European Journal of Parapsychology

Volume 23.1, 2008

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Volume 23.1 2008

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Psychology (DEC), Poole House, Bournemouth University, Poole BH12 5BB, UK
Indexed by PsycINFO.
Printed by JEM Digital Print Services Ltd. on recycled paper.

European Journal of Parapsychology (ISSN: 0168-7263) is published twice a year in Spring and Autumn. Subscription enquiries to subscriptions@ejp.org.uk or postal mail to the Editor at the above address.

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European Journal of Parapsychology

Volume 23.1

2008

European Journal of Parapsychology
Volume 23.1, pages 3–30

ISSN: 0168-7263

A New Quantum Theoretical Framework for Parapsychology

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Abstract

An account is given of a recent proposal to complete modern quantum theory by adding a characterisation of consciousness. The resulting theory is applied to give mechanisms for typical parapsychological phenomena, and ways of testing it are discussed.

Introduction

A succession of writers (see Radin, 2006, for a popular survey) have associated parapsychological phenomena and quantum theory, their core motivation perhaps being the strong but imprecise feeling that, in Radin's words, "Experiments have demonstrated that the worldview implied by classical physics is wrong . . .in just the right way to support the reality of psi." The adoption of a worldview that is essentially quantum mechanical lends itself to two new approaches to parapsychology. On one hand is the "Weak Quantum Theory" approach of Atmanspacher et al. (2002) in which quantum theoretic ideas are applied directly to the phenomenology of parapsychology. On the other hand one can examine ways in which quantum physics acting at a more traditional physical level can lead to large scale effects relevant to psi. It is this latter approach that will be taken here, though it is to be hoped that the two approaches will converge.

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Early attempts to implement this hunch as a testable quantum theory of psi tended to be phrased in terms of substance dualism, inspired by the original formulations of quantum theory in the early 20th century. This involved an interaction between mind and matter which either causes and directs a collapse of the quantum state (e.g. Walker, 2000) or determines the nature of an (effective) "measurement" performed by the mind on the brain (Stapp, 2005). From the late 50s onwards, however, a wide range of alternative formulations of quantum theory have been developed, not involving collapse, which now offer the possibility of producing a firm, testable link between physics and parapsychology. I will first outline the development of these new theories and then formulate particular applications to psi.

Quantum theory was first developed in the context of laboratory physics. Here there are clear demarcations between the physicist (the observer), the apparatus used for the observation and the observed system itself. In the early days of the theory the system was a small object such as an atom or a particle. It was accepted that the apparatus was adequately described by "classical" (nineteenth century) physics, and the aim was to produce a new physics to describe the small system. This was done by introducing the idea of a *quantum state* (in some particular cases also known as a "wave function") which when observed *collapsed* into a different state where the quantity being observed had a definite value. The majority view seems to have been that this resulted from the interaction between the apparatus and the system, but a significant minority held that it was due to the interaction between the human observer and the apparatus-plus-system.

Subsequent work, most crucially by Everett (1957) and Daneri et al. (1962), started to indicate that, in the context of laboratory physics, the notion of collapse could be unnecessary, though at this stage quantitative detail was lacking. The crucial final step was then made by Zeh (1970) who showed that, if one included the very weak but always significant interaction between the apparatus and its larger environment, then, as a result of a phenomenon known as "decoherence", the statistical results of quantum physics could be derived entirely within the formalism of quantum theory without any notion of collapse (see also Zurek, 2003; Giulini et al., 1996). To reinforce this conclusion, experimental examination of progressively larger systems has failed to show any trace of the operation of any collapse mechanism. As a result the dominant view of workers in the foundations of quantum theory is

what Schlosshauer (2006) has termed "minimal no-collapse quantum mechanics".

While this works well for laboratory physics, the project of science is not to explain physics laboratories but to account for the whole structure of reality in which we find ourselves, a project which has succeeded remarkably well at the classical level. When, however, cosmology reached the point of having to treat the entire universe as a quantum system, then the strategy of using decoherence failed. At the simplest level, it fails because the universe has no external environment. The most decisive argument, however, arises from the fact that the most likely initial quantum state for the universe is one that completely symmetrical (Hartle & Hawking, 1983). The interestingly non-homogeneous universe in which we live is then supposed to arise from "quantum fluctuations" (Turner, 1999; Linde, 2001); but with no observer external to the universe (in conventional science), with no grit in the oyster, there is nothing to begin the breaking of this symmetry and produce a transition from pure symmetric vacuum to "things". Leibniz's question, "why is there something rather than nothing?" (Leibniz, 1714) remains unanswered. Decoherence is a large part of the story, but more is needed.

I can now list the principal theoretical elements (not mutually excluisve) that have emerged to deal with this current situation, and to which I will be referring in connection with parapsychology.

1. *Go back to collapse.* There are a number of problems with this. First, it conflicts with the argument from cosmology just given; but one could argue that, because there is at present no widely accepted adequate theory of the very early quantum universe, arguments referring to this era carry little weight. Second, it involves some "double causation": decoherence is a definite and well studied phenomenon, so if collapse is introduced alongside it we would need to understand the relationship between two competing processes doing much the same thing. Third, and most importantly, the traditional form of collapse cannot be reconciled with the observed behaviour of "entangled systems": systems that are separated in space and are described by a joint quantum state, but do not have separate quantum states (see the section on "Time in quantum theory").

   Despite these difficulties, it is not unreasonable to suppose that

quantum physics behaves *as if* there were a collapse, in the sense that I will describe in the section on "Time in quantum theory". There I will also explain how this solves the difficulty concerning entangled systems. I will refer to such approaches (including dualistic approaches involving a consciousness or soul in a different ontological category from matter) as *quasi-collapse* approaches.

2. *Selection by sensation.* This theoretical strand is similar to, though much weaker than, the application of an "anthropic" principle in cosmology. Whereas with the anthropic principle it is stipulated that we are only interested in those universes that contain life, in theories that use selection by sensation we are only interested in universes that are observable, in the sense that they contain something that could be identified as sensation. The principle is well discussed by Page (2001), though he himself then takes the rather extreme, ultra-solipsistic position of requiring only that the universe contains one moment of sensation, a position not followed by others as far as I know. Other writers consider the situation where there are many moments of awareness in the universe. These moments are necessarily subject to consistency conditions; if two such moments quickly succeed each other, for instance, then they should not be mutually contradictory.

   The following sub-classification roughly charts the various approaches of this form. It is based on the distinction made in consciousness studies between the *functional view* that consciousness depends on the brain's function, on how it processes information; and the *subjective view* (cf. Chalmers, 1995) that consciousness is essentially a subjective, qualitative aspect of some particular life-based systems, distinct from their objective function.[1]

   (a) *Sensation as information processing.* This takes a functional view, identifying consciousness with sensation. It supposes that, to be experienced in any normal sense of the word the universe must contain something that is, in some generalised and formal sense, a brain (Donald, 1990, 1995). A brain is regarded as a complex switching mechanism (the switches in animal brains

[1] The idea of consciousness as an aspect has entered neuropsychology and consciousness studies through the influence of Spinoza on Antonio Damasio (2003) and others. Chalmers proposes in particular that consciousness is a qualitative aspect of *information*, but I do not make that restriction here.

being ion channels in the axons of neurons) and the consistency conditions determine the likelihood of each switch being in the quantum state corresponding to the switch being "on", depending on the information conveyed by other switches in the brain at preceding[2] moments.

(b) *Sensation as moments of consciousness.* In this theory (Clarke, 2007), which I shall call *conscious quasi-collapse*, or CQC, the probabilities of various particular contents of consciousness are conditioned by *all* preceding sensation events. The connection between moments of consciousness in a given system (what is "my" consciousness rather than "yours") is determined by their physical biological context and is not imposed as an intrinsic restriction of the theory. The mathematical structure of this theory is identical with the system of *Generalised Quantum Theory*, a quasi-collapse theory, introduced by Hartle (1991), and widely used since in cosmology, except that Hartle does not adopt the restriction to states where there is awareness.

In addition to the structure just described, the CQC approach to be used here adopts the view of Stapp (2005) that consciousness has a particular effect on the world. Namely at each moment of awareness consciousness selects one out of the many possible Boolean Algebras within which the contents of awareness can emerge. I explain (and somewhat modify) this in the next sub-section. The CQC approach can thus be seen as the combination of the systems of Stapp (2005) (modified) and Hartle (1991).

The following account is in three parts. Firstly, the section on "Theoretical Context" describes in more detail the quantum mechanical formalism to be used. Following that, there is a section presenting mechanisms for typical parapsychological phenomena in terms of this formalism. Finally, there is a section outlining some salient aspects of possible future parapsychological experiments to test these ideas.

Theoretical context

What consciousness does

As noted above, the particular approach I focus on here is one where consciousness plays an active dynamical role in the world, rather

[2]See the section "Time in quantum theory" later in this paper.

than being an "epiphenomenon" in the sense of a byproduct of dynamic process that are complete in themselves. Its first such role is to single out the particular subsystems of the universe that can support consciousness. It is these, and only these, that enter into the quantum formalism and thereby break the symmetry of the initial state of the universe. What these particular subsystems are, whether they are in some sense "like" brains or whether they are more general, does not affect the applications I shall make to parapsychology, though for completeness I will discuss a proposal for this in the section on "Extensive Coherence" below.

The second role for consciousness is more subtle. It depends on the fact that, in quantum theory, in any given state of a system there can exist many different but incompatible types of observation that can be made, the different types being referred to as "complementary". The standard example of such complementarity in quantum theory is that of the incompatible observations of the position or of the momentum of a particle. In the current situation complementarity is exhibited in the different types of sensations that can be had. To discuss this further requires some technical language. First, it turns out to be sufficient to restrict attention to observations that can yield one of only two possible outcomes, TRUE or FALSE. Such observations are called *propositions*. This restriction is possible because any other observation can be built up from these elementary ones.[3] A collection of propositions together with the usual logical connectives OR, AND and NOT, is called an *Algebra*, and a *Boolean Algebra* if these connectives satisfy the rules of classical logic.

Where the observation is a measurement made by a piece of laboratory machinery, then finding NOT-A to be TRUE is equivalent to finding A to be FALSE. Thus in this case if A is in the set of propositions that can be observed, so NOT-A must also be in this set. It is different with consciousness, where A is sensation, when very often NOT-A does not make sense. In most contexts it does not, for instance, make sense to suddenly experience not-(the smell of roses), but it would make sense if you have already been experiencing them for the last ten minutes. The structure of the contents of consciousness is context-dependent. I am persuaded that the most appropriate formulation of this structure is actually the "bilogic" of Matte Blanco (1998) and subsequently clarified

[3] An alternative to this logic-based language is a language based on concepts from linear algebra, where a proposition is represented by a projection of the space of quantum states into itself, and the proposition is true if this projection leaves the current state unchanged, and false if it projects the current state to the zero vector in state space.

by Bomford (2005), which does not possess the standard negation operation, and has a structure analogous to, but distinct from, quantum logic (Clarke, 2006). Here, however, it is sufficient to take the simpler course of making only a minor modification to Stapp's system by supposing that, rather than selecting a whole Boolean logic σ, consciousness selects a subset ς of a Boolean algebra. I will refer to the propositions in the selected subset as being *asserted* by this dynamic of consciousness.

