Rupert Sheldrake

and the wider scientific community

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Introduction

Rupert Sheldrake is one of the most fascinating individuals in science today, though the scientific community's treatment of him is perhaps even more intriguing. At one time he was a Research Fellow at Clare College, Cambridge, as well as a Research Fellow of the Royal Society. Sheldrake perplexed and in some cases angered many of his colleagues when he proposed a new theory of development which was described as putting forward 'magic instead of science'[1] and caused the editor of Nature to ask whether Sheldrake's ideas were 'a book for burning'. This would lead to Dr Sheldrake being condemned and ostracised by many of his peers, after which he would upset orthodox science even more by investigating claims such as telepathy and precognition, described for many years as 'pseudoscience'.

This dissertation will look at how the scientific community has dealt with someone who went from the centre of mainstream research to beyond the pale of most scientific thinking. This dissertation will not look at whether Dr Sheldrake is right or wrong, nor will it seek to explain why he broke away from conventional science. Instead it will focus on the issue of whether Dr Sheldrake, his theories and his research have been treated fairly by those within the scientific establishment. For this it is necessary to examine what 'fairness' means in the context of science and whether by this standard Dr Sheldrake and his work has been treated fairly.

How new scientific theories are treated is a balance between giving the proponents of such theories a fair hearing and protecting science from too readily accepting hypotheses which might be incorrect. So the first chapter will examine the meaning of 'fairness in science', looking at the ethos of science as well as its rules and code of conduct in science, focusing especially on the Mertonian norms, and how these are deployed to make sure science is fair but also protected.

[1] Former editor of *Nature*, John Maddox, when asked about Sheldrake's theory of morphic resonance in a 1994 BBC interview on the TV programme *Heretics*.

The second chapter will examine the life and career of Rupert Sheldrake, from his childhood collecting plants and animals in Nottinghamshire, to his rise to become one of the country's most prestigious developmental biologists and his fall from that position when his theories and research were branded 'beyond the pale'. The chapter will describe the controversies and debates which have occurred during the course of his career, as well as examining other scientists who have attempted to replicate the results of Dr Sheldrake's research and what they have said about him.

The final chapter will discuss whether those who criticised Dr Sheldrake and his work acted within the code of behaviour set out by the Mertonian norms and other standards in science, or whether their actions have been unfair or unfounded. Then there will be a closer examination of several incidents during Dr Sheldrake's career which might be considered unfair, and a comparison of them with other criticism which is more in line with the norms of science. Finally, the dissertation will conclude with an overall judgement on whether or not Dr Sheldrake, his theories and his research, have been treated fairly by the scientific community in accordance with its own code of conduct.

Chapter 1 - Fairness in Science

Normative Structure of Science

The classic concept of fairness in science was laid out by Robert K. Merton in his book *The Normative Structure of Science*. According to Merton, good scientists should view research and theories with Communalism, Universalism, Disinterestedness, and Organised Scepticism; this is sometimes referred to as CUDOS or the Mertonian norms. Communalism is the idea that scientific results are the common property of the entire scientific community. Universalism means scientists should be able to contribute to science regardless of religion, race, nationality, culture, sex or personal qualities. Disinterestedness means scientists should treat all research (especially their own) dispassionately and not let personal beliefs or incentives influence their judgment. Organised Scepticism is the idea that all claims should be subject to critical scrutiny before they can be accepted.[2] Although not part of the Mertonian norms, "emotional neutrality" in science as proposed by Bernard Barber continues the idea of the need for sociological ambivalence in science to ensure the fair treatment of scientists and their claims. [3]

The Mertonian norms were designed as a guide to how scientists should behave to ensure fairness in and protection of science by suggesting impersonal values to which they should adhere. During research on the scientists working on the Apollo programme, American organisational theorist Ian Mitroff found that it is extremely difficult for most scientists to remain dispassionate about their own work and work that may discredit their own, for them to treat all theories equally no matter where they came from and to be sceptical about theories and research in which they want to believe.

[2] Merton, R.K. (1942) *The Normative Structure of Science* In: Merton, Robert King (1973). *The Sociology of Science: Theoretical and Empirical Investigations*.
[3] Barber, Bernard (1952) *Science and the Social Order*. New York: Collie

Mitroff later suggested a number of counter-norms which could be used to complement the norms of Merton, demonstrating 'values' that scientists should try to avoid. In his view the counters to Communism, Universalism, Disinterestedness, Organised Scepticism and "emotional neutrality" are Solitariness, Particularism, Interestedness, Organised Dogmatism and "emotional commitment" respectively. Unlike the Mertonian norms which were specifically impersonal, the counter-norms are highly personal and subjective to individual scientists and their view of the world.[4]

Solitariness is the idea that scientific theories and research belong to the scientists who developed that theories and conducted the research and/or the people who paid for it. Property rights are expanded to include distribution works which leads to an increase in secrecy. Particularism is the view that the acceptance or rejection of a theory or hypothesis in science depends significantly on who makes the claim. The social and psychological background of the scientist is taken into account, as are their past claims and research. It also implies that the theories and research of certain scientists is automatically given more credence and a greater priority than others. Interestedness is a culture in which a scientist becomes closely involved with certain claims or research in science, presenting their results in such a way as to promote their view, belief or cause. The closeness does not have to be to their own research or theories; it could also be to those of other scientists who they wish to dismiss or promote. Organised Dogmatism is the idea that scientists must hold on to and believe in their own findings with utter conviction and also have a similar level of conviction toward pervious works on which they have based their own and subsequent work which supports their own. This view inevitably leads to an automatic doubt of any scientist or research which disputes their own work. "Emotional

[4] Mitroff, Ian I. (1974a) "Systems, inquiry, and the meanings of falsification." Philosophy of Science 40 (June):255-76.

commitment" is the culture of becoming so attached to a scientist, theory or field of research, that it becomes difficult to maintain objectivity.[5]

Michael Mulkay argued that the normative structure of science, as well as other values in science, is in fact an ideology, and as a result the acceptance of research and theories becomes less about the examination of claims and the replication of results. Mulkay doesn't say that this ideology in science is bad, and in fact suggests that it could be 'profitable' if this concept is recognised and accepted. What Mulkay does point out is the fact that this ideology is not institutionalised within the scientific community (or at least not in a way that general conformity can be maintained) and as a result can be subject to deviation from the norms. Mulkay pointed to Mitroff's case studies as an example of this.[6]

Culture of science

German physicist Max Planck famously said "a new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it."[7]

This idea was expanded upon by Thomas Kuhn in his book *The Structure of Scientific Revolutions* in which he put forward the concept of paradigms in science, a way of thinking and viewing the world which can change in a 'paradigm shift' that occurs when significant anomalies are accumulated against a current paradigm and the scientific discipline is thrown into a state of crisis. Like Plank though, Kuhn did not feel proponents of the previous paradigm would easily

[5] Mitroff, I., 1974. Norms and counter-norms in a select group of Apollo moon scientists. American Sociological Review, 39, 579-95.
[6] M. J. Mulkay (1976). 'Norms and ideology in science'. *Sociology of Scientific Information* 15(4/5):637–656.
[7] 'Wissenschaftliche Selbstbiographie. Mit einem Bildnis und der von Max von Laue gehaltenen Traueransprache. *35 pp. (Leipzig, 1948).* Scientific Autobiography and Other Papers, *trans. F. Gaynor (New York, 1949), pp.33-34 (as cited in T.S. Kuhn,* The Structure of Scientific Revolutions*).*

give up their world view and often never do, leaving the acceptance of a new paradigm to the next generation of scientists.[8]

Fairness in new areas is highly subjective as the proponents of a new 'paradigm' would claim to have been treated unfairly by their detractors. But of course the detractors would claim that the old 'paradigm' was being dismissed too easily.

Although under the Mertonian norm of Universalism, scientists should be treated without prejudice, new theories and research are not included in this idea of equality.

The French mathematician and astronomer, Pierre-Simon Laplace said that "The weight of evidence for an extraordinary claim must be proportioned to its strangeness."[9] This idea was later expanded upon by the sociologist Marcello Truzzi who said "In science, the burden of proof falls upon the claimant; and the more extraordinary a claim, the heavier is the burden of proof demanded… and when such claims are extraordinary, that is, revolutionary in their implications for established scientific generalisations already accumulated and verified, we must demand extraordinary proof."[10] This was later popularised by Carl Sagan who created the phrase "extraordinary claims require extraordinary evidence".

Sagan's phrase has been used in many fields of science, but especially parapsychology where more claims made are considered to be 'extraordinary' by most of the scientific community.

In 2008, when asked about the research into remote viewing (supposedly a form of extra-sensory perception) Prof. Richard Wiseman said "I agree that by the standards of any other area of science that remote viewing is proven, but begs the question: do we need higher standards of evidence when we study the paranormal? I think we do… Because remote viewing is such an

[8] T. S. Kuhn, *The Structure of Scientific Revolutions*, 2nd. ed., Chicago: Univ. of Chicago Pr., 1970
[9] Often referred to as the "Principle of Laplace"
[10] Marcello Truzzi, "On Pseudo-Skepticism" *Zetetic Scholar* 12/13 (1987), pp3-4,

outlandish claim that will revolutionise the world, we need overwhelming evidence before we draw any conclusions."[11]

Though again what is an 'extraordinary' claim can often be extremely subjective and proponents of ideas deemed to be extraordinary often claim to be treated unfairly.

