragically misperceives and wrongly defines what it is to be human. We are conditioned by our society to believe happiness comes from pleasure, or from getting things or power over people or money or fame or even health and survival. None of these sometimes very good things can bring ultimate meaning to our lives. We are born to be deeply conscious, inwardly free and deeply capable of love. The longing for these things is the definition of what it means to be human. At the present moment in our culture this yearning for meaning and consciousness, this yearning to give and serve something higher than ourselves, is breaking through the hard crust of our widespread cultural materialism and pseudo-scientific underestimation of what a human being is meant to be, together with an equally tragic overestimation of what we human beings are capable of in our present everyday state of being.

Of course, many very serious people believe that God is a personal God, existing outside of themselves, with whom they can have an intimate relationship. And such belief when it is sincerely and deeply held by no means contradicts the central importance of inner experience of a higher power.

Spiritual experience will show that the conventional sharp philosophical and theological distinction between personal and impersonal God is a purely theoretical or even a merely verbal dichotomy not supported by actual experience. It is a fundamentally false dichotomy often introduced to distinguish the Judeo-Christian-Islamic God from the God of Asian traditions such as various forms of Hinduism which often speak of Brahman only as a supreme energy, rather than as a “person”—or Buddhism in many of its expressions which seem to deny not only the idea of personhood in God, but also the very existence of God and, for that matter, the very existence, or reality, of a personal human self. The higher energy of consciousness in an individual human being exhibits an incomparably intense quality of what one might call “I-ness”. It is a profoundly *personal* force; it is I as I is never known in our ordinary everyday sense of identity. That is why this energy is called the Self, with a capital S in

Hinduism. Similarly, but in inverse form, in Western religion, especially in its “esoteric” or contemplative forms, the experience of a personal God—Jahweh appearing to Moses, Christ appearing to St. Paul, Allah speaking to the Prophet—is a force inhabiting a material reality whether as a great voice or human messiah. This is clearly the case in individual experience—the personal contact with the true person within, the “golden person” of Hinduism, is more truly oneself than one’s socially constructed self or ego.

Space does not permit even a few of the countless examples of the impersonal God being worshiped as a personal figure in the East or the personal God being worshipped as an impersonal energy as in the teachings of Jewish and Christian mystics. The main point to emphasise is that the highest or most real always has the character of I-ness whether it is understood as a cosmic reality defining the fundamental nature of the universe or as the true individuality within the contingent and fundamentally empty reality of the ego as understood in Buddhism. Buddhism concentrates on deconstructing the ego in order to allow the true infinitely personal energy of pure consciousness to shine through and inhabit human life.

There are a thousand aspects to this question which would take us into all the subtle and delicate human experiences and essential powerful ideas related to the idea of God that have been completely lost to view in the cacophony of simplistic argument and fanaticism that can characterise both sides of the atheism/fundamentalism debate.

But one thing more must be said. It is paradoxically both obvious and elusive, that great faith in a “purely” external God can only take place within a transformed human psyche. To have such faith—and space does not permit elaborating on the deeper meaning of this sometimes tarnished word—such faith can only be attained through a transformed relationship to one’s own inner mind and emotional life. Therefore authentic faith in an external God is already evidence of inner work on oneself whether or not it is named as such. It is therefore erroneous and dishonorable to oppose the work of interior self-examination as somehow superior to profound faith in the universal, “external” God of love, justice and mercy in Judaism, Christianity and Islam. Of course, if one is comparing the deep self-examination of, say, the Hasidic Jew, the Christian monk in the deserts of North Africa or the Sufi in his spiritual brotherhood with naïve, sentimental or fanatical impulses that are given the name of faith, then of course, that is a wholly different conversation.