Time in quantum theory

The relation between the treatments of time in relativity theory and in quantum theory poses the most profound problems in modern physics (for example, see Barbour, 1999). Here I will merely mention some key points. Because of the effects of relativity, there is no natural definition of time (that is, a universal time-coordinate) in the universe, only a range of conventional definitions used for convenience in different contexts. One can naturally define, however, a relation between two events x and y, saying that x *precedes* y, when the time-coordinate of x is less than that of y for all definitions of time.[4] I will say that events x and y are *chronologically related* if either x precedes y or y precedes x.

In conventional (Bohr) quantum theory the quantum state of a system is defined at a particular time, and when an observation is made the state collapses at a particular time. If the quantum state describes a system that is distributed in space, this implies that a change in the quantum state is manifested instantaneously at all points in the system. The statement of this is often repeated in discussions of entanglement, where the system in question consists of two or more separated particles. In view of the foregoing account of relativity, however, this depends implicitly on a particular time-definition. In a laboratory context the time definition is set by the laboratory environment (though even this becomes ambiguous for particles separated by several kilometres, as in modern experiments). In any wider context there may be no natural choice available.[5] Since it is not possible to ascertain the quantum state at a single instant, there is no direct way of determining when a state "collapses" so there need be no conflict with experiment here. But equally there is (unless one takes a more sophisticated ap-

[4] I here ignore technicalities such as the existence of space-times in which it is not possible to define any time coordinate in a stable manner.

[5] In many cosmological *models* a natural choice of time is defined by a conformal Killing vector, but the actual universe only approximates to such a model and so this is only helpful when considering quantum phenomena taking place on the (large) scale at which the approximation is justified.

proach) no way of determining that the Bohr account is correct in one time-definition rather than another. The best that can be said is that the system behaves *as if* a collapse takes place with respect to some indeterminate time-definition. At an intuitive level this is often helpful; but for an accurate discussion it is often preferable to rephrase the physics in terms which do not refer to collapse. Later in this paper I do this by reference to the *apparent state* of the particular subsystems (loci) that arise in one form of quasi-collapse, defined as the restriction to the locus, on its maximal space-like surface, of the quantum state on any time coordinate that extends this surface. I am assuming that, in any viable version of quantum theory on space-time, this state is independent of the remaining freedom of choice of time coordinate.[6]

As just indicated, this situation has consequences for the discussion of entanglement. I use this term in the original sense (Schrödinger, 1935) of the situation of two systems A and B, separated in space, not having separate quantum states[7] but only a joint state which depends on a choice of time definition. For many purposes this drawback is removed by noting that this definition of entanglement is equivalent (for pure states only) to the violation of a set of inequalities called the Bell inequalities, and these can be generalised so as to apply to local states at any events, including chronologically related events. This gives rise to a generalisation of this definition of entanglement that is used by many authors (Paz & Mahler, 1993; Mahler, 1994). Here, however, I will retain the older definition in which entanglement is defined in terms of a joint state using an unspecified time definition.

Quantum Histories

The formalism of Hartle (1991) to be adopted here, widely accepted in cosmology, associates observations with regions of space-time and assigns to their possible outcomes probabilities which, as I have already noted, are as if there had been a series of collapses, even though the notion of collapse does not make sense. I will now elucidate this rather paradoxical remark. A series of observations with an assigned probability is a generalisation of the concept of a *history* first formulated by Griffiths (1984). The evolution of the idea can be characterised as a sequence of successive reformulations of quantum theory:

[6] I further modify the apparent state by averaging over the duration of the locus in a previous paper (Clarke, 2007).

[7] For the reader familiar with this distinction: in this section I am referring to *pure* quantum states, whereas in later sections I will be referring to mixed states.

1. from *probabilities for outcomes of a single measurement* (original quantum theory), to
2. *correlations between outcomes of successive measurements*, to
3. *probabilities for sequences of measurements* (original history interpretation), to
4. *probabilities for an array of measurements in space-time* (Hartle's "generalised quantum theory"), to
5. *probabilities for an array of moments of consciousness in space-time* (CQC).

I will first give (in outline) the definition of how a history represents "an array ...in spacetime", closely following (Hartle, 1991), and then indicate briefly how probabilities are linked into this. Fuller details are in Clarke (2007).

1. **Loci**. The basic elements that form the basis for a history, termed *loci*, are specifications of a particular subsystem of the universe over a particular region of space and time-interval — i.e. over a particular space-time region U. An example of a locus drawn from Hameroff and Penrose's theory of consciousness (Hameroff & Penrose, 1996) might be as follows. U would be the union of regions $U_1, \ldots, U_n$ each corresponding to one of a collection of cells (not necessarily connected) making up an organ or organs in the brain, all considered over a (variable) interval of time, and the subsystem associated with consciousness is described by a quantum space $\mathcal{H}$ of states of the conformational structure of the microtubules in the cells of U, together with a complementary space $\mathcal{H}'$ describing all the other degrees of physical freedom over U.

   So formally,

   (a) a *locus* consist of a triple $(U, \mathcal{H}', \mathcal{H})$, where U is a space-time set and $\mathcal{H}$ and $\mathcal{H}'$ are Hilbert spaces associated with U. The total quantum Hilbert space $\mathcal{H}_0$ over U can be represented as a subspace of $\mathcal{H}' \otimes \mathcal{H}$.

   (b) It is also maximal in its extent in time while having the property that all events in U are determined by data at a single moment of time (a property known as global hyperbolicity).

Property 1b results in a time extent that in the centre of the region is of the order of magnitude of the time taken for light to cross the region, reducing to zero at the edges. This is the closest one can get in modern physics to an "instantaneous moment", since the latter cannot be defined in relativity theory. Note that this condition also enables us to single out, in general, a unique "instant of time", namely the maximal space-like surface in the locus.

2. In addition to the above conditions, each locus must satisfy a condition for its being conscious. What this property is is not critical for parapsychology: it can, for example, be based on the detailed specification of Donald (1990), though this is normally used with a different quantum formalism. The version that I find persuasive (and on which I shall expand in the section on "Extensive Coherence" below) is, however, the following. It is required that each locus in a history is a region such that any two spatially defined non-overlapping parts making up the whole are fully entangled with one another. I call this property *extensive coherence* (see Clarke (2007)). Each locus is also maximal — as large spatially as it can be — while still exhibiting extensive coherence.

3. **The consciousness** of a locus results in there being specified ("asserted") at each locus a particular subset ς of a Boolean algebra σ of propositions (i.e. projections) on $\mathcal{H}$. As described above, ς will in general not be full algebra.

4. **A history** consists of a set $(P_1, \mathfrak{L}_1), (P_2, \mathfrak{L}_2), \ldots$ of pairs in which

   (a) $\mathfrak{L}_1, \mathfrak{L}_2, \ldots$ are loci which are partially ordered with regard to their mutual causal relations (given any two $\mathfrak{L}_1$ and $\mathfrak{L}_2$ either $\mathfrak{L}_1$ is causally[8] prior to $\mathfrak{L}_2$, or vice versa, or they are entirely space-like related to each other), and

   (b) $P_1, P_2, \ldots$ are propositions from the sets ς associated with the respective loci.

The propositions $P_1, P_2, \ldots$ appearing in a history will be referred to as *realised* at their associated loci. The combination of a realised proposition and its locus is interpreted as a *moment of consciousness*.

[8]Note that "causal" is used here in the sense of relativity theory, as asserting the existence of a time-like or light-like connection between events, and not in the philosophical sense of causation considered later.

Probabilities (or, more precisely, "weights" that can be interpreted as probabilities when the logic of the propositions in the history is classical) are then attached to histories by means of a function[9] $p((P_1, \mathfrak{L}_1), \ldots, (P_n, \mathfrak{L}_n); \rho)$ which associates a real number between 0 and 1 with each history, and where ρ is the initial state of the universe. In cases where the histories satisfy a classical logic (as can be shown to be usually the case) the values of this function reproduce exactly the probabilities for ordinary quantum theory. This function is a special case of the *decoherence functional* in conventional history theory (modified to this relativistic setting), which packages together the time evolution of quantum theory, its probability interpretation, and the criteria for there being a classical logic.

Zeno effects

Henry Stapp (Stapp, 2005) introduced a concept similar to CQC (in a dualistic context) and emphasised the importance of the Zeno effect in understanding how consciousness acted in the world, rather than being a mere epiphenomenon. The conventional Zeno effect, which has now been well studied experimentally (Sudbery, 2002) refers to the situation where an unstable state is prevented from decaying by being observed continuously (an example of "a watched pot never boils"). It can easily be shown that if τ is the normal half-life for the decay of a state, and the state is observed at time intervals δt where this is significantly less than τ, then the half-life is extended to a time of order $\tau^2/\delta t$. In Stapp's dualistic setting, mind observes the brain in this way and thereby maintains preferred brain states that would otherwise be transitory. A similar process can occur in the CQC approach, but by the inclusion of a succession of projections in a history. As discussed in the next section, δt is in the case of CQC a time depending on gravitational effects, introduced by Penrose.

The question for parapsychology is, can the observed data from parapsychology experiments be explained by some such mechanism as this, involving applying Zeno-like observations or acts of consciousness to the entangled brain states of their subjects? If the Zeno process takes

[9] This has the form

$$p(P_1, P_2, \ldots, P_n; \rho) = \mathrm{Tr}(\Lambda_n(P_n)\Lambda_{n-1}(P_{n-1}) \ldots \Lambda_1(P_1)\rho\Lambda_1(P_1)^\dagger \ldots \Lambda_{n-1}(P_{n-1})^\dagger\Lambda_n(P_n)^\dagger) \qquad (1)$$

where the function Λ describes a time evolution from one moment of consciousness to the next, followed by an averaging over the duration of the succeeding proposition.

place by observations (Stapp) or by repeated moments of consciousness but using a full Boolean algebra of propositions, then it is hard to produce a plausible explanation of psi. If the minds of two subjects are entangled in a way that is implicitly (i.e. unconsciously) "known" to them, and they then observe/are aware of their own states and announce the results, then, with or without resorting to Zeno techniques, there will be an interesting correlation between what they say (see discussion on "Empathic Telepathy" below). This is, however, not the most common protocol of a parapsychology experiment. More typically, the content of the consciousness of one subject is controlled by an input from an external random number generator — a completely different situation. The only way round this might be to use a "moving Zeno process" in which the Boolean algebra describing the observation is continuously rotated by the brain so that the projections initially describing A and not-A can be interchanged, the process being steered so as to produce the required final result. While this is conceivable, in the light of the argument in the section "What consciousness does", it seems much more likely that the mind uses consciousness with an incomplete set ς, and it is this option that I explore below.