[11] Penman, Danny (28 January 2008). "Could there be proof to the theory that we're ALL psychic?" *Daily Mail*

Chapter 2 - Brief biography of Rupert Sheldrake

Figure 2.1: A portrait of Rupert Sheldrake c. 1995

Early life and education

It was once said of Rupert Sheldrake that he is either the greatest charlatan in science since the time of the alchemists, or he is the next Darwin and Einstein combined.[12] Such a statement serves to illustrate the contrasts and contradictions of Dr Sheldrake's life and career.

Rupert Sheldrake was born in 1942 and grew up in Nottinghamshire. His father was a pharmacist and an amateur natural historian and encouraged his children to collect and study plants and animals, which the young Sheldrake did - much to the frustration of his mother.[13]

[12] Concluding narration of the PBS biography of Dr Sheldrake entitled "A Glorious Accident"
[13] In his online autobiography Dr Sheldrake says, "My father was an amateur naturalist and microscopist and he encouraged this interest. My mother put up with it. I kept lots of animals at home and she said, as mothers always say, "It's all very well, but who's going to feed them?" And of course, in the end, she usually did."

There is one particular event of Rupert Sheldrake's childhood which he describes as having a 'big impact' on him. When he was about five years old, Sheldrake says he saw a fence of willow stakes which had been stuck into the ground and were regenerating and growing despite previously appearing to be dead. This spurred on Sheldrake to specialise in the study of the growth of cuttings, the regeneration of plants and the development of form when he went to Cambridge as a student.[14]

He studied Natural Sciences at Clare College, Cambridge where he gained a Double First and went on to win the University's Botany Prize. Despite this success, Dr Sheldrake claims to have been dismayed at the way in which his subject was taught. The first thing they did as students was to kill anything they were studying. This was very different to his experiences when he was growing up and collecting planets and keeping animals.

After the completion of his first degree, he studied the Philosophy of Science at Harvard as a Frank Knox Fellow before returning to Cambridge to do a PhD in which he studied how plants develop, specialising in the workings of the hormones in plants.

As a Fellow of Clare College, Cambridge, where he was Director of Studies in biochemistry and cell biology, the now Doctor Sheldrake investigated how plants transport the hormone auxin from one place to another within the plants.[15] During this time he was also the Rosenheim Research Fellow of the Royal Society and it was in this capacity that he carried out research on the development of plants and the ageing of cells in the Department of Biochemistry at Cambridge University.

[14] Recited by Dr Sheldrake in the BBC TV programme *Heretic*
[15] Rubery,P.H. and Sheldrake,A.R. (1974) Carrier-mediated auxin transport. Planta, 118, 101–121.

Morphic Resonance

It was during the course of Dr Sheldrake's research that he discovered several gaps in the current understanding of developmental biology. He realised that although all plants have auxin and similar transport systems, the shape of leaves and the design of flowers varies dramatically from species to species. Dr Sheldrake concluded that, although it was obviously involved in the process, auxin couldn't possibly explain these differences. Instead, Dr Sheldrake viewed auxin and its role in the development process in plants as analogues to hormones in the growth of animals. All animals have the same hormones, but this doesn't explain the great variety in animal species.

In 1968 Dr Sheldrake studied rainforest plants in the Botany Department of the University of Malaya, Kuala Lumpur and from 1974 to 1985 he worked as the Principal Plant Physiologist at the International Crops Research Institute for the Semi-Arid Tropics in Hyderabad, India. While working in the subcontinent, Dr Sheldrake met Jill Purce whom he would go on to marry.[16]

It was during this time that Dr Sheldrake began to formulate his theory of morphic fields and morphic resonance. Based on an idea first put forward by Alexander Gurwitsch in the early 20th century, Dr Sheldrake's theory was developed to explain several problems with the current understanding of morphogenesis, instinct and genetics.[17]

Dr Sheldrake's new theory postulated the existence of morphic fields in every living organism and system (and on occasions some none living systems) which are passed on from one generation to the next and governed an organism's development and behaviour. Unlike the conventional theory of genes and DNA, morphic fields are habitual in nature as the information

[16] Dr Sheldrake's auto biography
[17] Beloussov, L.V., Opitz, J.M. and Gilbert, S.F. (1997). Life of Alekander G. Gurwitsch and his relevant contribution to the theory of morphogenetic fields. Int. J. Dev. Bioi. 41:771-779

they pass on is based more on a collective memory of all which came before rather than a code stored in DNA.[18]

From this, Dr Sheldrake suggested that if these fields were similar (if, for example, they were from the same species) then they might resonate with each other and information could be passed on. Dr Sheldrake also extended his theory beyond developmental biology and suggested that all the laws of science might be more like habits and not unchanging laws as has been believed for centuries.[19]

Dr Sheldrake finished *A New Science of Life* after returning to Cambridge but before publication asked his colleagues in the Department of Biochemistry what they thought of his ideas. He was advised by his peers not to publish the book as it might threaten his career, specifically his chances of becoming a Professor. Instead it was suggested that Dr Sheldrake wait until he retired before stating his theories.[20]

Dr Sheldrake did not take this advice as he didn't want to 'pay lip service to an orthodoxy' in which he no longer believed. So in early 1981 the first edition of *A New Science of Life* which laid out Dr Sheldrake's theory of morphic resonance was published. The first reviewer of the book was Colin Tudge in New Scientist magazine under the title 'Scientific proof that science has got it all wrong'. Despite its title, the review was far from hostile and although it conceded that Dr Sheldrake's theory would be considered 'completely scatty' by most scientists, the review concluded with "the science in [Dr Sheldrake's] ideas is good… If the experiments Dr Sheldrake suggests will test his ideas do not work, and go on not to work, he will be shown to be wrong. That's life, he says. More to the point, that's science."[21]

[18] Sheldrake, Rupert 'The presence of the past: Morphic Resonance and the Habits of Nature ', 1st edition ch. 1
[19] Sheldrake, Rupert 'A New Science of Life: The Hypothesis of Formative Causation', 3rd edition ch. 12 (1995)
[20] Stated by Dr Sheldrake in a 1994 BBC TV programme "Heretic"
[21] Colin Tudge, 'Scientific proof that science has got it all wrong' (New Scientist) 18 June 1981

Throughout the summer of 1981 the book was reviewed by a wide range of scientists and although the reception was mixed, it was not all negative by any means. Then on 24 September 1981 the book was reviewed in Nature by the then editor John Maddox (although the piece did not give the author's name, it was later revealed to be Maddox who wrote it).

The piece was entitled 'A book for burning?' and was highly critical of *A New Science of Life*, Dr Sheldrake and his theories. Although the article said the book was 'the best candidate for burning there has been for many years', Maddox never actually called for the book to be burned, in fact what the article did say was "[Dr Sheldrake's] book should not be burned (nor confined to closed shelves in libraries) but, rather, put firmly in its place among the literature of intellectual aberrations."

More than twelve years later Maddox clarified his point saying that "Dr Sheldrake is putting forward magic instead of science and that can be condemned in exactly the language that the Popes used to condemn Galileo, and for the same reason: it is heresy."[22]

According to Dr Sheldrake it was this editorial which made the investigation and testing of Morphic Resonance something of a taboo in mainstream science. Without the means to research his theory, having left his department at Clare College, Cambridge, Dr Sheldrake decided to attempt to find ways of testing his theory in ways that didn't require research grants. His friend and colleague Nicholas Humphrey (Professor of Psychology at the London School of Economics, who remains extremely sceptical of Sheldrake's theories) suggested that if morphic fields existed, then they would affect humans as much as plants and animals.

The suggested experiments included creating a 'fake' language spoken by no one and seeing if it took longer to learn than a language spoken by millions of people who would have created a morphic field. Another test consisted of two pictures inside each was a hidden image. One of the

[22] From a BBC interview in the programme "Heretics" (1994)

pictures and solutions was shown on the BBC's *Tomorrow's World* programme, viewed by millions of people across the UK. The two pictures were shown to people in thousands of test centres both before and after *Tomorrow's World* to see if more people correctly guessed the image shown on the programme after its broadcast (thus showing the creation of a morphic field). British school children were taught two nursery rhymes, one was in Japanese known by millions of people in Japan and the other was a new rhyme; if the theory was correct, the ancient rhyme should have been easier to learn than the new one.[23]

Figure 2.2: Puzzle picture shown on *Tomorrow's World*

Figure 2.3: Puzzle picture not shown on *Tomorrow's World*

Psychologist Zoltan Dienes conducted a long series of experiments in collaboration with Dr Sheldrake on morphic resonance as did several other researchers. The results of these experiments were extremely mixed.[24] Dr Sheldrake has pointed to phenomena such as the Flynn effect,[25] collective learning in laboratory animals[26] and the placebo effect as anecdotal evidence for morphic resonance. He suggested that the experiments conducted by Zoltan Dienes and others did not disprove the existence of morphic fields or morphic resonance, but implied that if

[23] Sheldrake, Rupert 'A New Science of Life: The Hypothesis of Formative Causation', 2nd edition p. 249-256 (1995)
[24] The Tomorrow's World experiment was successful in Europe but not in North America. The rhyme experiment was again successful but many complained that the old rhyme was easier to learn than the new one, the same problem occurred with the language experiment.
[25] The Flynn effect is the rise of the average intelligence quotient (IQ) test scores over generations.
[26] Bengston WF, Moga M. Resonance, placebo effects, and type II errors: Some implications from healing research for experimental methods, J. Altern Complement Med 2007;13:317–327.

it did exist it was likely to not be a very strong effect. However, many scientists concluded that the results of the experiments meant the theory was wrong.