Spiritual experience will often also show that the inner God of higher consciousness is not simply a product or aspect of the individual person. It is experienced as more intimately “myself” than my ordinary sense of self while at the same time it is seen, with total certainty, as not “my own,” but as a quality of reality itself beyond oneself and beyond man or any other separate entity in the conceivable universe. This touches on an extremely crucial point that we can only mention in passing: namely, that there are many, many ways leading to the mountain, but the work of climbing the mountain is very, very similar in each pathway. Religions that are strikingly different along the way to the mountain are even more strikingly similar in the ascent of the mountain.

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Documentary on David Bohm

F. David Peat



Film-maker Paul Howard, of Imagine Films (Ireland), and F. David Peat, physicist and writer, will be making a documentary on the Life and Ideas of Professor David Bohm, FRS. The film will be either 75 or 90 mins long and can be divided into three 25 min episodes or four 22.5 min episodes for television. The film will be funded in part by television channels in the UK and US with some additional funding via crowdsourcing. For more on crowdsourcing see below and www.thebohmdocumentary.org.

David Peat was a friend and colleague of David Bohm and together they co-authored *Science, Order and Creativity* and were working on a second book *The Order Between and Beyond* at the time of Bohm’s death in 1992. Peat is also author of the biography *Infinite Potential: The Life and Times of David Bohm*.

Paul Howard is a Film and Television Producer and Director of international repute. Recent productions include *Movie Talk*, *21st Century Railways*, *Marsh To The Skies*, *Bloomsday*, and *The Irish In Hollywood*. Paul has also produced and directed and edited multi critically acclaimed documentaries and series for RTE, Channel 4, Channel 9 (Australia), Nomad Films International (Australia), all of which have covered most film genres including biography, natural history, wildlife, food, lifestyle and current affairs. Paul also worked extensively in Australia where he completed *Triumph of the Nomads*, a history of Australia prior to the arrival of the European and *The Pintubi*, a series about the last remaining tribe of Aborigines who roamed the outback of Australia up until 1935.

David and Paul plan to begin shooting in the spring of 2014 and the film will consist of narration, interviews, dramatic reconstructions, animation and will feature experiments based on Bohm’s theories. Location shots will include Birkbeck College, as well as Bohm’s home and his favourite walks in north London. In the US they will film his hometown of Wilkes Barre, Pennsylvania; Berkley, California, Princeton, including Einstein’s home on Mercer Street (Bohm had a room in the house next door) and the Bailey Farms Institute where Bohm would spend a month each year during the 1980s.

While dealing with the history of Bohm’s life it will also stress the current high level of interest in Bohm’s ideas and the film makers hope to shoot some scenes at scientific meetings, showing discussions of Bohm’s work and the interest in Bohm amongst a younger generation of physicists.

The film will explore Bohm’s childhood, his feeling of discontent at the society around him and his fantasies of visiting distant worlds where the inhabitants would have attained perfection. It was also a time of boyhood experiments and a growing interest in science. Following his PhD, Bohm joined Oppenheimer’s group at Berkeley where he made his reputation with his theory of plasmas in metals. From Berkeley he moved to Princeton and developed a friendship

with Einstein who came to look on Bohm as his “spiritual son”. At Princeton he wrote the book *Quantum Theory* in an effort to express Bohr’s interpretation in as clear a way as possible.

After the book was published Bohm began to have doubts, feeling that Bohr had been guilty of a degree of mystification. He believed that what was called for was a “realistic” or “causal” interpretation of the quantum world and so began work on his Hidden Variable theory which he felt would create a great stir within the physics world.

The film will also explore the growing anti-communist feelings of that era to set the context in which Bohm was brought before the McCarthy committee but refused to answer specific questions. As a result he was arrested and sent for trial for contempt of Congress. Although he was acquitted Bohm was now labelled a fellow-traveller and was unable to obtain any university position in the US.

Bohm now faced exile in Brazil. His Hidden Variable paper appeared and to his great surprise it did not generate the controversy he had hoped for. Unknown to him Oppenheimer had called a meeting of leading physicists to discuss Bohm’s theory. At the end of the meeting Oppenheimer announced “If we can’t disprove Bohm we must all agree to ignore him.”