If we allow ς to be less than a full algebra, generating the algebra σ, there are then two variants on the Zeno effect, which I will call *forcing* and *entrainment*.

1. *Forcing* is achieved by consciousness asserting, at a sequence of loci with time-spacing δt, a set ς which includes a projection P but not its negation not-P. This can be done, even when the quantum state in $\mathcal{H}$ is initially not in P, but merely has a non-zero component in P. With the conventional Zeno effect, as it occurs in laboratory observations, the first application of P could either produce the realisation of P or NOT-P, and subsequent applications would maintain it. In CQC, if NOT-P is not in ς then NOT-P will not be realised. The corresponding state will not be included in the history, and the moments of consciousness will continue until eventually either P is realised or the probability of P is reduced to nearly zero through interaction with external systems.

2. *Entrainment* is the result of including in a history a realised projection onto a state that is entangled with a particular state in the environment.

Suppose that the apparent state (see section on "Time in quantum theory") α associated with a locus $\mathfrak{L}$ can be decomposed as

$$\alpha = \sum_i a_i \phi_i \otimes \epsilon_i \tag{2}$$

with $\phi_i \in \mathcal{H}_1$ and $\epsilon_i \in \mathcal{H}_2 \otimes \mathcal{E}_U$ where $\mathcal{E}_U$ (the environment of U) consists of the states outside U. The states ϕ_i are a basis for $\mathcal{H}_0$ consistent[10] with ς. A moment of consciousness realised at $\mathfrak{L}$ can produce an apparent state (see section "Time in quantum theory") of the form

$$\alpha_k = \sum_{i \in s_k} a_i \phi_i \otimes \epsilon_i$$

where all the ϕ_i for $i \in s_k$ are a basis for a single element A_k of ς (Clarke, 2007).

This new apparent state will then be effective in determining the states at all subsequent loci. In other words, the local moment of consciousness entrains all aspects of the environment that are entangled with it into the subsequent manifest universe, which emerges as a result of the joint interaction with the initial state of the universe through of the whole network of living systems. Consciousness, though it acts on the ϕ_i, necessarily restricts also the ϵ_i.

It will be clear that the conjunction of forcing and entrainment enables a living system to exercise a determining influence on the whole of the subsequent manifestation of the universe. Repeated inclusion in the history of a projection on a state in $\mathcal{H}$ that is entangled with an environmental state will in principle eventually bring about the manifestation of that environmental state unless this is countered by the competing effect of other organisms. In the next section I will describe how this can appear as phenomena such as psychokinesis and telepathy; I will, however, first conclude this section with a further explanation of the particular condition of extensive coherence which I suggest for selecting conscious systems, following the more expanded account in Clarke (2007).

Extensive coherence

I take the philosophical position of *dual aspect panpsychism*, in the following sense. First, I am entirely persuaded by the argument of

[10] That is, the ϕ_i either lie in the atomic elements of ς or lie in the complement of the subspace spanned by ς

Chalmers (1995) for the subjective view of consciousness as a quality that is distinct from the objective, functional properties or processes of the thing possessing consciousness. To paraphrase Velmans (2000), given any objectively defined process the two possibilities of its being accompanied by subjective awareness and of its "going on in the dark" are equally consistent. Thus the basis for what is conscious and what is not is not to be found in objective function and structure. Second, if one adopts this position then, following the reading of Spinoza by Damasio (2003), the only explanation for the existence of consciousness that seems to me coherent is the proposal that substance has two aspects: that of extension (materiality) and that of consciousness. Third, in applying this to the actual world we experience and which is explored by science, this gives rise to the panpsychism of Mathews (2003), Skrbina (2005) and many others, according to which *everything* has both a material and a conscious aspect.

Under this position, "everything" means, in effect, "every thing"; and so one has to determine what is a "thing". With Mathews (1991, 2003), for example, a thing is defined within a systems theory approach in which any region can be conventionally regarded as a subsystem of the universe, but the only naturally defined things are organisms, singled out by particular dynamical properties. While this seems to match the world in which we find ourselves, I am not convinced that the dynamical properties she appeals to can be given precise definition. Indeed I would claim that the only property corresponding to the nature of an organism which is both clearly definable and universally applicable is the notion of *coherence* used by Ho (1998). If, as seems to be the case (Schlosshauer, 2006), the universe is at all length scales a quantum universe (classical physics being a particular case of quantum physics) then out of the possibilities suggested by Ho the primary instance of coherence is quantum coherence, of which the definition in the second point 2 in the section "Quantum Histories" seems the most natural.

On the face of it, this philosophical argument (which itself would be contested by many at each stage) leads to a result that is physically impossible on two grounds. First, microscopic systems such as atoms would be conscious, and hence subject to the Zeno effects described in the previous section, which would contradict the observed decay times for excited atoms. Second, the size of a region that can exhibit coherence in this sense is limited by the mechanisms of decoherence to a length scale that is minute compared to the size of a biological cell (Hagan et

al., 2002; Tegmark, 2000), whereas the physical aspect of the conscious system that is our awareness needs to be sufficiently extensive to integrate neural processes across the whole brain.

The first problem is present for most versions of quantum theory using a histories approach with selection criteria. It is sometimes evaded by requiring that all histories are "consistent", but this is defined in such a way that it is essentially ruling out the problem by fiat rather than finding an actual mechanism for achieving this (Dowker & Kent, 1996). In essence the solution to this would appear to lie in the use of gravitation theory by Penrose (2004) though the actual mechanism still needs to be fully elucidated. There and in earlier works he points out that general relativity (which must be included in an eventual integrated quantum theory, although it is still far from clear how this might be done) implies that quantum states which differ sufficiently in their gravitational fields cannot be superposed. Thus any future theory that integrates gravitation with the approach being used here will contain a lower limit for the time separation of moments of consciousness which matches the time scale on which the difference between the gravitational fields of alternative states reaches the level identified by Penrose. This limitation makes the theory consistent with data for atomic systems, while producing differences from conventional theory that should already be detectable for large conscious systems. Note that this differs from Penrose (2004) for which only the size of the system, not its consciousness, is relevant, a criterion that may already be falsified (Schlosshauer, 2006).

The second problem is central to understanding this particular proposal, in that it involves the characteristics of living systems. It can plausibly be supposed that having a sophisticated consciousness confers some evolutionary advantage on an organism, so that there would be evolutionary pressure for an organism to enlarge structures that integrated processes in its nervous system. This it could do by using the Zeno mechanism, repeatedly asserting particular quantum states that entangled parts of its nervous system, these parts varying through a succession of patterns. On this basis one would expect that, in an evolved system, the main activity of consciousness would be to maintain the integrity (extensive coherence) of itself.[11] As the size of an exten-

[11]It must be borne in mind that the "consciousness" that is being talked of here, which is common to wide range of systems, is much more general that the particular reflective component of it which we normally focus on in introspection. Thus we are "conscious" in this sense even in deep sleep or coma.

sively coherent system increases, so its Penrose time (determining the frequency of moments of consciousness) increases and its decoherence time decreases. There is thus a critical size to which conscious systems can grow, determined by the equality of these two time scales, which turns out to be of the order of a few centimetres for filamentary structures at room temperature.

Prototypic examples from parapsychology

In this section I will briefly describe the application of CQC to examples representative of some main experimental categories in parapsychology, after which I will discuss how the theoretical insight afforded by the theory here can open up new lines of enquiry for examining both quantum theory and its parapsychological effects. One interesting point to emerge, subject to future examination in more detail, will be that in the approach here the concept of entanglement seems less applicable than is the case for the weak quantum theory approach (Lucadou et al., 2007).

Psychokinesis

As an example here I will use Peoc'h's chick experiment (Peoc'h, 1988). Although it has been criticised (Johnson, 1989) and the criticism has been countered by Peoc'h (and the controversy has continued since), I will be using it here as an illustrative example of the sort of effect that is to be expected under the present theory rather than as evidence for the validity of PK.

The report concerns a batch of chicks who were hatched in the presence of a "robot": a cylindrical device which moved in a straight line punctuated by random changes in direction, under the control of a random number generator. The chicks imprinted on the robot, so that when free they would follow it around. For the experimental sessions they were confined in a cage which was placed on a randomly chosen side of a compound in which the robot moved (see figure 1). The experimenter reported that, on a statistically significant proportion of occasions, the robot's movements were mainly confined to a region close to the side of the compound where the chicks were installed. Moreover (Fenwick, 1996) he further claimed that the same results were obtained when the robot was controlled not by a direct connection with a random generator, but with a signal that had been pre-recorded on a floppy disc six months earlier!

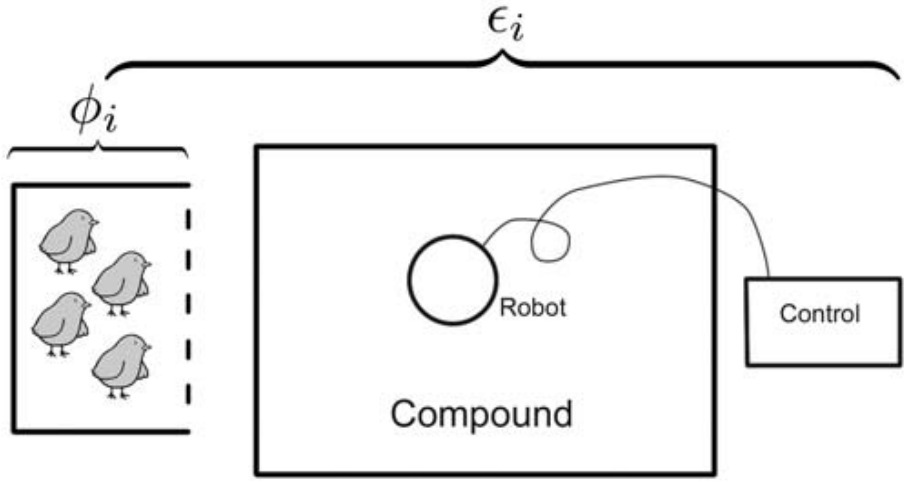

Figure 1. Schematic diagram of Peoc'h's chick experiment. ϕ_i and ϵ_i, corresponding to equation (2) above, indicate respectively the states of the conscious system of the chicks and of the environment together with the other systems of the chicks.

A complicating factor in analysing this experiment is the multiplicity of organisms involved: do we regard the chicks as independent organisms each engaging with the robot, or could their brains, through a mutual entanglement of their states, become jointly coherent, as a single organism? Is the experimenter Peoc'h watching the experiment and also exercising his own influence (raising the intriguing possibility that the chicks might in fact be irrelevant to the effect)? The CQC formalism is explicitly designed to accommodate such simultaneous loci of consciousness; but for simplicity let us here think in terms of only a single organism, the joint-chicks.