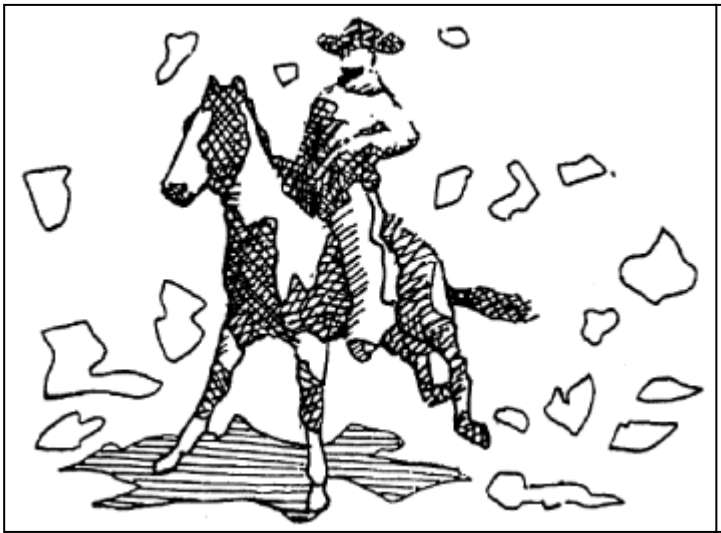


Figure 2.4: Solution to puzzle shown on *Tomorrow's World*

Figure 2.4: Solution to puzzle not shown on *Tomorrow's World*

Research into telepathy

With little funding to conduct any more tests on his theory, Dr Sheldrake searched for other unexplained phenomena which might vindicate at least part of his hypotheses He conducted surveys of wildlife experts, pet owners and veterinarians asking if they had observed any unusual or unexplainable abilities of animals. Dr Sheldrake claims that the same sorts of stories about unexplained phenomena were reported worldwide by many different people who work or lived with animals.

Many dog and cat owners claimed that their pets know in advance when a member of the household was on the way home and when the owners were going out before they showed any signs of doing so. Some of these owners even claimed that their pets responded to their thoughts or silent commands.

In his book *Seven Experiments That Could Change the World: A Do-It-Yourself Guide to Revolutionary Science* Dr Sheldrake cited seven unsolved problems in the current understanding of science and

seven experiments which could test them. The first part of the book dealt with 'extraordinary' powers of ordinary animals and proposed experiments to examine whether pets could sense when their owners were returning, how homing pigeons navigate and the organisation of termites. The next section looked at what Dr Sheldrake describes as the 'Extended Mind' and put forward experiments to test if people can sense if they are being stared at and to see if there is any reality in phantom limbs.[27] The final part of the book looked at the scientific method and the practice of science. Dr Sheldrake set out experiments to test whether so called 'fundamental constants' (such as boiling points) might be variable. The tests in the book looked at the effects of experimenters' expectations on their scientific research.

Dr Sheldrake would go on to carry out many of the experiments listed in his book, focusing especially on pets that know when their owners are returning and the sense of being stared at (going on to write a separate book about each and claiming both were good evidence for telepathy). Although these experiments could not directly give evidence for his theories, if such abilities in animals and humans were confirmed, then Dr Sheldrake believed they would highlight the problems with the current scientific understanding of the world. Also, the experiments Dr Sheldrake had proposed were relatively cheap to conduct, which was important given that he was no longer attached to a research group.

The research which followed was described as 'parapsychology' by many scientists, including many parapsychologists. Parapsychology has been described as a 'taboo subject' in science on several occasions and has attracted a great deal of criticism since its emergence as a subject of scientific study in the late 19th century. Dr Dean Radin, Senior Scientist at the Institute of Noetic Sciences, California, has pointed out that fewer than 1% of Universities worldwide conduct any research into parapsychology despite the fact that surveys show about 60% of people say they

[27] A phantom limb is the sensation that an amputated or missing limb is still attached to the body and is moving appropriately with other body parts.

either believe or are interested in the topic.[28] It was a research area with this level of prejudice that the already controversial Sheldrake was entering.

Dr Sheldrake has always rejected the title of parapsychologist, stating that he doesn't study the 'paranormal' (meaning beyond the normal), believing that telepathy is "normal not paranormal, natural not supernatural". Despite this, Dr Sheldrake has often been referred to as a parapsychologist both by the subject's detractors and proponents.

In 1994 Dr Sheldrake began an experiment to test whether pets could sense through anomalous means when their owners were coming home. He tested a dog named Jaytee, a male mongrel terrier, to see if he reacted at a distance to the intention of his owner, Pamela Smart.

In the experiment, Smart would leave Jaytee at home and travel to a location more than ten minutes journey time away. After a randomly selected period of waiting at that location, Smart was asked to return home in an unfamiliar car and via several different routes. Jaytee's behaviour was recorded during this time to see if he could sense Smart's intention to return home. To ensure that the dog was not using his conventional senses to detect Smart's return, only the first ten minutes of the return journey were used in analysis of the results.

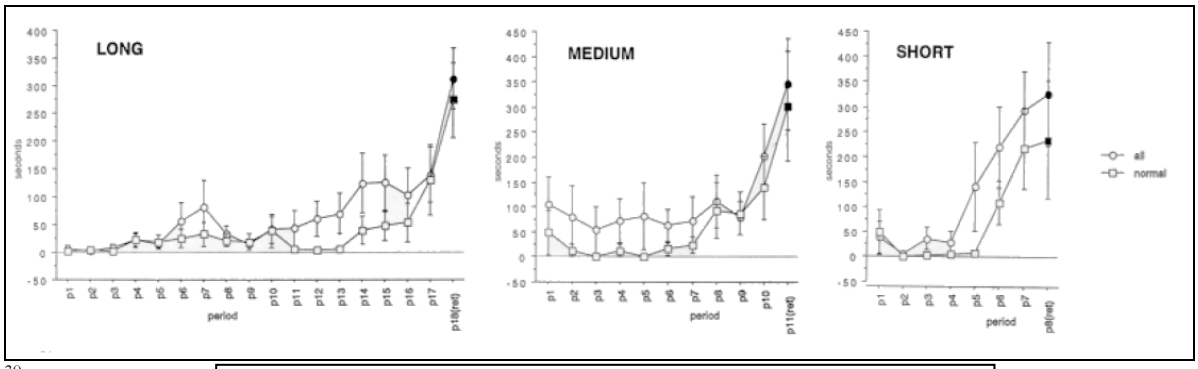
After conducting more than 200 such trials conducted between 1994 and 1995, Dr Sheldrake found that Jaytee went to the window overlooking the road (where his owner's approach would be first seen) significantly more when his owner was returning home than when she was not. Jaytee spent 18% of the time at the window before Smart was told to return home, 33% of the time when she had been told to go home but had not yet started off in the car, and 65% of the time when she was travelling home.[29] Dr Sheldrake proposed that these results suggested that the

[28] Radin D. Entangled Minds: Extrasensory Experience in a Quantum Reality. New York: Paraview Pocket Books, 2006.
[29] Sheldrake, R. & Smart, P. (1998) A dog that seems to know when its owner is returning. Journal of the Society for Psychical Research , 62, 220-232.

dog was aware of his owner's intention to return home through anomalous means which he defined as telepathy.

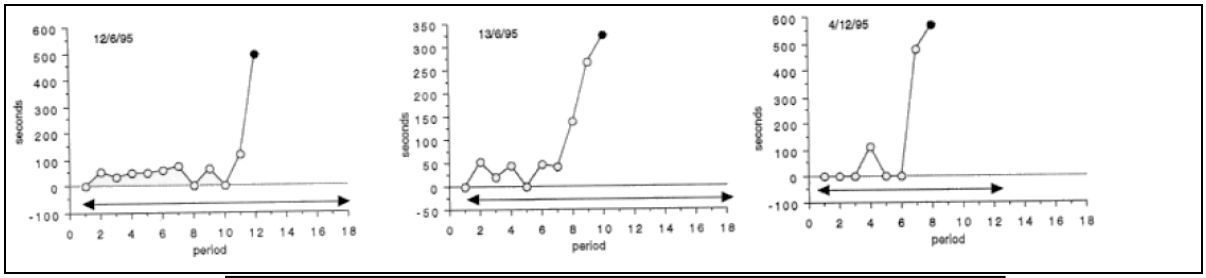
Before publishing his findings, Dr Sheldrake contacted Richard Wiseman, Professor of Psychology at the University of Hertfordshire who wished to conduct his own experiments with Smart and her dog after hearing about the research in the media. Dr Sheldrake invited Wiseman to attempt to replicate the results of the experiments. This was agreed to and Wiseman, assisted by Matthew Smith from Liverpool Hope University and Julie Milton from Edinburgh University, conducted four tests with Smart and Jaytee similar to those of Dr Sheldrake's.

