

President's Letter 4: Psi as an unconscious process

In my previous President's Letter¹ I talked about the importance of theory in helping to organise and make sense of the observations that make up the database of psychical research. I argued that it was important to recognise that generally in science there exist different levels of explanation that are not necessarily translatable one to another; for example, it seems unlikely that we could meaningfully account for psycho-sociological constructs like 'in-group affiliation' in terms of physical properties such as mass or force. Thus, while explanation of psi phenomena in terms of physical models (perhaps invoking quantum mechanics with its notions of nonlocal correlation and entanglement, or variations of string theory with its notion of additional dimensions beyond space-time) may be the ultimate goal for many parapsychologists, as a psychologist I am more interested in those explanations that promise to give an insight into how psi is experienced or interpreted.

Last time I also touched on how the usefulness of a theory can be gauged in terms of its *parsimony* (i.e. how well it can reduce a set of observations to some simpler general principle), *comprehensiveness* (how well it can account for a range of superficially disparate observations in terms of some common underlying principle), *falsifiability* (that it makes testable predictions that would allow the explanation to be rejected if disconfirmed), *novelty* (in drawing attention to observations previously thought to be unrelated, or making unexpected predictions), and *utility* (in helping to determine the direction and form of future research). I illustrated this process of evaluation using Charles Honorton's noise reduction model (NRM), which has influenced much of the research into psi and altered states of consciousness (ASCs) over the last 50 years.

However, despite the ongoing success of experiments that focus on ASCs (as evidenced by a special volume of the *Journal of Parapsychology* that will be published about the same time as this issue of the *Paranormal Review*), this kind of empirical approach has rather fallen out of favour. More recently, attention has shifted towards approaches that are intended to capture evidence of psi knowledge that does not include any conscious awareness component at all. But how would one design research to investigate unconscious psi, given that the participant — by definition — would have no awareness of it? Experimental work typically takes one of two forms: physiological responses to a hidden stimulus that would normally provoke a 'fight-or-flight' reaction; and modifications to overt behaviour or decision-making that seem to be informed by psi without becoming conscious.

The former is perhaps best illustrated by Dean Radin's 'prestimulus response' research² in which participants' electrodermal activity (EDA — a measure of general physiological arousal) is measured while they are exposed to randomly selected stimuli that either provoke an arousal response (such as violent or erotic images) or do not (such as neutral nature scenes). As one might expect, there is a highly significant difference in EDA after being exposed to these two types of stimuli, although participants may report that they didn't notice any emotional response; however, there is also a much smaller (but still

statistically significant) difference in EDA in the period *before the stimulus has been presented* (in some cases, before the computer has actually decided whether the next image will be arousing or neutral). This seems to imply a precognitive registering of environmental information that helps prepare the body for action even though the conscious mind has no awareness of that information. This effect has been replicated in a number of laboratories and using a range of physiological measures.³

Daryl Bem's 'feeling the future' automated experiments⁴ illustrate the second approach since they measure behavioural or decision-making effects that seem to reflect the influence of psychic information that is not conscious. For example, he created a priming task that has been adjusted so that it becomes a test of precognition. In a traditional priming task, participants are presented with images on screen and have to respond as quickly as possible to indicate whether the image is positive or negative. Participants are very good at this and can respond quickly and accurately. However, if a word is flashed onscreen (typically too quickly or too poorly illuminated to be registered consciously) it can affect performance — where the word is congruent with the image (e.g., the word 'beautiful' is followed by a positive image) then reaction times are quicker than a no-prime condition, but where the word is incongruent (e.g. the word 'disgusting' before a positive image) then reaction times are slower. This robust effect occurs even when participants report no awareness at all of the word stimulus. Bem turned this into a precognition task by having the word prime flash onscreen *after* the participant had been shown the image stimulus and had registered their reaction to it; that is, when in conventional terms it was too late to have an effect on reaction times. Nevertheless, Bem reported a small but highly significant priming effect, suggesting that future information was affecting present behaviour. After an initial furore and a small number of failed replications, a larger database has now been reported that suggests this is a reproducible effect.⁵

These findings are consistent with real-world cases in which people's actions seem to lead to beneficial outcomes without them realising that psi may be operating. Perhaps the best known example of this is W.E. Cox's analysis of train occupancy on days when there were incidents that involved deaths or serious injuries versus comparable days that were incident free.⁶ He found that significantly fewer people travelled on days that ended in disaster, which he interpreted in terms of people being motivated, perhaps unconsciously, to make decisions that allowed them to avoid negative outcomes.

These unconscious effects might be consistent with Honorton's NRM since that model sees psi as a continuous process rather than as something that is 'produced' occasionally; indeed, the model proposes a process that takes place below the level of awareness in which psi signals compete with other sources of information for attention. However, while NRM focuses on how psi might be enabled to win that competition (for example by reducing visual or auditory input) so that the information conveyed can percolate through to conscious awareness, the experimental and real-world findings I've just described suggest

that psi signals can have an impact even when they don't win the competition for attention. We may need another theory, then, to account for these instances.

One explanation that has been very influential is Rex Stanford's Psi-Mediated Instrumental Response (PMIR) model⁷, which focuses on the adaptive role of psi *in situ*, at times when people are not typically striving to use psi. Much has been written about PMIR, and it can seem quite complex, but the basic premise is straightforward: people will *respond instrumentally* (that is, their behaviour and decision making will serve to increase the likelihood of beneficial outcomes and decrease the likelihood of negative ones) based on environmental information that is *psi mediated* (is inaccessible to them by conventional means).