We have here the conjunction of forcing and entrainment described in the previous section. Taking the later variation described by Fenwick, let us suppose that the movements of the robot are based on a random number generator controlled by a quantum mechanical effect such as nuclear decay (alternative mechanisms are discussed below). The output of this generator is recorded as low intensity variations in the magnetisation of a floppy disk, which has been safely locked up so that no living system has become aware of these data prior to the experiment. The apparent state prior to the chicks experiment will then include a superposition of states $\sum_i a_i \psi_i$, each component of which describes a position and velocity of the robot, together with a corresponding matching set of data on the floppy disk.

The chicks visually observe the robot and thereby entangle their

(joint) brain-state with this external superposition (see equation (2) above and figure 1). As a result of their imprinting the chicks devote a major part of their conscious process to the assertion of a projection of their joint state onto a state where they perceive the robot to be nearer to them than some critical comfort distance.

Forcing and entrainment then restrict the subsequent apparent state to a superposition containing only positions less than this distance. The subsequent operations of Peoc'h, acting at a causally succeeding locus, further reduce this superposition to a particular sequence of positions and a particular (necessarily consistent) content of the disk.

This example demonstrates that the CQC framework give a very natural account of the process. Without such a framework, it would seem that the chicks had somehow exercised psychokinesis retroactively on the detailed mechanics of the random number generator, defying both the laws of physics and the intellectual power of chicks. With this framework, it is apparent that all they were doing was concentrating hard on their "mother" and wanting it to be near. We can also note that most of the foregoing analysis can be applied, *mutatis mutandis*, to many other standard (and more replicable) psychokinesis protocols, though for most of these the strength of the effect (though not necessarily its statistical significance) is much lower than that reported by Peoc'h.

Target guessing

Figure 2 depicts in broad outline a protocol for a variety of parapsychological experiments. Many variation can be made: the random number generator controlling the process could act on many principles, feedback could be immediate after each "guess", or be given after the whole session, or be omitted, the "transmitter" person could be omitted for pure clairvoyance, and so on. I shall assume that there is at least one instance of feedback in each session. In broadest terms, however, the basic structure remains similar to Peoc'h's experiment in involving a random number generator whose influence is subsequently entangled with consciousness; but we now have an explicit succession of moments of consciousness linked to the outcome, making it appropriate to describe the process in terms of a history. The process could thus be described as involving a sequence $\{P_i \mid i = 1, 2, \ldots, n\}$ (with at least one member) of propositions at moments of consciousness (loci) by the "receiver", and at least one proposition P_E at a moment of consciousness by the exper-

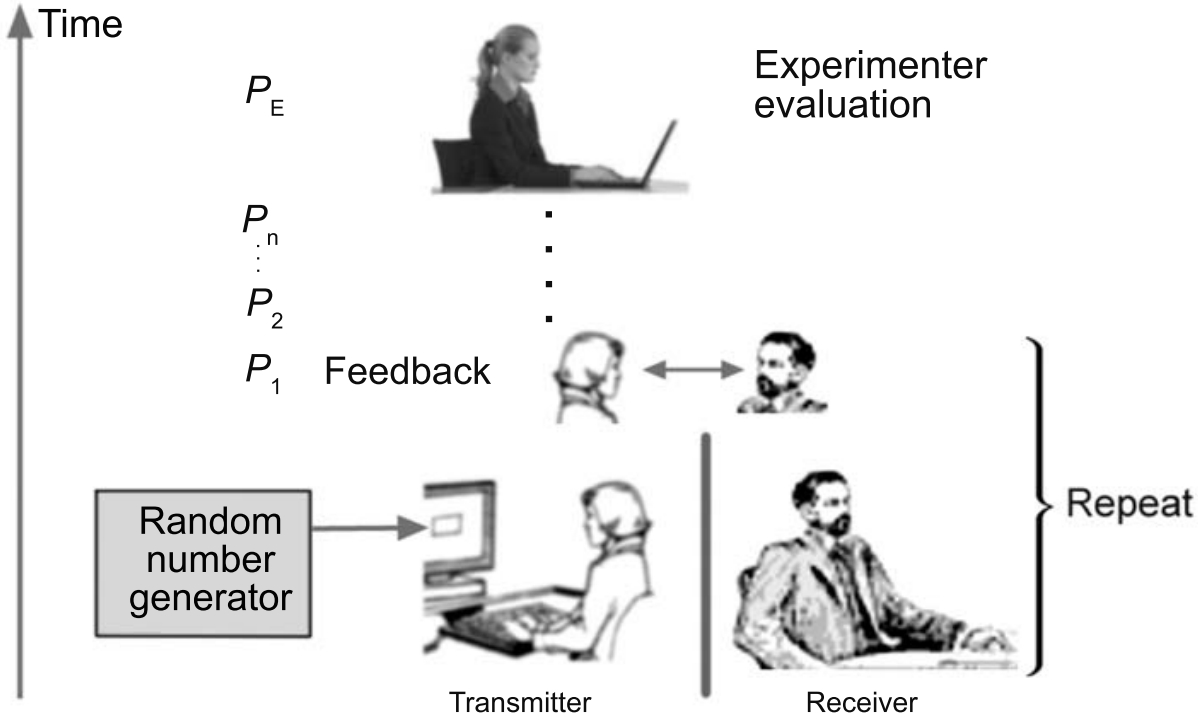

Figure 2. Schematic depiction of a typical target-guessing experiment. P_1, P_2 etc. indicate propositions asserted by the receiver or the experimenter at successive moments of consciousness (loci).

imenter. For example, the proposition P_E in the set ς_E being asserted by the experimenter might be the occurrence of a statistical significance of better than 1%. The probability of some or all of these propositions being satisfied is then given by a function (see footnote 9) which links all the propositions. Because of the entanglement of the effective state at the locus of P_i with the receiver's memory state, the entanglement of the effective state at P_E with the final record of the whole series, and the causal connections between these and the individual random number generator states, there will be a positive correlation between the probabilities of each of the P_i and P_E.

Two effects arise from this positive correlation: (a) The individual probabilities of the P_i are enhanced by the effectiveness of the assertion of the set containing P_E by the experimenter, producing an "experimenter effect", and (b) The probabilities of each of the P_i (success in individual sessions) will be enhanced by the feedback. Both of these effects might be regarded as a form of retroactive causation, in the sense of causation that operated in a direction opposite to the usual arrow of time (Reichenbach, 2003). This would, however, be a misleading way

to think about it. The arrow of time enters into the histories interpretation through the time-displacement maps Λ in equation (1). These represent normal dynamical causation with is made unidirectional by thermodynamic effects that are ultimately traceable to the expansion of the universe. The correlation between the different Ps is of a logical nature: it is identical to the correlation existing between logically connected propositions asserted a single moment of time but is in itself independent of time. This non-causal correlation is analogous to Jung's concept of synchronicity. On this viewpoint there is, because of the time-independence of this structure, no essential difference between precognition and telepathy.

Spontaneous psi

I will examine here two general types of spontaneous occurrence, the first suggesting a different sort of mechanism from the forgoing cases ("empathic telepathy") and the second suggesting an instance of the previous mechanisms ("spontaneous precognition").

Empathic telepathy: By this title I mean the spontaneous occurrence of apparently paranormal communication between two connected individuals. This is a large category, and I will examine only the phenomena exemplified by the "but *I* was just about to phone *you*!" syndrome, when a particular idea or image occurs to two individuals, well known to each other, at the same time. This case differs from target-guessing in that the random number generator is replaced by a second organism, so that both organisms select the apparent state as part of the history before there is any comparison between them. An explanation through forcing, applied to a state which is not yet selected, is therefore ruled out.

This sort of occurrence seems to be most frequently reported among pairs of organisms, hereafter referred to as Alice and Bill, who have close and sympathetic relationships. In that case we could postulate what might be called a common or shared (component of) mind. By this I mean that there exists a locus $\mathfrak{L}_{AB} = (U, \mathcal{H}', \mathcal{H})$ in which U consists of two disconnected parts U_A and U_B, one in the brain of Alice and one in the brain of Bill.[12] By definition of extensive coherence (item 2 on

[12]Hitherto I have allowed a tacit assumption that within a human being there exists a unique physical system that carries a coherent state, and that this constitutes "the" consciousness of the person. There is, however, significant evidence that this is not so (Teasdale & Barnard, 1993; Douglas-Klotz, 2001;

12), the states over these two components will be highly entangled. In particular, if we denote states that correspond to particular ideas over U_A by $\alpha^1_A, \alpha^2_A, \ldots$ and similarly for B, where the superscripts label the same idea for A and B, then we can expect the occurrence of states of the form $\sum_i a_i \alpha^i_A \otimes \alpha^i_B$. If in addition we suppose that the occurrence of a situation where communication is appropriate results in the repeated assertion within $\mathfrak{L}_{AB}$ of a projection on states of this form, then forcing will take place as in the previous example, and the result will be a raised probability of Alice and Bill entertaining the same ideas at a given time.

This example is of particular theoretical interest, because, unlike the mechanisms just described for parapsychology experiments, it involves the entanglement of minds — or more precisely, the entanglement of two parts of a system that is being maintained in a state of extensive coherence as a result of being a mind. This maintenance has to be achieved by the repeated assertion of propositions that project onto particular entangled states of the two parts, which is part of the *conatus*[13] that characterises minds. Since entanglement, as I am defining it here (see section "Time in quantum theory") is by definition between states that are not time-related, it brings in a condition of simultaneity, which again distinguishes it from the previously discussed effects.

A further distinction from the previous cases is that the underlying mechanism here could give rise to a distance effect. This is because of condition 1b in section "Quantum Histories", which implies that the temporal extent of a locus is (approximately) the light-crossing time of its spatial extent. Each component of the joint mind would thus have to maintain its quantum phase, through internal shielding against decoherence, for up to 40msec in the case of long-distance telepathy on earth — a very severe constraint. The mechanism just described is also the most likely candidate for the possible correlation (Grinberg-Zylberbaum et al., 1994; Sabell et al., 2001; Wackermann et al., 2003) of EEG records between distant subjects, where time-synchronisation is a vital aspect.

Spontaneous precognition: This case is of interest because it appears to combine the time independence in the section on "Target Guessing"

Lockwood, 1989).

[13]Spinoza defined the concept of *conatus* (Spinoza, 1925, Ethices p.102) through which an organism expresses its definitive goal of the maintenance of its own essential being — an idea which was developed in the pan-psychist picture of Mathews (2003).

with the spontaneous empathic connection of "Empathic Telepathy" above. It seems to be of widespread occurrence, and happens to be a phenomenon that I have found striking in my personal experience in the form of precognitive dreams that I have either reported to others or recorded in my journal at the time of their occurrence. I will therefore take precognitive dreams as a particular example of spontaneous precognition in what follows.