After the four tests Wiseman et al concluded that the dog did not show signs of telepathy and that any appearance of such abilities in Jaytee and other animals was due to them responding to routine, sensory cueing from the owner and people remaining with the pet, selective memory on the part of owners, multiple guesses, misremembering and selective memory.



[30]

Figure 2.6: Combined results of Sheldrake's trials



[31]

Figure 2.7: Results of Wiseman et al trials

[30]Sheldrake, R. and Smart, P (2000) A dog that seems to know when his owner is coming home: videotaped experiments and observations. *Journal of Scientific Exploration* 14(2): 233-255.

Specific to Dr Sheldrake's experiment, Wiseman et al cited methodological problems, first pointed out by Susan Blackmore, to explain the seemingly positive results. Wiseman then published his findings, disputing the concept of what he called the 'psychic pet' phenomenon in the British Journal of Psychology, before Dr Sheldrake's paper on his own research was published. Dr Sheldrake later remarked, "I would have liked to 'bunk' before I was 'debunked"'.[32]

The British media picked up on Wiseman's paper which resulted in newspaper headlines such as "Pets have no sixth sense, say scientists" (*The Independent* , 21 August 1998), "'Psychic' dog is no more than a chancer" (*The Times* , 21 August 1998) and "Psychic pets are exposed as a myth" (*The Daily Telegraph* , 22 August 1998).

Following this, Dr Sheldrake requested the results of Wiseman's tests which were given and examined by Dr Sheldrake who in a post hoc analysis found that the results of the four trials conducted by Wiseman et al actually closely matched those of his own 200 trials, with the same pattern of Jaytee going to the window far more frequently when his owner was on her way home than when she was not.

This was never denied by Wiseman, Smith or Milton, despite Dr Sheldrake's assertions to the contrary. However, neither in the original Journal of Psychology paper, nor in the reply to Dr Sheldrake's critique of their work, did Wiseman et al state that they had repeated the pattern observed by Dr Sheldrake.

In 2007, nine years after the original paper was published and over eleven years after the completion of the research, during an interview with Alex Tsakiris on *Skeptiko,* Richard Wiseman

[31]Sheldrake, R. (1999b) Commentary on a paper by Wiseman, Smith and Milton on the `psychic pet' phenomenon. Journal of the Society for Psychical Research 63: 306-311.
[32] During an interview on 8 July 2009 with Philip Stevens.

said "I don't think there's any debate that the patterning in my studies is the same as the patterning in Rupert's studies...it's how it's interpreted."[33]

A few months later, in an interview with Steven Novella in *The Skeptics' Guide to the Universe*, Wiseman repeated his belief that the patterns found in Dr Sheldrake's study could also be found in his own.[34] Dr Sheldrake has stated that he believed these were the first times Wiseman had publicly agreed, at least in part, that he had replicated Dr Sheldrake's results.

Carrying on from his work in telepathy, Dr Sheldrake began to investigate another of his tests from *Seven Experiments That Could Change the World*. In 1999, Dr Sheldrake published a paper entitled 'The Sense of Being Stared At Confirmed by Simple Experiments' in which he described experimental data he had conducted into what he described as the 'sense of being stared at', the idea that people can detect by anomalous means that they are being watched (later called 'scopaesthesia', coming from the Greek word 'skopein' meaning 'to look at', and 'aesthesis', meaning 'sensation').

Dr Sheldrake combined the data from over 30,000 trials to test for the existence of such a sense. These trials required two people working together, the first (which Dr Sheldrake termed the 'subject') sat with his or her back towards the other (which Dr Sheldrake termed the 'looker'). The distance between the two was always more than one metre and they sat in places where there were no reflective surfaces and in later trials the 'looker' wore a blindfold. In a random sequence, the 'looker', sat behind the 'subject', would either look at the back of the subject or look away before indicating to the subject when a trial was beginning by clicking a cat clicker. The subject would then guess whether he or she was being looked at or not. The subject would be told if he or she was correct or not and then the test would be repeated up to 20 times.

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[33] Skeptiko, 17 April 2007, "Collaboration Between Sketics and Paranormal Researchers"

[34] The Skeptics' Guide To The Universe - Podcast 126 – 19 December 2007. quote: "Rupert then came along, did his own tests using a different procedure and claimed the dog was psychic and then reanalysed our data and found the same patents in our data he had in his. And I think those patterns are there as well."

By chance, they should have been right 50% of the time, but in Dr Sheldrake's study they were correct almost 55% of the time, which Dr Sheldrake suggested was good evidence of telepathy. Dr Sheldrake also observed that when the 'subject' was not being looked at, he or she was correct at the chance level, but when they were being looked at they were correct almost 60% of the time. Dr Sheldrake theorised that this was because 'we have a sense of being stared at, not a sense of *not* being stared at'.

Similar experiments were conducted by other scientists (including proponents and sceptics of such research) with varying results. In 2000 David Marks and John Colwell conducted their own experiment using a similar procedure to Dr Sheldrake. After 60 trials, the two achieved a similar result to Dr Sheldrake, with a hit rate of just under 55%. Marks and Colwell, observing that the people in their trials tended to get better over time, hypothesised that their positive result might be due to what they called the "pseudo-random" sequence they and Dr Sheldrake had used to determine when the 'looker' was to stare and not stare. The two suggested that the 'subject' could subconsciously learn the sequence and over time guess when they were and were not going to be looked at. When they redid the tests without feedback (telling the subject whether they were correct or not after each trial) the guesses were at the chance level of 50%, leading David Marks and John Colwell to conclude that Dr Sheldrake's positive results were due to the 'biased nature of Sheldrake's sequences'.[35]

In his reply to their research, Dr Sheldrake pointed out that he used a randomisation sequence suggested to him by Richard Wiseman (a colleague of Marks at CSICOP). Dr Sheldrake also stated that many of his trials use coin tosses to randomise the sequence of looking and non-looking and often did not give feedback. In these cases (all of which had been previously

[35] Marks, D. & Colwell, J. (2000) The psychic staring effect: An artifact of pseudo randomization. *Skeptical Inquirer* September/October, 41-9.

published) Dr Sheldrake gained the same accuracy rate.[36] Dr Sheldrake suggested that the people who were getting better over time might be learning to identify the sensation of being stared at, as opposed to the randomisation sequence. Dr Sheldrake also observed that the second set of experiments done by Marks and Colwell (without feedback) had a different 'looker' from the first experiments. Dr Sheldrake said that he had observed that some 'lookers' achieved better results than others and pointed to research which suggested this (although this research was more about the experimenter's effect than the difference in results between different 'lookers' in staring experiments).[37]

The results of Dr Sheldrake's experiments were replicated by Dean Radin and in several schools and colleges across North America.[38] Other researchers however, including Robert Baker, Susan Blackmore, Chris French, Eva Lobach and Richard Wiseman failed to achieve positive results in their staring experiments, although Dr Sheldrake disputed most of their conclusions.[39]

Dr Sheldrake went on to publish the findings of his experiments in a book appropriately entitled *The Sense of Being Stared At: And Other Aspects of the Extended Mind.* Asked about the book in a *USA Today* article, Michael Shermer, publisher of *Skeptic* magazine, condemned the research saying "[Sheldrake] has never met a goofy idea he didn't like". Shermer went on to say that the seemingly anomalous phenomena described in the book "are perfectly explicable by normal means".[40] However, when Dr Sheldrake asked Shermer to give an example of the 'normal means' he described, Shermer could not, stating that he had 'not gotten to' reading the book or related papers.[41] In March 2003, Dr Sheldrake challenged Shermer to a debate, which he accepted, and

[36] Sheldrake, R. (2005c), 'The non-visual detection of staring: Response to commentators', Journal of Consciousness Studies, 12 (6), pp. 117–26.
[37] Wiseman, R. & Schlitz, M. (1997) Experimenter effects and the remote detection of staring. Journal of Parapsychology, 61, 197-207.
[38] Radin, D. (2004), 'The feeling of being stared at: An analysis and replication'. Journal of the Society for Psychical Research, 68, pp. 245–52.
[39] Sheldrake, R. (2005c)
[40] Peterson, Karen S. (26 February 2003) 'Paranormal is normal, controversial scientist says', USA TODAY
[41] An e-mail to Dr Sheldrake quoted on the latter's website (http://www.sheldrake.org/D&C/controversies/Shermer_intro.html)

several times and venues were suggested, but all were rejected by Shermer. As of 2009, the debate has still not taken place.

In early 2004, Dr Sheldrake took part in a public debate with Lewis Wolpert, Professor of Biology at University College London, on the existence of telepathy. Wolpert had been very critical of Dr Sheldrake in the past, having previously refused to publicly discuss the possibility of morphic resonance. Both men were allowed 30 minutes to give a presentation on their views on telepathy. Professor Wolpert only used 15 of these 30 minutes, saying 'that's all he needed'. "The blunt fact is that there's no persuasive evidence for [telepathy]" Wolpert said, describing parapsychology as a "pathological science".[42]

After Wolpert's presentation, Dr Sheldrake took all the time he had been given to make his case for telepathy. "An open mind is a very bad thing - everything falls out", Wolpert is reported to have said after Dr Sheldrake had presented the results of his research into telepathy. According to Dr Sheldrake, when he was giving his presentation on the evidence for telepathy, Wolpert sat with his back to the projector screen, taping a pencil and 'looking bored'.