From Brazil Bohm moved first to Israel and then Bristol University where he struggled to create a “new order” to physics, one he hoped would enable him to unify quantum theory and relativity. That new order turned out to be the Implicate and Explicate orders. Bohm also met Jiddu Krishnamurti, an encounter which was to have a great effect on his life. He became a trustee at Krishnamurti’s school at Brockwood Park and engaged in a series of dialogues which were recorded, several of which were later published in book form.

From Bristol Bohm moved to Birkbeck College, London where he revived his Hidden Variable approach, this time modifying the Schrödinger Equation by introducing a new term, the Quantum Potential. Unlike other potentials whose effect depends on their strength, the Quantum Potential’s effect depends on its shape or form. In short it expresses the experimental arrangement that surrounds an electron. In turn the electron has the ability to “read” this form and so has what Bohm termed “proto-mind”.

In addition to his physics Bohm was also exploring other avenues such as language. Bohm felt that our subject-verb-object languages acted as a barrier in thought to a deeper understanding of the quantum world and so developed a verb-rich language he called the Rheomode. He also became concerned with what he saw as the fragmentation within knowledge and society and called for an approach of wholeness. He became interested in the connections, or rather the wholeness, of mind and matter. He also wondered that just as we have proprioception of our body (the ability to know where one's arm is in space without looking at it) would it be possible to develop a proprioception for thought.

Bohm had also developed an interest in a form of dialogue. In this around forty people meet in a leaderless group to discuss whatever comes up. After many such meetings a deep level of trust develops and the dialogue moves to a new level. Bohm believed that within such a dialogue people would come to experience how their ideas and beliefs are structured not only in the mind but as symptoms and sensations in the body. He also felt that dialogue could clear up what he felt was the "pollution" in our language. During this same period Bohm was working actively with his colleague, Basil Hiley using non-commuting algebras to investigate such notions as pre-space.

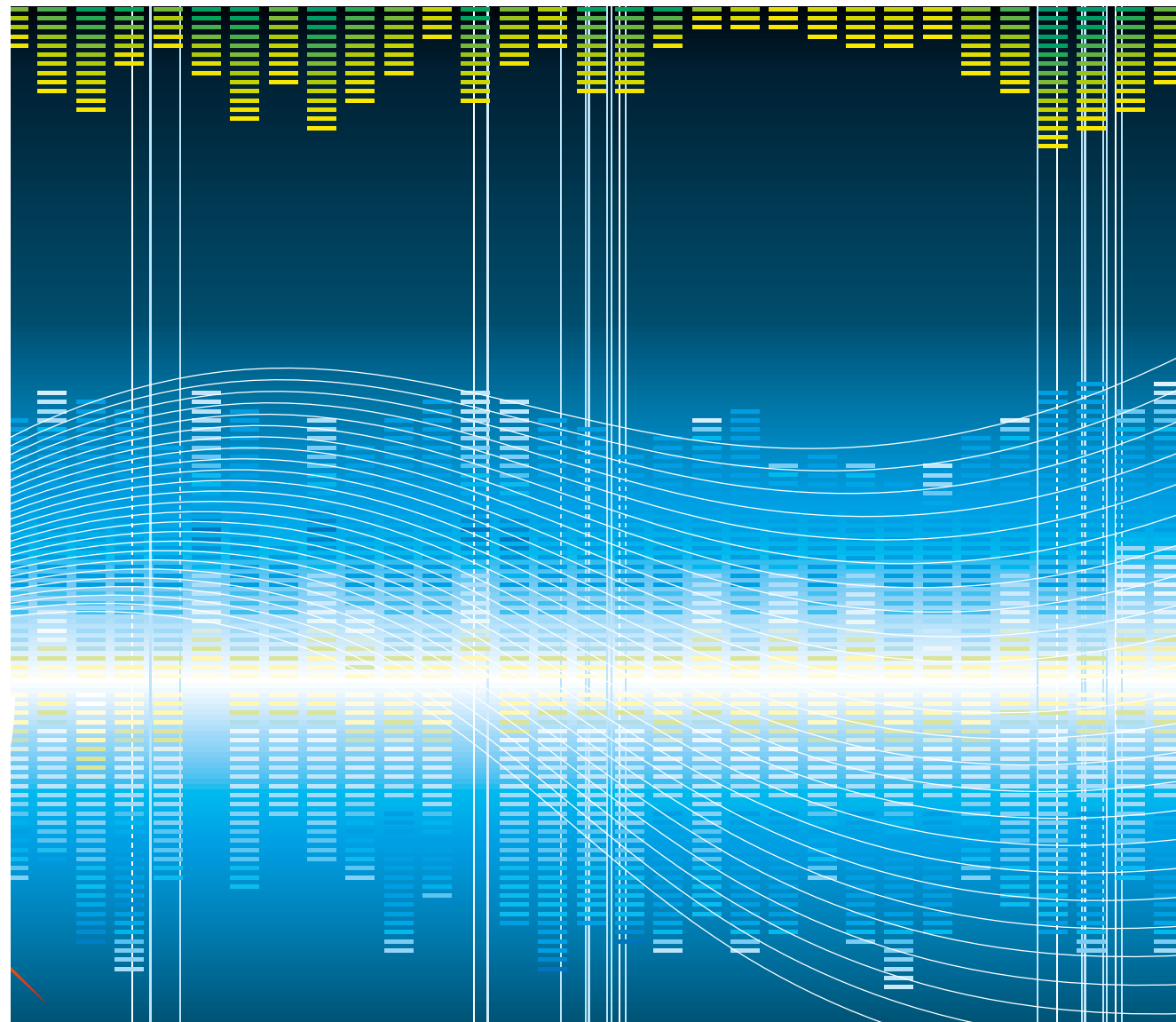
The documentary will also deal with the depression that dogged Bohm in the last years of his life and the ill health caused by his heart problems.