When a later experience matches salient points of an earlier dream, this is felt to be remarkable because the subject thinks that such a match would be "extremely improbable by chance". If one were to try to make quantitative this subjective impression (and the area is notoriously difficult to analyse statistically), one might suppose that both our dreams and our experiences of events combine a number of elements whose possible range, though large, is finite, so that one could, at least very roughly, assign probabilities to particular combinations. For instance, one dream of mine contained the following elements: a book bound in a distinctive yellow ochre colour without other ornament, a Catholic mass, and myself weeping (together with other elements strongly correlated with the Catholic mass element). These elements were all fairly rare in my experience, and there seemed only weak correlations between them, so that the dream itself appeared curious enough to be noted. When, a couple of weeks later, an event occurred that combined all these elements at the same moment of time, then *if the dream and the event were uncorrelated* the occurrence of both would seem very unlikely indeed, and this in turn might suggest that there was in fact some causal mechanism operating which did correlate the dream and the subsequent event.

Setting aside the question of whether the statistical guesses just made are in fact reliable (something that in this particular case could indeed by seriously challenged) we can examine the light shed on this by the present theory. First, entanglement (or its generalisation in which the Bell inequalities are violated as in the section on "Time in quantum theory") between the consciousness of the dream and the consciousness of the later event, as described in the previous section, is ruled out because entanglement on this theory could only be maintained by the assertion of a proposition between events that are not chronologically related. Second, the theory as at present articulated deals only with moments of consciousness and not with the concept of an enduring self or soul (see point 2 in the introduction); so that from the point of view

of the mental aspect of the world no significance attaches to two experiences belonging to the same person. (The theory thus differs significantly from the ideas of, for example, Sheldrake, 1988). There is thus no basis for the physical connection between the two loci that characterised the previous case in the section "Empathic Telepathy".

On the other hand, part of the mechanism of the target guessing protocol in the section on "Target Guessing" matches well with what is happening with the dream. The delight and fascination that I feel when a dream is verified is similar to that which I experience when a scientific prediction is verified, and in both the case of the experimenter in a target-guessing experiment and the case of my experience of significant events in daily life it could be said that a pre-conscious or unconscious assertion of a desire for a meaningful outcome (i.e. a "proposition") was satisfied. In both cases the two moments of consciousness are in fact correlated by virtue of their entanglement with contemporary records and memory traces. History theory does give a mechanism that connects them, although it is not strictly speaking a causal mechanism.

Experimentally testing conscious quasi-collapse

Untestable theories are not worth the name, and one impetus behind the present work is to open up a theoretical area that will enable one to formulate possible areas for testing more precisely. Caution is, however, called for in this particular domain, because of the way in which the effects operate at the human level, all participants necessarily being involved, including the experimenter, in a strongly interlinked way. The distinctive features of this theory (presented here as a summary of what has gone before), which make it particulary open to refutation are as follows:

1. No physical forces other than those of conventional physics are being introduced.

2. Reality is jointly determined by all conscious organisms, within the constraints imposed by the probabilities of conventional quantum mechanics, by their asserting sets of propositions dependent on their effective quantum state, with a frequency of assertion limited by the Penrose time τ_P.

A feature that allows the theory to be refined is:

3. Conscious organisms are identifiable as all systems that satisfy a general criterion such as extensive coherence (see section on "Quantum Histories") or the conditions on a switching network indicated by Donald (1990).

I shall focus here on parapsychological tests applicable to 1 and 2. I have already described ("Emapthic Telepathy" above) an area where there might be an observable distance effect. Here I explore another line of inquiry suggested by the dominant role of the experimenter effect in these experiments, which in this theory stands in contrast to their usual analysis in terms of the transmission of information from one place/person to another. It is a prediction of this theory that an experimenter who is strongly motivated to obtain a particular result will consistently achieve that result more readily than an experimenter motivated to obtain the reverse result, even when their protocols are exactly identical. This possibility, which has often been reported in parapsychology and cited as evidence against all parapsychological effects, deserves careful investigation as means for distinguishing the mechanism presented here from information-passing mechanisms for parapsychology.

The mechanism involved in psi effects is, as we have seen, different in the randomised trials required for experimentation and spontaneous phenomena. Thus the nature of randomisation is a key factor in this approach. The previous examples have been phrased in terms of randomisation using a "quantum event" such as radioactive decay. This is sometimes contrasted with a "classical event" such as the generation of a large integer by an iterative process seeded by the clock time. This assumed distinction between quantum and classical randomness was taken for granted until the development of the modern theories described in the introduction. Before then, it was supposed that quantum mechanics took place only among microscopic objects (or arrays of such objects between which an unusual coherence had been established) and that there was an unambiguous distinction between the quantum world and the classical world, with the collapse of the quantum state mediating between the two. Quantum randomness was an inherent aspect of collapse, whereas classical randomness was a result of our ignorance of the exact initial state of the process giving rise to it.

Within this new picture as described in the introduction, a "classical" uncertainty is one deriving from a process, such as tossing a coin,

whose physics can be accurately described without reference to quantum mechanics. The initial conditions of any such process, however, stem from unmeasurably tiny fluctuations in the conditions of the whole environment within which the process takes place, fluctuations that are part of a causal chain that stretches back to the earliest phases of the universe when it was a homogeneous quantum entity. In this sense, all uncertainty is of quantum origin, and in the CQC approach it is explicitly represented as such. The important distinction in that theory is not between classical and quantum uncertainty, but between situations that are still malleable and open to influence through consciousness, and those that have entered consciousness and become public. Here "public" means that the consequences of the situation have significantly impinged on the consciousness of a wide range of disinterested organisms, or have made multiple stored impressions on a single organism. For example, in the Peoc'h experiment involving pre-recording data that controlled the robot, the data was still malleable and subject to influence by the chicks or the experimenter because it had been "locked up" in low-energy imprints on a magnetic disc. Even if it had been printed, as a long list of binary digits, say, and disseminated in a scientific journal it might still have been malleable, because the information that could have been extracted from it into the consciousness of any reader would still have left more than enough freedom for there to have been a wide range of quantum states available for a behaviour of the robot that would yield a positive result.

Thus one way of testing the theory would be to compare "locked" data with "public" data. But is it possible to arrange randomisation in terms of data this is public in all its details (particularly in view of the potentiality of the experimenter to capitalise effortlessly on any lacunae in the prior determination of the data) while still carrying out a well controlled experiment? The challenge is that of making the data used for randomisation impinge fully on consciousness while at the same time removing any possibility of a person asserting a proposition that could influence the result. As an example of a public quasi-randomisation, one could generate a sequence of digits by applying an algorithm to the text of a specified book (the algorithm designed to remove as far as possible the strong non-randomness of letters in a book) starting at the first occurrence of the eighteenth noun in the leader of a specified newspaper on a specified date. If this procedure consistently nullified the results of experiments with the general structure of those in sections

"Psychokinesis" and "Target Guessing", irrespective of the views of the experimenter, then this could be construed as evidence against point 2 at the beginning of this discussion, which is an essential part of the whole theory.

Acknowledgments

I am grateful to Prof. H. Walach and other referees for their valuable contributions to this paper.

References

Atmanspacher, H. and Römer, H. and Walach, H. (2002). Weak quantum theory: Complementarity and entanglement in physics and beyond. *Foundations of Physics*, *32*, 379-406.

Barbour, J. (1999). *The End of Time*. London: Weidenfeld and Nicolson.

Bomford, R. (2005). Ignacio Matte Blanco and the logic of God. In C. J. S. Clarke (Ed.), *Ways of knowing: Science and mysticism today* (pp. 129–142). Imprint Academic.

Chalmers, D. J. (1995). Facing up to the problem of consciousness. *J. Cons. Studies*, *2*, 200–19.

Clarke, C. J. S. (2006). *On the nature of bilogic: the work of Ignacio Matte Blanco.* (URL http://www.scispirit.com/matteblanco5web.htm)

Clarke, C. J. S. (2007). The role of quantum physics in the theory of subjective consciousness. *Mind and Body*, *5*, 45–81.

Damasio, A. (2003). *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain*. Harcourt.

Daneri, A., Loinger, A., & Prosperi, G. (1962). Quantum theory of measurement and ergodicity requirements. *Nuclear Physics*, *33*, 297-319.

Donald, M. J. (1990). Quantum theory and the brain. *Proceedings of the Royal Society (London) Series A*, *427*, 43–93.

Donald, M. J. (1995). A mathematical characterization of the physical structure of observers. *Foundations of Physics*, *25*, 529-571.

Douglas-Klotz, N. (2001). *The Hidden Gospel: Decoding the Message of the Aramaic Jesus*. Quest Books.

Dowker, F., & Kent, A. (1996). On the consistent histories approach to quantum mechanics. *J. Stat. Phys.*, *82*, 1575.

Everett, H. (1957). 'Relative State' formulation of quantum mechanics. *Rev. Mod. Phys.*, *29*, 454.

Fenwick, P. (1996). Chickens don't lie. *Network: the Scientific and Medical Network Revue*(62), 12-13.

Giulini, D., Joos, E., Kiefer, C., Kupsch, J., Stamatescu, I.-O., & Zeh, H. D. (1996). *Decoherence and the appearance of a classical world*. Berlin and Heidelberg: Springer-Verlag.

Griffiths, R. (1984). Consistent histories and the interpretation of quantum mechanics. *J. Stat. Phys.*, *36*, 219-272.

Grinberg-Zylberbaum, J., Delaflor, M., Attie, L., & Goswami, A. (1994). The Einstein-Podolsky-Rosen paradox in the brain: the transferred potential. *Physics Essays*, *7*, 422-427.

Hagan, S., Hameroff, S., & Tuszynski, J. (2002). Quantum computation in brain microtubules? decoherence and biological feasibility. *Physical Review E*, *65*, 061901.

Hameroff, S., & Penrose, R. (1996). Orchestrated reduction of quantum coherence in brain microtubules: A model for consciousness? In S. Hameroff, A. Kaszniak, & A. Scott (Eds.), *Toward a Science of Consciousness – The First Tucson Discussions and Debates* (pp. 507–540). MIT Press.

Hartle, J. (1991). The quantum mechanics of cosmology. In S. Coleman, P. Hartle, T. Piran, & S. Weinberg (Eds.), *Quantum cosmology and baby universes.* World Scientific.

Hartle, J., & Hawking, S. (1983). Wave function of the universe. *Physical Review D*, *28*, 2960-2975.

Ho, M.-W. (1998). *The Rainbow and the Worm*. Singapore: World Scientific.

Johnson, M. H. (1989). Imprinting and anpsi: An attempt to replicate Peoc'h. *Journal of the Society for Psychical Research*, *55*, 417-419.

Leibniz, F. v., Gottfried Wilhelm. (1714). Principles of nature and grace, based on reason. In *Philosophical Essays* (p. 210). Cambridge, Indianapolis: Hackett.