The debate was later reported in Nature by John Whitfield who said "Many in the audience… variously accused Wolpert of not knowing the evidence and being unscientific."[43]

In October of 2005, Sheldrake was invited to take part in a similar debate at the European Skeptics Congress in Brussels with Dutch scientist and sceptic Dr Jan Willem Nienhuys. As in the debate with Prof. Wolpert, Dr Sheldrake presented results of his research and Dr Nienhuys gave a talk opposing the idea of telepathy. Botanist, Dr Richard Hardwick later described the debate by saying "[Sheldrake] comes well prepared, and he speaks fluently and clearly, as if he really wants to communicate. He marshals his arguments with precision, he provides (so far as I

[42] From the transcript of the debate on Dr Sheldrake's website (http://www.DrSheldrake.org/D&C/controversies/RSA_text.html).
[43] Whitfield, John "Telepathy debate hits London: Audience charmed by the paranormal" *Nature* 22 January 2004

can judge) evidence for his statements, and he brings his nul hypotheses out into the open, ready to be shot down by the force of disproof."

About the response to Sheldrake, Dr Hardwick said "In my judgement, Nienhuys' counterattack failed… it seems Dr Nienhuys had not done his homework. He did not have any data or analysis to hand, and his attack fizzled out."[44]

Dr Sheldrake was made the Perrott-Warrick Scholar and Director of the Perrott-Warrick Project in late 2005. The Perrott-Warrick Project for research on unexplained human and animal abilities is administered by Trinity College, Cambridge and supported by the Perrott-Warrick Fund. This allowed Dr Sheldrake to continue his studies into telepathy, for the first time gaining funding for it. Before being given this fund, Dr Sheldrake relied on creating extremely inexpensive experiments to research telepathy. The most basic staring experiment only required two people (a looker and the subject), a blindfold, a coin and a pen and paper to note down the results. With the Perrott-Warrick funding Dr Sheldrake was able to create an 'online experiment portal' as part of his website, where anyone could conduct their own telepathy experiments using the inexpensive method developed by Dr Sheldrake.

One of Dr Sheldrake's main arguments for the validity of conducting experiments into the existence of telepathy is that many ordinary people have had experiences they believed to be telepathic. In surveys conducted in Europe and North America, Dr Sheldrake discovered that many people claim to know who is calling before they picked up the telephone, or sometimes think about someone, for no apparent reason, who then calls.[45] Dr Sheldrake observed that, despite such a wide spread belief in such phenomena, there had been very few studies into whether people were really detecting who was calling by anomalous means.

[44] Dr Richard Hardwick, Report on the12th European Skeptics Congress, Brussels, October 13-16, 2005
[45] Sheldrake, R (2000) Telepathic telephone calls: Two surveys. JSPR 64, 224-32.

Dr Sheldrake conducted several tests in which each participant in the experiment had four potential callers (close friends or family members) one of whom was selected at random by the experimenter and asked to telephone the participants who were filmed on time-coded videotape throughout the experimental period. When the telephone began to ring, the participants had to say into the camera who they thought was calling. In a total of 271 trials, there were 122 (45%) correct guesses as opposed to the 25% expected if they had been guessing. Dr Sheldrake also conducted experiments with participants and callers who did not know each other where the guesses were at about the chance level of 25%.

In 2004, Eva Lobach and Dick J. Bierman of the University of Amsterdam (who had previously failed to replicate Dr Sheldrake's staring experiments) conducted their own research into telephone telepathy using the same procedure as Dr Sheldrake and achieved a positive result with a hit rate of 29.4%. Although this was above the expected chance, it was also below the 45% rate gained by Dr Sheldrake. In a post-hoc analysis of Sheldrake's results, Lobach and Bierman had discovered that the chances of a caller being guessed correctly increased when the telephone call took place at peak local sidereal time (an effect reported in several other telepathy experiments). As a result, Lobach and Bierman conducted the tests at peak and non-peak LST. They found that at peak time the hit rate increased to 34.6% and at non-peak the hit rate was at the chance level. [46]

In 2009, another experiment was conducted at University Hospital Freiburg by Stefan Schmidt, Susanne Müller, and Harald Walach using a different procedure to Dr Sheldrake and achieving a non-significant hit rate of 27.7%.[47]

Dr Sheldrake was invited to speak about his paper on telephone telepathy at the British Association's 2006 Festival of Science. This was criticised by several scientists including

[46] Lobach, E. and Bierman, D. (2004) Who's calling at this hour? Local sidereal time and telephone telepathy. In S. Schmidt (ed.) Proceedings of the Parapsychological Association, 47th Annual Convention (Pp.91-98)
[47] Stefan Schmidt, Devi Erath, Viliana Ivanova and Harald Walach, (2009) "Do You Know Who is Calling? Experiments on Anomalous Cognition in Phone Call Receivers" The Open Psychology Journal, 2009, 2, 12-18

Professor Peter Atkins, Fellow and Tutor in Physical Chemisty at Oxford University who said "Although it is politically incorrect to dismiss ideas out of hand, in this case there is absolutely no reason to suppose that telepathy is anything more than a charlatan's fantasy. If telepathy were a real phenomenon, evolution and natural selection would have developed it into a serious ability. That has not occurred in this case, neither speaker has a reputation for reliability, and it is extraordinary that the BA should consider them worth a platform."[48]

This controversy led to Dr Sheldrake and Atkins being invited to take part in an on-air debate on BBC Radio during which Dr Sheldrake asked Atkins if he'd 'actually studied any of this evidence or any other evidence' to which the Professor replied "No, but I would be very suspicious of it". To which Sheldrake replied "Of course, being suspicious of it in advance of seeing it is normally called prejudice." Dr Sheldrake went on to say that he would 'never presume to comment' on one of Prof. Atkins's experiments without reading them. Atkins responded by saying "I've read your experiments in the past on other off the wall ideas that you've had."[49]

As a result of the research on telephone telepathy Sheldrake 'won' the dubious Pigasus Award on 1 April 2006. The prize was created by magician James Randi and is given to individuals who Randi feels are parapsychology, paranormal or psychic frauds.[50]

In 2007, Dr Sheldrake was contacted by Channel 4 who asked if he would be willing to take part in an interview for a television programme presented by Richard Dawkins. The programme was called 'Enemies of Reason' (although Dr Sheldrake claims he wasn't told that when he agreed to take part).

According to Dr Sheldrake, in the subsequent debate (which was not included in the resulting series) Prof. Dawkins accused Sheldrake of "trying to turn the tables on him" and refused to

[48] Henderson, Mark (6 September 2006) Theories of telepathy and afterlife cause uproar at top science forum, *The Times*
[49] See Appendix I for full transcript
[50] Wagg, Jeff (30 October 2008) Pigasus Award, *James Randi Educational Foundation*

discuss any research on telepathy, instead saying that Sheldrake was "prepared to believe almost anything". Dr Sheldrake claims he accused Prof. Dawkins of being dogmatic and attempting a 'low grade debunking exercise'. To which Prof. Dawkins reportedly said "It's not a low grade debunking exercise; it's a high grade debunking exercise". Prof. Dawkins has never publicly talked about the interview.[51]

Science Education and Funding

Sheldrake has described his work in education as his 'one success',[52] having helped change the way science experiments are conducted in secondary schools across the United Kingdom. Dr Sheldrake discovered that once children left primary school, they were taught to adopt a 'passive voice' when writing up results of experiments.

In an article in *New Scientist* about this discovery, Dr Sheldrake said "At primary school [my son's] science reports had been lively and vivid. But when he moved to secondary school they became stilted and passive. This was no accident. His teachers told him to write this way."[53]

With the help of Frank Chennell, Dr Sheldrake conducted a survey of local teachers and scientists to ask how they thought children should write science reports. The survey found that most scientists favoured a passive voice for research papers and although most teachers felt a direct voice was more in line with the national curriculum, they felt the passive voice should be used by older pupils.

The results of this survey were published in the *Teacher-Scientist Network newsletter* and came to the attention of Robert May, the then President of the Royal Society, who said "I would put my own view so strongly as to say that, these days, the use of the passive voice in a research paper is the

[51] This description comes from Sheldrake's website and an interview with Dr Sheldrake conducted by Philip Stevens
[52] Said during interview with Philip Stevens
[53] Sheldrake, Rupert, (19 July 2001) "Personally speaking" *New Scientist*

hallmark of second-rate work… In the long run, more authority is conferred by the direct approach than by the pedantic pretence that some impersonal force is performing the research."

Dr Sheldrake has also been critical of the way in which science is funded, having had extreme difficulties in getting funding for his own research which many scientists considered to be 'beyond the pale'.

In 2003 Dr Sheldrake proposed in a *New York Times* article that 1% of the current funding being given for science should go to research that 'was of real interest to taxpayers'. Sheldrake stated his belief that this would make science more popular and more attractive to young people.[54]

Dr Sheldrake's interest in the funding and education of science is perhaps not completely unselfish. Surveys constantly show a great public interest in telepathic phenomena, yet there is virtually no funding for its research into whether it even exists. Also, a major complaint of some parapsychologists is that throughout science education there is no discussion of parapsychology – not even to dismiss it.[55] Dr Sheldrake has also promoted the use of his online telepathy experiments in secondary school science classes, many of which achieve positive results.[56] With such experiences in mind, it would seem unlikely that school children who did these experiments and then went into science would be as sceptical about the possibility of telepathy as those who didn't.