Crowdsourcing

Crowdsourcing is an approach to funding that does not rely on one or two people giving large sums of money but rather upon a large number of people giving small sums, some as low as £10 or £20. It depends upon getting a message out using various social media and our website www.thebohmdocumentary.org. We will commence our funding program early in the New Year. For those of you who read this article please pass on the message and the web address. We are depending on your interest and generosity to complete this film.



David Bohm,
F. David Pleat
and his wife Saral



Recent Developments in Science and Medicine

Marilyn Monk

Bacterial infection of mosquitoes blocks transmission of dengue and malaria parasites

The dengue and malaria parasites are transmitted among humans by mosquitoes. Recently, it has been shown that if the mosquitoes are themselves infected with a parasite - in this case a bacterium, *Wolbachia* - then transmission of dengue and malarial parasites to humans is blocked. Infection with the *Wolbachia* bacterium is maternally transmitted in the mosquito population. The question is whether the bacterial infection is maintained in the mosquito population so that the control of dengue fever and malaria continues. The challenge is to find the right strain of bacteria to block transmission by the mosquito, and the right mosquito that will pass the bacterial infection to her daughters.

Hoffmann, O'Neil and colleagues (Department of Genetics, University of Melbourne) introduced *Wolbachia* into the dengue mosquito vector, *Aedes aegypti*, in Australia. The infected mosquitoes survived and transmitted the infection in the wild, thus demonstrating that *Wolbachia* infection could be a practical approach to dengue suppression over extensive areas.

Similarly, *Wolbachia* infection of the anopheline mosquito, *Anopheles stephensi*, blocks transmission of the malarial parasite, *Plasmodium falciparum*. Bian, Xi and colleagues (Michigan State University, USA) show that female mosquitoes infected with *Wolbachia* bacteria and bred with uninfected mates pass the infection on to their offspring, swiftly spreading the malaria-blocking bacterium to entire insect populations in the laboratory within eight generations.

The strategy of *Wolbachia* infection of the transmitting mosquito could thus eventually control dengue and malaria. Field trials will be the next step.