Linde, A. (2001). Inflation. In P. Murdin (Ed.), *Encyclopedia of Astronomy & Astrophysics.* IOP Publishing Ltd. (Article 2135)

Lockwood, M. (1989). *Mind, Brain and the Quantum*. Blackwell.

Lucadou, W. von, and Römer, H. and Walach, H. (2007). Synchronistic phenomena as entanglement correlations in generalized quantum theory. *Journal of Consciousness Studies*, *14*, 50-74.

Mahler, G. (1994). Temporal Bell inequalities: A journey to the limits of consistent histories. In H. Atmanspacher & G. J. Dalenoort (Eds.), *Inside Versus Outside* (p. 196-205). Berlin: Springer.

Mathews, F. (1991). *The Ecological Self*. Barnes & Noble Books-Imports.

Mathews, F. (2003). *For Love of Matter: A Contemporary Panpsychism*. State University of New York Press.

Matte Blanco, I. (1998). *The Unconscious as Infinite Sets: An Essay in Bi-logic*. H. Karnac.

Page, D. (2001). Mindless sensationalism: A quantum framework for consciousness. In Q. Smith & A. Jokic (Eds.), *Consciousness: New Philosophical Essays* (p. 468-506). Oxford: Oxford University Press.

Paz, J. P., & Mahler, G. (1993). Proposed test for temporal bell inequalities. *Physical Review Letters*, *71*, 3235-3239.

Penrose, R. (2004). *The Road to Reality: A Complete Guide to the Laws of the Universe*. Jonathan Cape.

Peoc'h, R. (1988). Chicken imprinting and the tychoscope: An anpsi experiment. *Journal of the Society for Psychical Research*, *55*, 1-9.

Radin, D. (2006). *Entangled Minds*. Pocket Books.

Reichenbach, H. (2003). *The Direction of Time*. Dover.

Sabell, A., Clarke, C., & Fenwick, P. (2001). Inter-subject EEG correlations at a distance – the transferred potential. In C. Alvardo (Ed.), *Proceedings of the 44th Annual Convention of the Parapsychological Association* (p. 419).

Schlosshauer, M. (2006). Experimental motivation and empirical consistency in minimal no-collapse quantum mechanics. *Ann. Phys.*, *321*, 112-149.

Schrödinger, E. (1935). Discussion of probability relations between separated systems. *Proceedings of the Cambridge Philosophical Society*, *31*, 555-563.

Sheldrake, R. (1988). *The Presence of the Past*. Collins.

Skrbina, D. (2005). *Panpsychism in the West*. The MIT Press.

Spinoza, B. (1925). *Spinoza opera; im Auftrag der Heidelberger Akademie der Wissenschaften*. Heidelberg: Carl Winters. (Edited by Carl Gebhardt)

Stapp, H. O. (2005). Quantum interactive dualism: An alternative to materialism. *J. Consc. Studies*, *12*, 43-58.

Sudbery, T. (2002). Diese verdammte Quantenspringerei. *Stud. Hist. Phil. Mod. Phys.*, *33*, 387-411.

Teasdale, J. D., & Barnard, P. J. (1993). *Affect, Cognition, and Change: Re-Modelling Depressive Thought*. Hove, UK: Erlbaum.

Tegmark, M. (2000). Importance of quantum coherence in brain processes. *Physical Reviews E*, *61*, 4194-4206.

Turner, M. S. (1999). Large-scale structure from quantum fluctuations in the early universe. *Phil. Trans. R. Soc. A*, *357*, 7-20.

Velmans, M. (2000). *Understanding Consciousness*. London: Routledge.

Wackermann, J., Seiter, C., Keibel, H., & Walach, H. (2003). Correlations between brain electrical activities of two spatially separated human subjects. *Neuroscience Letters*, *336*, 6064.

Walker, E. H. (2000). *The Physics of Consciousness*. Cambridge, Massachusetts: Perseus Books.

Zeh, H. D. (1970). On the interpretation of measurement in quantum theory. *Foundations of Physics*, *1*, 69-76.

Zurek, W. H. (2003). Decoherence, einselection, and the quantum origins of the classical. *Rev. Mod. Phys.*, *75*, 715.

European Journal of Parapsychology
Volume 23.1, pages 31-59

ISSN: 0168-7263

Contacts by Distressed Individuals to UK Parapsychology and Anomalous Experience Academic Research Units – A Retrospective Survey Looking to the Future

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Abstract

This paper reports on two studies motivated by concerns over contacts by distressed individuals to academic parapsychology units, and the implications of this for their mental health. In light of current research on the benefits of early identification and intervention in psychosis, a retrospective survey of records of distressed contacts to UK units and an interview study with units' staff were undertaken. The content analysis in Study 1 characterised (demographically and clinically) this group of help-seeking individuals, and how they use parapsychological units when in distress. Study 2's thematic analysis represented the way staff perceive and deal with such contacts. Outcomes suggest that: 1) when units declare interest in parapsychology or anomalous experiences they attract a small number of distressed individuals who may be at risk of or in first episode psychosis; 2) units are used as a first help-seeking contact or as an alternative, after engagement with mental health services; 3) staff recognise the demand, but feel currently limited in their ability to respond to these individuals' needs; 4) this may be addressed by units establishing a procedure which: a) ensures that relevant information is reflexively understood and consistently recorded; and b) involves collaboration with clinical advisors; and 5) such a procedure may contribute to the significant reduction of distress to the individual.

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Introduction

There is, within academic parapsychology, consistent and significant interest in the personal and clinical significance of distressing anomalous or unusual experiences. Researchers and clinicians across the world (for instance, in Utrecht, Freiburg, San Francisco and Buenos Ayres) have studied and advanced the development of intervention models, within this context, for individuals who seek help regarding such distressing experiences.

In the UK, in the last 30 years, members of staff at the Koestler Parapsychology Unit (KPU) of the Department of Psychology, University of Edinburgh have received hundreds of requests for help and enquiries from members of the public. Although the total number is unrecorded, many of these individuals – probably the large majority – were happy, curious, and certainly not distressed by their anomalous experience or belief. However, it was the policy of the KPU under the late Professor Robert Morris, between 1986 and 2004, that if an individual was distressed by their experience and wished to talk to someone, he or she was offered contact with a suitably qualified individual, a clinical psychologist or psychiatrist, who gave time voluntarily to the unit. The expressed distress was the crucial element in these decisions. There are important similarities, but also differences, between reported anomalous experiences and experiences with a psychopathological relevance (Berenbaum, Kerns and Raghavan, 2000). As we will discuss later, we suggest that the description of an anomalous experience either as a paranormal event or as the translation of mental ill-health carries unequal risks and consequences for the affected individual.

These distressed callers were often the 'worried well' who had been frightened by an anomalous experience such as hypnagogic/pompic phenomena, were hearing unexplained sounds or voices (in the absence of any other clinically relevant experience), feeling unexplained distressing sensations, or seeking an explanation for unhappy coincidences. Another type of contact was made by individuals who were delusional, often paranoid, or experiencing hallucinations, who acknowledged receiving psychiatric care. Such individuals were at some risk of becoming non-compliant with treatment if persuaded that a paranormal explanation accounted for all

of their experience. Occasionally, contact would also be made by distressed individuals who would be investigating this alternative to what the clinician believed was the early stages of a psychotic illness before, or instead of, seeking advice from health professionals.

Conversations between the volunteering clinicians and the contacting individuals were unstructured. No standard approach was taken or 'therapy' offered, but the clinician offered a sympathetic and informed ear. These 'constructive listening' approaches, similar to those described by Knight (2005), involved a non-judgemental acknowledgement of the person's anomalous experience or belief. Purely listening approaches sustain the confidence of worried people so that discussion about their experience can take place. However, they do not necessarily move the person on to examining the implications of their experience. With some individuals there is also a concern about colluding with an explanation that might limit further consideration of alternatives. The additional approach used in the KPU was to acknowledge that, as mental health professionals with an interest in parapsychological or anomalous phenomena, the clinicians involved encouraged the affected individual to adopt a 'scientific' attitude to their experience, both by recording the experiences and by exploring in parallel various explanations for their anomalous experiences.

The clinical relevance of anomalous experience

Anomalous experiences are relevant to the study of individual difference factors such as 'eccentricity' (Weeks & James, 1995), peculiarity (Berenbaum et al., 2000), claims of parapsychological experience and psychopathology. Because these various descriptions have varying implications for the future well-being of the individual concerned, in practice it is their relevance to psychopathology that has received most attention. The implications (both beneficial and adverse) to individuals of having their experiences interpreted primarily in psychopathological terms have been the subject of much discussion (Bentall, 2000, 2003; Peters, Day, McKenna & Orbach, 1999; Knight, 2005).

Anomalous experiences (clinically described as hallucinations and delusions) are relevant to a number of diagnoses under the two principal classifications of mental or behavioural disorders – the

International Classification of Diseases 10th edition (World Health Organisation) (ICD-10) (1992) and the Diagnostic and Statistical Manual (of the American Psychiatric Association), 4th edition – text revision (DSM-IV-TR) (2000). The presence of such experiences is A necessary or core aspect a group of diagnoses including schizophrenia, schizoaffective and delusional disorders.

In the last five years, there has been increasing interest among researchers concerned with the treatment of schizophrenia in evaluating: (a) the effects of duration of untreated psychosis (DUP), particularly in first episode; (b) the viability and benefits of early identification and intervention with first episode or those experiencing putative precursor (or at-risk) stages of psychosis; and (c) strategies for improving this early detection. In a comprehensive recent summary of this research (edited British Journal of Psychiatry supplement), McGorry, Nordentoft and Simonsen (2005) highlight the importance and benefits of early and phase-specific intervention in the development of psychosis, in terms of both the overall duration and severity of psychotic episodes. While it has been asserted that there are risks involved in this strategy in terms of false-positive identification (Warner, 2005), recent research results suggest that the benefits to the individuals outweigh these risks (McGlashan, 2005).

The duration of untreated psychosis (DUP) is a putative period of experience of psychosis by an individual which is "anchored at the beginning by onset of psychosis and at the end by initiation of treatment" (Norman and Malla, 2001:382). DUP has been found to be inversely correlated with both short term and long term positive outcome measures for pharmacological and psychological treatments. In studies of the interaction between DUP and other predictors of outcome, such as pre-morbid functioning, DUP has been identified as a strong and potentially malleable predictor of outcome (Harrigan, McGorry & Krstev, 2003). Despite the present significant optimism and drive in research concerning the successful early identification of psychosis, there are important methodological difficulties in this area, and some comparisons with standard methods of referral show no significant differences (Kuipers, Holloway, Rabe-Hesketh & Tennakoon, 2004). In relation to early intervention in psychosis, there is also some evidence supporting the effective and beneficial use of psychological approaches to psychosis, independently or conjunctively

with established pharmacological procedures (e.g. McGorry *et al.*, 2005).