Following a debate between the two men on the future of developmental biology, Dr Sheldrake and Lewis Wolpert on 9 July 2009 made a wager with each other. Prof. Wolpert bet Dr Sheldrake that "by 1 May 2029, given the genome of a fertilised egg of an animal or plant, we will

[54] Sheldrake, Rupert, (4 January 2003) "Today's Visions of the Science of Tomorrow - Really Popular Science" *New York Times*
[55] Dean Radin "Science and the taboo of psi", Google TechTalks 18 January 2008
[56] Sheldrake, R. (1998), 'The sense of being stared at: Experiments in schools', Journal of the Society for Psychical Research, 62, pp. 311–23.

be able to predict in at least one case all the details of the organism that develops from it, including any abnormalities."[57]

Dr Sheldrake believes this won't happen as he views genes as 'overrated'. The winner (or their descendants) will receive a case of Quinta do Vesuvio 2005, which until May 2029 is being stored in the cellars of The Wine Society. Like much of Dr Sheldrake's life and career, only time will tell if he has made the right bet.

57 Sheldrake, R and Wolpert, L, New Scientist "What can DNA tell us? Place your bets now!" (8 July 2009)

Chapter 3 - Discussion and Conclusions

Prof. Steven Rose says that the 'only' interesting thing about Rupert Sheldrake is the sociological question of why a man with such glowing credentials would 'throw it all away' by proposing such extreme theories and conducting experiments into such bizarre topics. Rose has stated his belief that Dr Sheldrake's break with conventional science was due to a mixture of his Anglican faith, a mid-life-crisis and attention seeking.[58] It is beyond the scope of this dissertation to assess Prof. Rose's suggestion, although it possibly says as much about Prof. Rose as it does about Dr Sheldrake. By suggesting that Dr Sheldrake's theories are the result either of his religious faith or for some psychological reason, Rose goes against the Mertonian norm of Universalism by which research should not be judged by the scientist who proposed it. The breaking of norms would appear to be quite common in the analysis of Sheldrake's work, as this chapter will show.

Rose does however highlight the bemusement with which many in the scientific community view Dr Sheldrake and his work. It is often the first concession from his critics that Dr Sheldrake is an extremely intelligent man and (up until the publication of *A New Science of Life*) had a career of which most scientists would be envious. This has perhaps added to the anger which Dr Sheldrake provokes in his critics many of whom refused for many years to discuss Dr Sheldrake's theories or even be in the same room as him.

Nicholas Humphrey, who remains extremely sceptical of Dr Sheldrake's hypotheses and experimental results, said that he found the reaction against Sheldrake 'both distasteful and surprising' and that he was 'ashamed' of the scientific community's reactions towards him.[59] Humphrey was responding in particular to the now infamous review of *A New Science of Life* in *Nature* by John Maddox entitled 'A Book for Burning?' Although the article spoke out against any book being burnt, many readers of the article missed this as well as the question mark in the

[58] Said in a BBC interview on the TV programme *Heretics*
[59] Said in a BBC interview on the TV programme *Heretics*

title. Incredibly, this did not lead to much criticism of John Maddox but instead is one of the main reasons cited for the exclusion of Dr Sheldrake from mainstream science.

In 1994 Maddox again stated his belief that *A New Science of Life* should be, if not burned, then 'put firmly in its place among the literature of intellectual aberrations' and that he was 'offended' by the theories put forward in the book. Without any sense of irony, Maddox compared the condemnation of Dr Sheldrake by the scientific community to that of the Catholic Church's criticism of Galileo, saying "[Sheldrake's theory] can be condemned in exactly the language that the Popes used to condemn Galileo, and for the same reasons: it is heresy."[60]

Anthony Freeman, in a paper on the criticism of Dr Sheldrake, commented on the use of religious overtones. In particular he noted the use of the word 'heresy' by Maddox, saying "In a religious context, heresy is not simply false belief, it is a betrayal of true belief. An outsider may be in error, but only an insider can be a heretic."[61]

It would seem that the impassioned criticism of Dr Sheldrake is as much about who he is (a very eminent scientist) than about what he is saying. The vocabulary used in such criticism does not appear to be that of someone who is emotionally neutral. Maddox asserts that Dr Sheldrake's idea's offended him. The question has to be asked though, is this really a scientific view? All Dr Sheldrake did was put forward a theory, and for a scientist, a theory (no matter how unorthodox) is something to be tested in a disinterested manner and then either dismissed or accepted based on the results of those experiments. A disinterested scientist who maintains emotional neutrality surely shouldn't find any theory offensive?

For many years Dr Sheldrake's work was accused of 'giving comfort to the parapsychologist' and his eventual move toward the taboo subject of telepathy further strengthened his maverick status within science. Also, parapsychology itself already provoked much criticism from the science

[60] BBC interview in the TV programme *Heretics*
[61] Freeman, A. (2005), 'The sense of being glared at: What is it like to be a heretic?', Journal of Consciousness Studies, 12 (6), pp. 4–9.

community; criticism which was then attached to Dr Sheldrake, whose approach to the subject was different from that of many others.

Whereas previous tests for the existence of telepathy had used experiments which had little basis in the real world (such as the Ganzfeld experiments[62]) Dr Sheldrake started his research from natural history and then conducted tests based on that. Pets sensing the intentions of their owners, people being able to tell when they were being stared at from behind or knowing when a specific person was about to telephone them, were all things that a majority of people claimed to have experienced and yet little research had been conducted on them.

These experiments attracted the attention of a wide range of scientists and others who viewed such experiments with an equally wide range of interest and criticism. No doubt, at least some of the criticism (perhaps most of the criticism) is fair and necessary, as is the case with research in all fields of science. However, a large amount of the criticism of such research has itself been viewed as questionable.

Prof. Chris French is the founder and co-editor of *The Skeptic* magazine. He also runs several 'sceptics in the pub' events across the country and often appears in the media suggesting normal explanations for seemingly paranormal events. When asked about Dr Sheldrake and his critics Prof. French said "In my opinion, many of the attacks on Sheldrake's work have been unfair and uninformed."[63]

However, Prof. French is by no means a proponent of Dr Sheldrake's experimental results, having observed methodological and statistical problems with the work when attempting to replicate Dr Sheldrake's results.[64] Despite this Prof. French has collaborated with Dr Sheldrake in several experiments. Prof. French once said that during debates, Dr Sheldrake 'runs absolute

[62] Bem, D.J. (1993) The Ganzfeld experiment. *Journal of Parapsychology*, 57(2), 101-110.
[63] Vernon, Mark (2 February 2009) "Hard to believe", *The Guardian*
[64] French, C.C. (2005). A closer look at Sheldrake's treatment of Rattee's data. *Journal of Consciousness Studies*, 12, 92-95.

rings' around his critics.[65] This view is certainly reflected in the coverage of such debates by people who would not be expected to easily support claims of telepathy and morphic resonance, but nonetheless state Dr Sheldrake clearly wins debates. Both John Whitfield from *Nature* and Richard Hardwick when reporting at the 2006 European Skeptics Conference stated that Sheldrake was the more convincing speaker after debating Lewis Wolpert and Jan Willem Nienhuys respectively.

Dr Sheldrake would no doubt say that this was due to the strength of the evidence, but this is not completely satisfying. There are two main considerations: firstly that Dr Sheldrake is a very skilled debater and secondly, his opponents rarely read Dr Sheldrake's work before condemning it. Whitfield criticised Prof. Wolpert for "not knowing the evidence" and Hardwick said that Dr Nienhuys "had not done his homework". In a live radio debate with Dr Sheldrake, when asked if he'd read the telepathy research he was criticising, Prof. Peter Atkins replied "No, but I would be very suspicious of it."[66]

Richard Dawkins, when interviewing Dr Sheldrake for his TV series *Enemies of Reason*, again apparently refused to discuss any of the research. Of course, the last example has to be treated with caution as the only report of the interview comes from Dr Sheldrake himself. This said, the interview was left out of the resulting series and Prof. Dawkins has never publicly talked about the debate, which, without providing evidence either way, doesn't immediately suggest it went well for him.

Michael Shermer, although initially agreeing to take part in a debate with Sheldrake, has constantly turned down invitations to do so. Shermer admitted he hadn't read the book by Sheldrake which he criticised in a *USA Today* article. In 2005 Shermer wrote an article for *Scientific American* in which he ridiculed Dr Sheldrake's theories and research. He focused

[65] Said in a discussion on BBC Radio 4's *Material World* (7 September 2006)
[66] See Appendix I for transcript

especially on Dr Sheldrake's attempts to get ordinary members of the public to take part in telepathy experiments. Shermer quoted Sheldrake's claim that experiments to test if people can sense when they are being stared at "have given positive, repeatable, and highly significant results, implying that there is indeed a widespread sensitivity to being stared at from behind". Shermer then condemned the use of online experiments to test telepathic phenomena, saying "science is not normally conducted by strangers who happen on a Web page protocol, so we have no way of knowing if these amateurs controlled for intervening variables and experimenter biases."[67]

The fact is that the experiments which Dr Sheldrake said had 'given positive, repeatable, and highly significant results' were not the online experiments but the test he had conducted and which had been published in peer-reviewed journals.[68] The independent meta-analysis which Dr Sheldrake quotes in these papers has never included results from online tests. Again it would seem as if Shermer had read neither the papers nor the books which he was criticising.