Reference

Hoffmann AA, Montgomery BL, Popovici J, Iturbe-Ormaetxe I, Johnson PH, Muzzi F, Greenfield M, Durkan M, Leong YS, Dong Y, Cook H, Axford J, Callahan AG, Kenny N, Omodei C, McGraw EA, Ryan PA, Ritchie SA, Turelli M and O'Neill SL.

Successful establishment of *Wolbachia* in *Aedes* populations to suppress dengue transmission.

Nature 476: 454-457 (2013)

Bian G, Joshi D, Dong Y, Lu P, Zhou G, Pan X, Xu Y, Dimopoulos G and Xi Z.

Wolbachia invades *Anopheles stephensi* populations and induces refractoriness to *Plasmodium* infection.

Science 340: 748-751 (2013)

Gut microbes and obesity

The importance of the billions of microbes in our gut, and the balance of the different microbial populations, is becoming increasingly evident for many of our bodily functions. In a recent paper, Everard, Cani and colleagues (Metabolism and Nutrition Research Group, Université Catholique de Louvain, Brussels, Belgium) have reported that the presence of one bacterial population - a mucin-degrading bacterium, *Akkermansia muciniphila*, residing in the mucus layer of the intestine - is inversely correlated with body weight both in rodents and humans. The intestines of obese humans

and mice, and those with type 2 diabetes, have much lower levels of this bacterium. In addition, mice that were fed a high-fat diet, had 100 times less *A. muciniphila* in their guts than mice fed normal diets. Conversely, feeding obese or diabetic mice with the *Akkermansia* bacteria resulted in an improved metabolic profile associated with the increased abundance of the bacterium in the gut. High-fat diet-induced metabolic disorders were reversed and the intestinal level of endocannabinoids increased (thus providing greater control of blood-glucose levels and inflammation, and defence against harmful microbes in the gut). As a control, the researchers showed that treatment with heat-killed *A. muciniphila* cells did not improve the metabolic profile or mucus layer thickness, so live bacteria were required. These studies may open the way towards the development of a treatment that uses this human mucus bacterium for the prevention or treatment of obesity and its associated metabolic disorders such as diabetes and colitis.

Reference

Everard A, Belzer C, Geurts L, Ouwerkerk JP, Druart C, Bindels LB, Guot Y, Derrien M, Muccioli GG, Delzenne NM, de Vos WM and Cani PD.

Cross-talk between *Akkermansia muciniphila* and intestinal epithelium controls diet-induced obesity.

Proc. Natl. Acad. Sci. USA 110: 9066-9071 (2013)

Foreign ladybird invades armed with biological weapon

The Asian harlequin ladybird, *Harmonia axyridis*, is threatening the life of indigenous ladybirds in many countries. Originally this foreign ladybird was brought to Europe and North America to control aphids. Now it is a serious pest outcompeting native ladybird species and even eating them! One reason foreign species represent a threat to local species is that they carry new diseases. Vilcinskis, Vogel and colleagues (Institute of Phytopathology and Applied Zoology, Justus-Liebig-University of Giessen, Germany) have shown that the foreign ladybird, *Harmonia*, carries a single-cell parasite, microsporidia, that causes it no harm but is deadly to the indigenous native seven-spot ladybird, *Coccinella septempunctata*. The microsporidian parasite, easily observed under the microscope, is present in the eggs and larvae of harlequin ladybirds in a dormant and apparently harmless state. But when injected into seven-spot beetles in the lab they die within two weeks. Parasites brought in by foreign species may also be involved in the disturbing decline of our bees. The dangers of foreign invaders bringing new diseases to indigenous populations have long been known. It brings to mind the introduction of new diseases, such as small pox, causing devastation to local populations following the European invasion of the New World.

Reference

Vilcinskis A, Stoecker K, Schmidtberg H, Röhrich, CR and Vogel, H.

Invasive harlequin ladybird carries biological weapons against native competitors.

Science 340: 862-863 (2013)