There is also interest in the evaluation of education or early awareness of psychosis programmes for health professionals, parents and the general population.[1] However, there seems to be little difference in effectiveness between general population programmes versus specialist early intervention teams (Malla, Norman, Scholten, Manchanda & McLean, 2005), and the effectiveness of the latter appears to depend on the use of diagnostic tests with high specificity (Cougnard, Salmi, Salamon & Verdoux, 2005). This last study, for instance, has estimated that, given tests of specificity greater than 88%, the numbers needing to be screened to avoid consequences in a five year period would be 20,000 subjects to prevent one death, 641 to prevent one hospitalization, and 847 to prevent one unemployment. Given these large numbers, this method of early identification is laborious and expensive. Contacts by distressed individuals to parapsychology units may constitute another path to identification, which may be clinically relevant when such individuals state that they are seeking help with frightening events or experiences.

The KPU approach

Over the years at the KPU it has been neither possible nor deemed appropriate to assess distressed contacting individuals in any formal way. These individuals were contacting the KPU because of the latter's expertise in paranormal phenomena and anomalous experience research. Furthermore, standard assessments require the assessor to observe the individual, which was not possible for the large majority of contacts, and to ask a large number of questions that would certainly have been viewed as inappropriate in this context.

The KPU approach to these contacts emphasised that: a) the various possible explanations for anomalous experience have implications or degrees of risk attached for the individual; and b) these degrees of risk are not equal. If, for instance, the most appropriate explanation for much of an individual's experience was a psychopathological one, and this had not yet been assessed, then, in

[1] Respectively see: Tait, Lester, Birchwood, Freemantle & Wilson (2005); de Haan, Welborn, Krikke & Linszen (2004); Hafner, Maurer, Ruhrmann, Bechdolf, Klosterkotter, Wagner, Maier, Bottlender, Moller, Gaebel, Wolwer (2004).

the light of the literature reviewed above, the sooner that explanation was tested the better. This approach was, therefore, to acknowledge the frightening nature of the psychopathological explanation, but to encourage the person to consider that if, after assessment by competent advisors, that explanation was discounted, the individual could then explore alternative, less risk-laden explanations with greater peace of mind. If, on the other hand, the psychopathological explanation was appropriate, then the individual had done as much as they could to reduce the impact of a putative condition. It is believed, on an anecdotal level only, that this approach, if employed as part of a thoughtful, responsive and unhurried discussion, has been useful.

The present studies

The present studies were motivated by the strong possibility that: (a) some of the distressed individuals who contact units like the KPU do so before, or *in lieu* of, seeking clinical advice about their distress; and (b) these individuals may be at risk of or experiencing a psychotic illness. Thus, in light of recent research on the effect of early identification and delay in the treatment of psychosis, units may have a responsibility to offer more structured advice to such individuals.

For the purpose of this project 'Distressed Contacts' (henceforth DCs) were defined as contacts in which individuals describe or allude to information (verbal or behavioural) suggestive of difficulty, anxiety or distress related to experiences or abilities that the individuals consider to be anomalous (consistent with the definition in Cardeña, Lynn and Kripner, 2000). These contacts *may* include an associated request for information, explanation or help. Crucially, it is important to clarify that these contacts are made by individuals approaching these units voluntarily.

Methods

Aims

Study 1 attempted to answer the following questions: (a) what is the extent of records of DCs to UK academic parapsychology/anomalous experience research units; and (b) what information is available in

these records about; (i) such individuals, (ii) their reported experiences, and (iii) the requests that they make to these units. Study 2, an interview study with participating academic units, aimed to provide additional and contextual information to the data set of existing records (from Study 1), specifically: (a) what proportion of overall DCs to these units do existing records represent; and (b) what is the current procedure in each unit for dealing with such contacts.

Participants and data collection

Eight UK academic parapsychology/anomalous experience research units, research groups or individual researchers were initially identified and contacted. In addition to the KPU (host institution), four out of seven contacted institutions agreed to participate. These were:

- Anomalistic Psychology Research Unit, Goldsmiths College, University of London;
- Consciousness and Transpersonal Research Unit, Liverpool John Moores University;
- The Parapsychology Group, Liverpool Hope University College;
- Perrott-Warrick Research Unit, University of Hertfordshire.

It is worth noting the units which agreed to participate had both experience of receiving distressed contacts from members of the public, and allowed access to their existing records of such contacts. Data was collected between April and October 2005, through: (a) the examination of all existing records of DCs at the five participating academic units (records of telephone calls, letters or emails); and (b) brief research interviews with the staff member(s) of each unit most closely involved in dealing with such contacts.

Data Analysis

Study 1 – Analysis of recorded DCs

The records of contacts were analyzed using quantitative content analysis (Weber, 1990; Gibbs, 2002; Krippendorff, 2004). All existing

records of DCs (letters, e-mails and records made of telephone calls) which were provided by the five participating research units were used, i.e. no sampling was used. The contacts' textual content was initially coded according to categories pre-defined by the project's research concerns: characteristics of the contacting individual (age, gender, previous contacts about the experience/ability); and characteristics of the contact (date, modality, frequency, reported experience/ability and associated distress, expressed request to the unit). The final coding units – mutually exclusive and exhaustive categories and sub-categories, transformed into nominal independent variables and variable levels – were tested on samples of contacts by a second independent coder and revised according to their accuracy and reliability (Weber, 1990). The exploratory descriptive data analysis included tabulations (absolute and relative frequencies of occurrences for each variable) and cross-tabulations (frequencies of co-occurrences between variables) to explore more complex interactions between variables.

Data consisted of all available records at this point in time. These were letters, e-mails and records of telephone calls, and were collected by different individuals during an extended period prior to the study. These individuals had an administrative, academic or a clinical role. The authors did not identify specific or systematic ostensible criteria for the recording and keeping of these (rather than other) records of DCs. Specifically in relation to telephone calls, records were typically notes taken in differing detail and produced by different individuals. Some records were based on initial, self-initiated contacts by the individuals to the unit, typically taken by an administrative member of staff, including some personal characteristics of the caller (e.g. gender, age, contact details) and a broad description of the content of the experience. Other records were based on follow-up (return) calls, initiated by one of the unit's clinical collaborators, including greater detail in both personal characteristics (e.g. living circumstances, previous contacts about the experience) and the description of the experience itself (e.g. inclusion of a description of the request for help).

The available data was thus of varying quality and detail, however the data was not collected or created with a view to subsequent analysis – these were pre-existing records. The coding was naturally limited to the available information. If the category of information was

not available, this was coded as 'data missing' (as will be clear in the analysis section).

Study 2 – Analysis of interview data

Once transcripts of the interviews were produced, these were analyzed using computer aided thematic qualitative analysis (NVivo 2.0). Thematic analysis is designed to explore, seek trends and organize textual data in a clear and systematic way (Hayes, 1997). After the first reading of these transcripts, it became clear that these could provide not only complementary information to that in the records, but also information on the participants' own views about: (a) the importance of these contacts to them and their units; (b) their willingness or perceived ability to respond to DCs; and (c) their reluctance or concerns about responding to such contacts.

Results

Study 1 – Analysis of recorded DCs

Number and origin of contacts: The total number of contact records collected across the UK units was 137. Data from the KPU represented almost 90% of all available data (n = 123). In order to preserve as much homogeneity in the data as possible, the following analysis includes data gathered at the KPU only.

Annual frequency, gender distribution of contacts: Over the 13 years surveyed by this study (1992-2005), the annual average of DCs to the KPU was close to 9 contacts per year. There is no noticeable trend (increase or decrease) in frequency of contacts during this period. The distribution of contacts by gender was nearly equal, male 44.7%, female 45.5% and multiple gender 7.3% ('multiple gender' refers to those contacts in which the experience and distress involved more than one individual, and that these were of different genders). When the contact referred to experiences involving more than one individual (only 11 out of 123 contacts), 9 out of these concerned members of the same family.

Age distribution of individuals making or referred to in contacts: Age is an important factor in the early detection of, intervention in, and subsequent prognosis of psychosis. Table 1 indicates that, where this information was available (*n* = 80), contacts with individuals in the 20-29 age interval account for 34 of the total DCs to the KPU, whereas those DCs related to individuals in the 10-19 age interval account for only 5. This latter value is unexpectedly small. In the 20-29 age interval, 22 out of 34 individuals describe these experiences as psychological (as opposed to somatic) distress attributed to a paranormal cause – these are typically reported as distressing ESP experiences.

Table 1: Age of affected individual

Age interval	Frequency	%	Valid %
0-9	5	4.1	6.3
10-19	5	4.1	6.3
20-29	34	27.6	42.5
30-39	13	10.6	16.3
40-49	10	8.1	12.5
50-59	3	2.4	3.8
60-69	1	0.8	1.3
70-79	1	0.8	1.3
Multiple age	8	6.5	10
Total	80	65	100
No available data	43	35	
Total	123	100	

Origin and modality of contact: Most DCs to the KPU were made by the affected individuals themselves (n = 97). However, 5 contacts were made by either medical or mental health professionals on behalf of, or concerning, their patients. Other contacts were made by parents (7) or significant others (12) concerning, respectively, their children or friends/partners. Where information was available (n = 116), the data indicates that the majority originated from Scotland and England (38% and 41.5% respectively). A relatively small, but considerable, percentage (12%) originated from countries other than the United Kingdom, including USA, Israel, Scandinavian countries and the Philippines. In terms of modality, 48% of DCs were made over the telephone, but in later years e-mail became more common (accounting for 12% in the present data set).

Described distress related to anomalous experience: This study found that experiences describing psychological (rather than somatic) distress attributed to a paranormal cause accounted for 47.2% of contacts. Table 2 summarises the results for each type of distress and Appendix 1 includes a detailed description and examples of each category of reported distress. A large majority (88.3%) of the records described recurrent experiences. This is potentially relevant to the issue of duration of untreated psychosis (DUP). The data also indicate that in most cases (76%) individuals contacted the unit only once.

Table 2: Type of distress experienced by individuals

	Type of described distress	Frequency	%
1.	Psychological distress attributed to paranormal events or influence in adults	58	47.2
2.	Somatic distress attributed to paranormal events or influence in adults	12	9.8
3.	Psychological *and* somatic distress attributed to paranormal events or influence in adults, or adults *and* children	23	18.7
4.	Psychological, somatic or psychological *and* somatic distress related to experiences/abilities in children attributed to paranormal cause	6	4.9
5.	Psychological distress with no attributed cause in adults	8	6.5
6.	Somatic distress with no attributed cause in adults	6	4.9
7.	Psychological *and* somatic distress with no attributed cause in adults	1	0.8
8.	Distress related to conflict between medical/psychiatric and paranormal explanations for experiences	9	7.3
Total		123	100

Purpose of contact: Where information was available (n = 118), DCs which included overt requests for help accounted for less than half of all contacts (51, 43.2%). The majority of DCs (67, 56.8%) included other types of requests, i.e., information (11, 9.3%), explanation (19, 16.1%), verification of the paranormal nature of the experience (29, 24.6%), or DCs which were descriptive only (8, 6.8%). Those contacts in which individuals requested the verification of a paranormal explanation for

a distressing experience indicated an expectation that the unit would make an expert assessment of the paranormal status of their experience, in contrast to any clinical relevance of the experience.