It surely goes against the norms of science, as well as basic courtesy and common sense, to condemn someone's research before actually reading it. Yet this seems to be the norm in the case of Dr Sheldrake's research. In Dr Sheldrake's papers and work there could be ad hoc analyses, methodological and/or statistical errors, or it could raise fundamental questions about the nature of our existence by giving evidence for the existence of telepathy. But Wolpert, Nienhuys, Atkins, Shermer and Dawkins wouldn't know as they simply didn't read the evidence before attacking it.

Of course, many scientists have examined Dr Sheldrake's research and claimed to have found problems in the methodology and analysis of results. Richard Wiseman has attempted to replicate many of Dr Sheldrake's experimental research, perhaps most notably the experiment

[67] Shermer, Michael (November 2005) "Rupert's Resonance" *Scientific American*
[68] *Journal of Consciousness Studies* (June, 2005)

testing whether there was a telepathic link between a mongrel terrier named Jaytee and his owner, Pamela Smart.

During an interview with Steven Novella on *The Skeptics' Guide To The Universe* Wiseman made the following statement about his attempts to replicate Dr Sheldrake's research:

> The dog thing we did - I can't remember now, too many years ago - and it was when the claim wasn't very well formed about really what the dog was doing - how it was informing you that its owner was allegedly coming home. And so we tested the dog very early on in that process, we didn't find any evidence of psychic ability. Rupert then came along, did his own tests using a different procedure and claimed the dog was psychic and then reanalysed our data and found the same patterns in our data he had in his. And I think those patterns are there as well. But the question is interpretation of them and I think there is a complexity to this because you have really two competing explanations, or potential explanations for what's happening in addition to him being psychic. One is that the dog is simply going to this porch area more and more over time; the second is the dog somehow knows when his owner is going to be returning home because of the behavioural cues that the owner may have given before she left or indeed the owner's parents, who were with the dog the whole time, may have given when they were with the dog, and I don't think Rupert's experiments rule those out as possibilities.[69]

Wiseman's statement is interesting as it would seem to contradict several statements in his own published papers.[70, 71] Wiseman says that he started his research 'when the claim wasn't very well

[69] *The Skeptics' Guide To The Universe* - Podcast 126 – 19 December 2007.
[70] Wiseman, R., Smith, M. and Milton, J. 1998. Can animals detect when their owners are returning home? An experimental test of the `psychic pet' phenomenon *British Journal of Psychology* 89: 453-462.
[71] Wiseman, R., Smith, M. and Milton, J. 2000. The `psychic pet' phenomenon: a reply to Rupert Sheldrake. *Journal of the Society for Psychical Research* 64: 46-49.

formed', when in fact the owner of the dog in question had come forward after Dr Sheldrake asked for people who felt their dog could sense telepathically when they were coming home. The theory that dogs could sense the intentions of their owners telepathically had been laid out and fully formed in *Seven Experiments That Could Change the World,* published over a year before Wiseman and his team investigated the dog. Also, Wiseman states that he had come in 'very early on in that process' and that Dr Sheldrake 'then came along and did his own tests', however, in his published paper on the research Wiseman states that he conducted his four trials in June and December 1995, by which time Dr Sheldrake had conducted over 100 trials, having started his research with the dog in 1994.

Wiseman also states that Dr Sheldrake's experiments did not rule out the possibility that the dog knew when the owner was coming home because it was picking up on behavioural cues from the owner or her parents; however Dr Sheldrake's experiment was specifically designed to eliminate this possibility. The owner didn't know when she would be returning until after she had left her house and her parents didn't know until the owner returned home, so cueing the pet at an appropriate time would not be possible.

To ensure the norm of organised scepticism, criticism of experiments and their analysis is vital in all fields of science, but especially controversial ones, and no doubt in all fields of science there is unfair criticism. Wiseman's critique of Dr Sheldrake's research on pet telepathy however, does raise some important issues that could well have affected Dr Sheldrake's conclusion, but at least part of Wiseman's statement is at best an untrue reflection of events and at worst a misrepresentation of what happened. In acting so, Wiseman has gone against the norm of disinterestedness by presenting his research in a way which supports his claims over those of a scientist with whom he disagrees.

Many critics, including Peter Atkins and Anthony Atkinson, have questioned the outcome of Dr Sheldrake's research based mainly (and in some cases entirely) on theoretical grounds. This is

perfectly valid and proper, but rejecting the results of research on purely theoretical grounds can also be very risky, as sometimes accepted theories are themselves in time proven incorrect.

When Galileo dropped balls of different masses off the top of the Leaning Tower of Pisa, his results contradicted the Aristotelian theory which had existed for almost 2000 years. It is likely that when it comes to telepathy there is something wrong with the experiment more than the current understanding of science, but that cannot be certain and so is not reason enough to ignore the tests and declare the research flawed.

Peter Atkins makes the point that if telepathy really existed, natural selection would have brought it out to be one of the major senses as in the wild. For example, it would be enormously useful for a prey species to be able to sense when it was being stared at by a predator, the fact that this sense isn't obvious to us after millions of years of evolution shows it does not exist. The argument against this idea is that if a prey species did evolve a sense of being stared at, any predator species would need to evolve some way of 'blocking' their gaze from becoming detectable by their prey in order to survive, thus the species becomes less telepathic over time. Such theoretical arguments are circular and often unhelpful in the overall debate.

A true unbiased analysis of experimental results in relation to the current theories is vital in all fields of science. Whether research is analysed impartially can often be extremely subjective, as it would seem natural to want to criticise those who criticise you. Dr Sheldrake has said on many occasions that 'healthy scepticism plays an important part in science, and stimulates research and critical thinking. Healthy sceptics are open-minded and interested in evidence.' However, Dr Sheldrake frequently singles out the Committee for Skeptical Inquiry (formerly known as the Committee for the Scientific Investigation of Claims of the Paranormal, or CSICOP) for being 'pseudo-sceptical' and acting like 'vigilantes [who] continually challenge any evidence for psi

effects'.[72, 73] In many of his papers, Dr Sheldrake points out that critics such as David Marks and Richard Wiseman are fellows of the Committee, suggesting that this association somehow puts into question their impartiality.

Yet the founder of CSICOP, Marcello Truzzi, was very critical of dogmatic and pathological scepticism. Truzzi once said of scepticism, "if a critic asserts that there is evidence for disproof, that he has a negative hypothesis - saying, for instance, that a seeming psi result was actually due to an artefact - he is making a claim and therefore also has to bear a burden of proof."

Truzzi was described by Paul Kurtz, Professor Emeritus of Philosophy at the State University of New York, as 'the sceptic's sceptic' due to his dislike of dogmatic or unfair scepticism.

There are certainly many ways in which research can be presented and analysis conducted which might determine whether or not there has been fair or unfair criticism of a scientist's work. David Marks, when he unexpectedly repeated the positives results of Dr Sheldrake's staring experiment, immediately conducted a post-hoc analysis to determine where he and Sheldrake had 'gone wrong'. Marks surmised that what he called Dr Sheldrake's pseudo-random sequence (a sequence which had been suggested to Dr Sheldrake by Richard Wiseman and Matthew Smith) was what had caused the positive results. After repeating the experiment with a 'true random sequence' and gaining a non-significant result, Marks concluded that not only had his own previous research been due to the pseudo-random sequence, but also strongly suggested that so had Dr Sheldrake's results.

The problem here is that often in science, experimental results from one set of researchers are not repeated by another. The decision regarding which results are giving the correct view of what is happening is not for the experimenter to decide, but is for further research under better controls. Dr Sheldrake pointed out that he had used several randomisation sequences, including

[72] Sheldrake, R. (1995) "Researchers' Expectations?" an essay.
[73] The psi effect is another term for anomalous cognition, ESP or telepathy

coin tosses, and had still achieved a positive result as had several others. David Marks's explanation for his positive result was valid, but it is extremely dangerous to suggest that it was the reason for the positive results of other experiments.

An example of perhaps a more acceptable examination is that of Stefan Schmidt, Devi Erath, Viliana Ivanova and Harald Walach who attempted and failed to replicate Dr Sheldrake's telephone telepathy experiment. In their conclusion Schmidt et al did raise the possibility that there was some flaw in Dr Sheldrake's experiment but they didn't elaborate on this idea. Instead they stated the difference in the procedure between themselves and Dr Sheldrake, suggesting that one or more of these could have affected the outcome. They did not focus on whether telepathy was real or not, offering suggestions on both sides of that argument. Finally, and crucially, they stated that further research must be done to determine which results give the best view of what is really happening.[74] This is possibly the better way to present and analyse research in controversial areas. Unfortunately, in the case of Dr Sheldrake, it would seem such appraisals of his work are extremely rare.

Conclusion

The guiding philosophy of modern western science is an idea of being predominantly open minded, impartial and objective. These virtues are said to maintain 'fairness' in the scientific community, yet many of Dr. Sheldrake's critics (most of who are well-respected in their fields) seem go against the norms of science. John Maddox seemed to become emotionally committed to denouncing Dr Sheldrake's theories by using extreme language to attack his work. Such emotion against fellow scientists itself goes against the core values of science, and at the same time perhaps explains why so many scientists seem to lose objectivity in relation to Dr Sheldrake, and why they are compelled to break the norms of science.