PMIR suggests that psi is essentially goal-oriented, responding to basic needs and environment threats or opportunities, and operates below the level of conscious awareness so that the person needn't intend to use psi, nor be aware that they are. In its detail the model is quite sophisticated in making specific predictions that could be empirically tested; for example, that the strength of any response is positively related to the intensity of the need, the relevance of the circumstance to it, and its temporal immediacy. Similarly, PMIR hypothesises that some people are likely to perform poorly in a psi task, particularly participants who are behaviourally rigid, demonstrate response inhibition, or have strong preoccupations. The model is highly ecologically valid in describing how responses should mirror what we would expect if information were available to us via the conventional senses, predicting that we will show a reaction if the stimulus is the kind of thing to which we would normally react (foretelling a disaster that will befall strangers in 6 months' time will produce much less of a response than a disaster that affects close family in the next few hours), and depends on our capacity to do something about it (for example, whether we have the motivation to act, and if we have the skills and opportunity to do anything that would have a meaningful impact). An extensive series of experiments have been conducted that test features of the theory.⁸

Little attempt has been made to link Bem's and Radin's experimental approaches to PMIR (an exception is the series of experiments by Glenn Hitchman⁹), but this is likely to change with the recent publication of Jim Carpenter's 'First Sight' Model.¹⁰ This model shares many features of PMIR, including an assumption that psi processes are an ordinary and ubiquitous part of preconscious processing of perceptual information. What is particularly exciting about First Sight is that it seeks to explain conscious experience, not as a continuous stream (as William James so poetically described it) but rather as a chain of more or less connected mental events; how each successor is connected depends on preconscious processes that draw widely on relevant information, *including psi*. The approach is very connectionist in describing the relative weighting of alternatives, and explaining how prior dispositions can affect those weightings, leading to explicit predictions that psi missing will occur with those who are anxiety-avoidant or are prone to activation-inhibition (akin to standard effects like

tip-of-the-tongue). For Carpenter, the stability of effects is linked to, for example, fatigue, high cognitive loads, work with uninteresting target material or a nonengaging task, repetitive testing, and overly self-reflective analysis of the experience. An appealing quality of Carpenter's work is its capacity to draw parallels with mainstream work on perception without awareness (PWA — what used to be known as subliminal perception); by noticing common features of First Sight and PWA both in their phenomenology, and the personal and situational factors that can affect performance, he is able to normalise psychical research, treating it as an extension of conventional psychology rather than an alternative to it. In terms of the criteria for a good theory both PMIR and First Sight fare well, in my view. Both account for observed patterns but also draw attention to links that have not previously been noticed, and both make clear predictions about future experiments that leave them open to falsification. Hopefully the next wave of presentiment and 'feeling the future' experiments can directly test some of these predictions.

¹ C. A. Roe, 'The role of theory in psychical research', *Paranormal Review*, 91, 4-5.

² D. Radin (1997). Unconscious perception of future emotions: an experiment in presentiment. *Journal of Scientific Exploration*, 11, 163-180; D. Radin (2004). Electrodermal presentiments of future emotions. *Journal of Scientific Exploration*, 18, 253-273.

³ J. Mossbridge, P. Tressoldi, & J. Utts (2012). Predictive physiological anticipation preceding seemingly unpredictable stimuli: a meta-analysis. *Frontiers in Psychology*, 3, Article 390, doi: 10.3389/fpsyg.2012.00390; Mossbridge, J., et al. (2014). Predicting the unpredictable: Critical analysis and practical implications of predictive anticipatory activity. *Front. Hum. Neurosci.*, <https://doi.org/10.3389/fnhum.2014.00146>

⁴ D.J. Bem (2011). Feeling the future: Experimental evidence for anomalous retroactive influences on cognition and affect. *Journal of Personality and Social Psychology*, 100, 407-25. Available at <http://dbem.ws/FeelingFuture.pdf>

⁵ D.J. Bem, P.E. Tressoldi, T. Rabeyron, & M. Duggan (2016). Feeling the future: A meta-analysis of 90 experiments on the anomalous anticipation of random future events. <https://f1000research.com/articles/4-1188/v2>

⁶ W.E. Cox, (1956). Precognition: An analysis. II. Subliminal precognition. *Journal of the American Society for Psychical Research*, 50, 99-109; for a reanalysis see <http://ersby.blogspot.com/2015/08/fewer-train-reservations-before.html>

⁷ R.G. Stanford (2015). Psychological concepts of psi function: A review and constructive critique. In E. Cardeña, J. Palmer, & M. Marcusson-Clavertz (Eds.), *Parapsychology: A handbook for the 21st century* (pp. 94-109). Jefferson, NC: McFarland

⁸ R.G. Stanford (1990). An experimentally testable model for spontaneous psi events: A review of related evidence and concepts from parapsychology and other sciences. In S. Krippner (Ed.) *Advances in parapsychological research 6* (pp. 54-161). Jefferson, NC: McFarland.

⁹ G.A. Hitchman, C.U. Pfeuffer, S.J. Sherwood, & C.A. Roe (2016). The effects of experimenter-participant interaction qualities in a goal-oriented nonintentional precognition task. *Journal of Parapsychology*, 80(1), 45-69.

¹⁰ J.C. Carpenter (2004). First sight: Part one, a model of psi and the mind. *Journal of Parapsychology*, 68, 217-254; J.C. Carpenter (2005). First sight: Part two, elaboration of a model of psi and the mind. *Journal of Parapsychology*, 69, 63-112; J.C. Carpenter (2012). *First sight: ESP and parapsychology in everyday life*. Lanham, MD: Rowman & Littlefield.