[74] Stefan Schmidt, Devi Erath, Viliana Ivanova and Harald Walach, (2009) "Do You Know Who is Calling? Experiments on Anomalous Cognition in Phone Call Receivers" *The Open Psychology Journal*, 2009, 2, 12-18

When Peter Atkins admitted he hadn't read the research on telepathy, he justified his criticism of it by saying "I've read [Sheldrake's] experiments in the past on other off the wall ideas that [he's] had." During a debate at the Cambridge Science Festival in 2009, Lewis Wolpert said he wouldn't trust Dr Sheldrake's research 'for a second'.[75] Judging a scientist's research based on their past work goes against the norm of universalism which is the view that research should be judged on its own merits.

The way in which Richard Wiseman presented the results of his dog experiment would seem to go against the norm of disinterestedness, as although his results matched those of Dr Sheldrake's, Wiseman's paper did not state this and instead the results were given in a way which support his view that the dog was not telepathic.

Institutions such as CSI (formally called CSICOP) claim to be good examples of organised scepticism, however many of their actions would seem to be more like those of the counter-norm organised dogmatism. Scientist David Marks unexpectedly repeated Dr Sheldrake's results in a staring experiment, and then searched for and found a 'flaw' in his experiment which he went on to suggest was the reason for Sheldrake's positive results as well. Although Marks spent a great deal of time critically scrutinising why he repeated Dr Sheldrake's research, he did not do the same with his resulting theory on how he achieved positive results. Organised Scepticism is clearly applied to Dr Sheldrake's work but not to the theories and research which disputed his results.

Perhaps, one day, the theory of morphic resonance will be vindicated and telepathic phenomena accepted. In which case Rupert Sheldrake will surely be remembered alongside Isaac Newton, Charles Darwin and Albert Einstein, and his detractors looked upon with the same indifference as the Cardinals who refused to look through Galileo's telescope. But even if Dr Sheldrake's theories are disproved and his experimental results shown to be unsound, it still seems unlikely

[75] The Nature of Life - a Scientific Debate *Cambridge Science Festival*, 20 March 2009

that those within the scientific community who have condemned Dr Sheldrake and his work will be looked on kindly by future generations of scientists. For surely the harsh rhetoric, the refusal to look at results before criticising them, and the misrepresentation of events and data is far more damaging to science than some incorrect theories and a few flawed experiments.

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Appendix I

Transcript of a BBC Radio Five Live debate on 6 September 6 2006.

Interviewer: However let's talk to a leading scientist, Professor Peter Atkins, who is a biologist at Lincoln College Oxford. Professor Atkins why is all this a total waste of time in your view?

Atkins: Well, you can't rely on any of these experiments. And by the way I'm a chemist not a biologist. But there is no serious work done in this field. The samples that people use are very tiny, the effects are statistically insignificant, the controls are not done in a scientific way. On the whole there's just no point in doing it. There are no serious reasons for believing there should be an effect of telepathy anyway. There is no mechanism within modern science to account for it. There's nothing that drives people to believe in it except sentiment, emotion, and things like that.

Interviewer: Well it would be useful wouldn't it? I can think of all kinds of….

Atkins: Well this is the point, nature has been around for several billion years and the pressure of evolution and natural selection would have brought out telepathy to be one of the major senses, after all look what's happened to vision. Vision is enormously important to survival and several independent emergencies of vision and the optical system have occurred, but with telepathy it would be fantastic. You wouldn't need vision you'd just know what was to go on around you. The fact that evolution hasn't done it in a billion years seems to me to be really convincing evidence that it's all nonsense.

Interviewer: On the other hand when he produces his evidence, he said 25% was what you would expect, but what he got was 45%, that is remarkable.

Atkins: No, that's just playing with statistics.

Interviewer: Let's put that to Rupert. Rupert Sheldrake, he says you're just playing with statistics. He doesn't believe a word of it. What do you say to him?

Sheldrake: Well I'd like to ask him if he's actually read the evidence? May I ask you Professor Atkins if you've actually studied any of this evidence or any other evidence?

Atkins: No, but I would be very suspicious of it.

Sheldrake: Of course, being suspicious of it in advance of seeing it is normally called prejudice.

Atkins: Yes, there's always reason to believe in bizarre phenomena by looking into alternative explanations within the scientific milieu. For example people guessing, because of a particular time of day that someone's going to call.

Sheldrake: These tests exclude that, you seemed to have missed the point of the experiments. They're done by random selection. You know, I started from the kinds of objections you're putting forward, that's the starting point, then we try to go on and test those in rigorous scientific tests.

Atkins: But they're not rigorous.

Sheldrake: How do you know? You don't know a thing about it, you haven't looked at the evidence. I think you're talking from a point of view of prejudice, dogma and frankly lack of information. I would never presume to comment on your experiments in chemistry without reading them.

Atkins: But I've read your experiments in the past on other off the wall ideas that you've had.

Sheldrake: Have you? Well we can discuss any of those you'd like to.

Atkins: But none of them proved to be valid.

Interviewer: Thank you both very much…Anecdotally, I bet lots of listeners have had that funny feeling about the phone…

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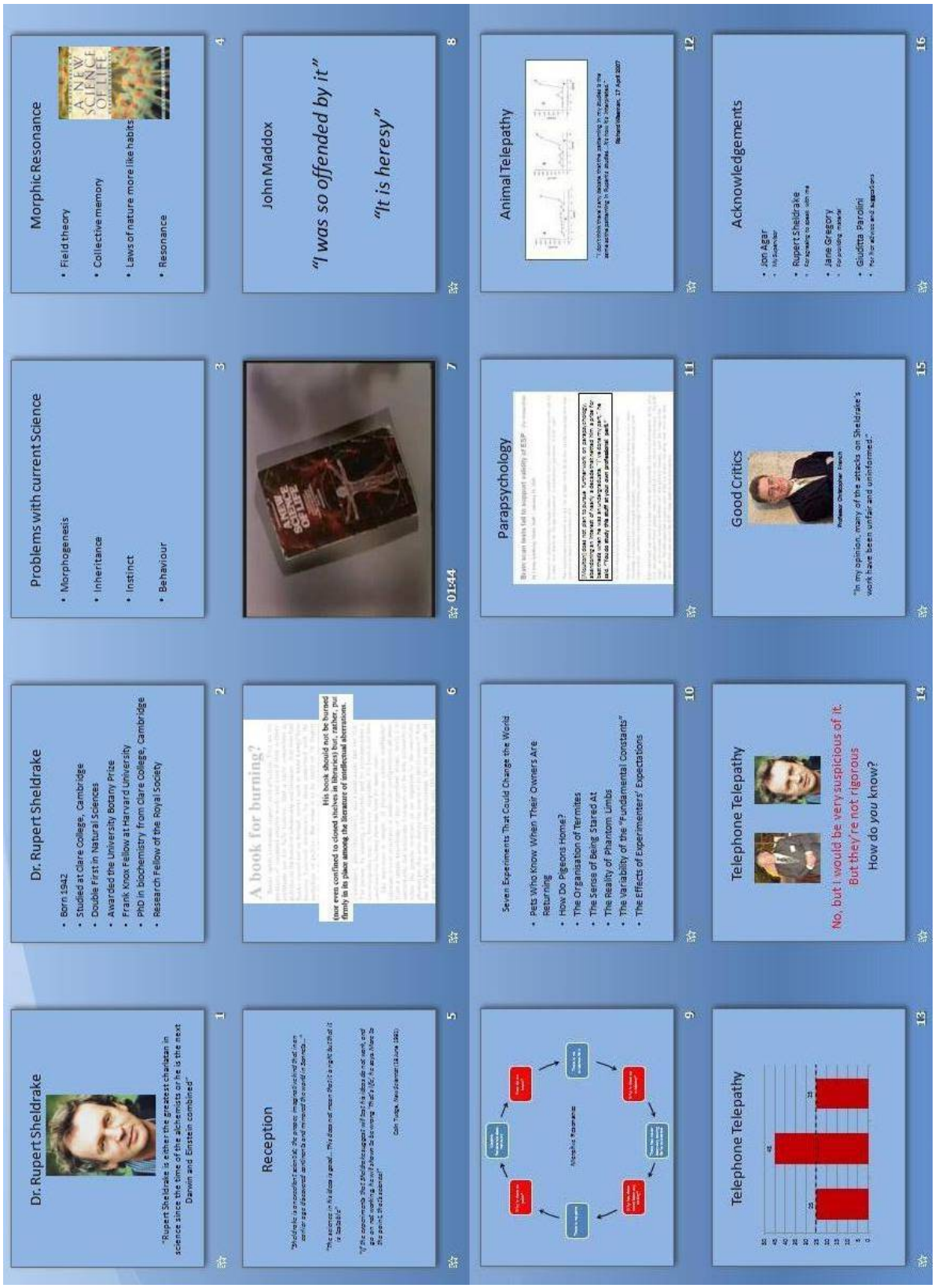
Appendix II

Slides from the presentation which took place at Goodenough College, London on 29 July 2009.



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