The KPU is the only UK parapsychology unit that has regularly had access to collaborating Clinical Advisors (CAs). Nevertheless, the arrangement at the KPU relied heavily on administrative or academic staff making the decision whether or not to refer an individual to a CA. Where this information was available (in 112 of total DCs), 78 (i.e. 70%), were referred to a CA, in the remaining instances the unit took either no action, or it was left to a (non-clinical) academic member of staff to respond.

Of those DCs which expressed a request for help (n = 51), where the information was available (only in 44 of these 51 contacts), the KPU responded to 35 of these with a referral to a CA. Even, in relation to purely descriptive contacts (n = 6), while most cases (n = 4) were not pursued (i.e., no action was taken), 2 of these DCs were referred onwards to a CA.

Of those DCs including a discernable request for help (n = 51), 33 were made by women, and 15 made by men. In contrast, of those DCs which requested the verification of the paranormal nature of an experience (n = 29), 16 were made by men and 11 by women.

Contacts prior to contact with the KPU: Where information was available (n = 90), 43 individuals had contacted health professionals about their experience(s) prior to contact with the KPU, and 18 had contacted other parapsychology or psychical research institutions (n = 3), spiritual advisors (n = 6) or both (n = 9). A significant 29 individuals used the KPU as their first point of contact about their distress. Specifically, within the 10-19 age interval (n = 5), 3 individuals used the KPU as their first point of contact.

Where information was available for the 20-29 age interval (n = 28), 14 individuals contacted the KPU as their first point of contact, and 10 of these asked for help. In the same age interval, of those DCs by individuals who had no previous contact with medical or mental health specialists about their distress (n = 19) (but who had made either no previous contacts, or had contacted parapsychology/psychical research institutions or spiritual advisors), 4 were subsequently considered by a CA to be suggestive of pre-morbid psychosis. Of the 7

individuals who reported having had contact with a mental health specialist prior to contacting the KPU, 3 asked for verification of the paranormal nature of their experience.

Provisional clinical significance: During the 13 years covered by the data in this study, the KPU had access to up to 4 volunteering CAs at different periods. Table 4 shows the distribution of suggested, provisional clinical categories suggested for all recorded DCs (123), irrespective of having been referred to a CA at the time of contact. It is worth noting that these clinical categories were suggested by one of the KPU's CAs (consistent with current DSM-IV-TR and ICD-10 criteria, see 'Note' below Table 3), and are *only* indicative hypotheses, based on the information available in the record.

Table 3: Provisional diagnosis by Clinical Advisor

Provisional clinical categories	Frequency	%	Valid %
1. Premorbid psychosis	15	12.2	12.5
2. 1st episode psychosis	3	2.4	2.5
3. Chronic/established psychosis	36	29.3	30
4. Other categories	26	21.1	21.7
5. No clinical significance	12	9.8	10
6. Insufficient information	28	22.8	23.3
Total	120	97.6	100
Not applicable	3	2.4	
Total	123	100	

Note: 1 – Psychotic prodrome or pre-morbid psychosis: based on clinical impression, age, presentation (symptoms: type and duration, attitude to symptoms, drug use, medical history, affective state, cognitive cohesion, paranoia, social information, nil medication, etc.); 2 – First psychotic episode: based on medical history, medication and presentation (see above); 3 – Chronic/established psychosis (see 2 above); 4 – Other diagnoses: e.g. depression, bereavement, personality disorder; 5 – No clinical significance; 6 – Insufficient information.

Three categories (pre-morbid psychosis, first psychotic episode and chronic/established psychosis) together account for 44% of all DCs. DCs suggestive of chronic/established psychosis account for 29.3%, those suggestive of pre-morbid psychosis account for 12.2%, while those suggestive of first-episode psychosis account for 2.4%. In the 10-19 year interval (n = 5) the diagnosis of pre-morbid psychosis was

suggested for 4 individuals. In the 20-29 age interval (n = 34), there was greater diversity: a diagnosis of premorbid psychosis was suggested for 7 individuals; that of chronic psychosis for 7 individuals; and other diagnoses were suggested for 9 individuals.

Study 2 – Interviews with units' members of staff

This study used brief semi-structured research interviews with the member of staff most closely involved in dealing with DCs at each participating unit. The aim of these interviews was to provide additional and contextual information to the data set of existing records examined above. Table 4 identifies the sequence of themes and sub themes obtained through thematic analysis, and the frequency of each sub-theme. These themes concern the views of unit staff regarding DCs, their current responses to them, the concerns these raise and the resources staff members feel they need to be able to provide a better response to such contacts. Table 4 provides a summary of commonalities and diversity of views and practices across units.

Table 4: Interview themes and sub-themes identified and their incidence among 5 participating units (continued on following page)

Theme	**Sub-Theme**	**Frequency (x out of 5 units)**
1. Types of contacts received in unit	1.1. Descriptive/Informative Contacts	4
	1.2. Queries about parapsychological topics or verification of paranormal abilities	5
	1.3. Reports of distressing experiences associated with requests	5
2. Types of distressing experiences commonly reported to units	2.1. Experiences involving one sensorial modality (such as, "hearing disembodied voices")	4
	2.2. Complex sensorial experiences (such as experiences of ostensible apparitional and psycho-kinetic phenomena)	5
3. Types of requests	3.1. Seeking an explanation	4

commonly expressed in contacts about distressing anomalous experiences	3.2. Direct request for help, with request for assurance of mental health	4
	3.3. Difficulty in understanding requests	2
4. Types of current responses or actions taken by units to contacts about distressing experiences	4.1. No action associated with uncertainty regarding appropriateness of response	2
	4.2. No action associated with ratio of effort involved in responding and effectiveness of response	2
	4.3. No action associated with concerns regarding ethical, insurance and legal issues involved in such contacts	1
	4.4. One-off exploration of non-paranormal explanation for experience(s)	3
	4.5. One-off exploration of psychological state associated with experience(s)	2
	4.6. Prolonged interaction with contacting individual	2
5. Units' concerns related to responding to contacts about distressing anomalous experiences	5.1. Danger of unqualified intervention with vulnerable adults	4
	5.2. Concerns regarding responsibility of response ("duty of care") to unsolicited contacts	3
	5.3. Concerns regarding ethical/legal/professional liability of referral to appropriate advisor (e.g., mental health advisor)	2
6. Resources and information needed to improve response to contacts about distressing anomalous experiences	6.1. Response protocol or guidelines for distressed telephone contacts	4
	6.2. Ethical, insurance and legal guidelines for responses given to distressed contacts	3
	6.3. Advice from or "referral" to mental health advisor(s)	4
	6.4. Pre-prepared educational/informational packages for contacting individuals	4

The data on table 4 suggests that, while most participating units report receiving contacts from distressed individuals (themes 1 and 2),

there is great diversity in the responses to these DCs across units (theme 4). There is, nevertheless, noticeable agreement between units on the resources that are needed to improve their response to such contacts (themes 5 and 6). Table 5 presents quantitative information from units other than the KPU. This additional information addresses such issues as participants' estimates of frequencies and proportions of DCs. In the absence of more robust records, these estimates should be considered indicative only.

Table 5: Contextual quantitative information obtained in interviews with 4 participating units (excluding KPU)

Additional information	Unit 1	Unit 2	Unit 3	Unit 4
Estimated annual frequency of distressed contacts	5 to 8	5 to 6	More than 10	10 to 15
Estimated percentage of distressed contacts in relation to all contacts received in the unit	50%	No info. available	No info. available	10%
Estimated percentage of recorded contacts in relation to received contacts	70%	No records Kept	5%	70%
Perceived changes in frequency of distressed contacts over time	Constant	No info. available	Decrease	Increase

The data presented in Table 5 indicates that most units estimate a relatively high number of annual DCs. It also suggests enormous diversity in the practice of recording such contacts – this varies from estimations of 70% of contacts recorded to none at all.

Discussion

Limited number of recorded contacts in UK academic parapsychology units

There was a surprisingly small number of recorded DCs in relevant UK academic units. More than 90% of the data in Study 1 was retrieved from KPU records, there being only 14 relevant records from the remaining four participating units (representing 10% of the data set). Although staff expressed great interest in the issues that

concerned this study and collaborated fully in the data collection stage, the lack of existing records is also a significant data point obtained in these studies. The data suggests a discrepancy between the relatively high estimations made in two units about: (a) the number of DCs received and (b) the practice of recording contacts. The interviews with staff in Study 2 suggested the following issues, which may be relevant to this practice of limited recording: time constraints; low priority that DCs are given by the units (in relation to their other activities); concerns over ethical and legal issues raised by DCs; and concerns over lack of expertise and experience in responding to DCs. This useful information has influenced the suggestions for future recording of contacts in such units, and procedures that would be more effective for all concerned.

The clinical relevance of distressed contacts to the KPU

The results of the first study suggest the likelihood that a small proportion of these distressed individuals are at risk of or in first episode psychosis, and may not have sought help elsewhere. It is likely that many of these individuals are frightened and bewildered by their experience, and are seeking explanations that avoid health professionals and a possible diagnosis of mental ill-health. Unfortunately, this understandable behaviour both increases the duration of untreated distressing symptoms, and may bring the individual into contact with individuals who knowingly or otherwise reinforce constructions of the experience that further prevent contact with the health services and effective treatment. The following are some outcomes from the survey above that point to the clinical significance of these DCs.

The analysis of KPU records suggested that a significant feature of the descriptions of experiences was their phenomenological proximity to clusters of experiences that are characteristic of psychotic illnesses (Berenbaum, et al., 2000:32), namely, positive symptoms of psychotic experiences, i.e, experiences or behaviours additional to normal experience, that one might prefer were absent (Bentall, 2003). Specifically, 58 (47.2%) contacts reported psychological distress which they attributed to a paranormal cause (typically distressing instances of mental or auditory communications from disembodied malign entities). Descriptively, these are similar to changes in cognitive and

perceptual experience interpreted as part of psychotic illnesses. While not denying that these experiences might have parapsychological relevance, there are particular risks associated with interpreting such experiences in paranormal rather than clinical terms.

Where this information was available, of the 34 DCs in the 20-29 age interval, 7 were suggestive of a putative premorbid stage of psychosis, 7 in first episode psychosis, and, crucially, 19 individuals in this age interval had no previous contact with health specialists about their experience. The 10-19 age interval was represented only to a very limited degree in the data, and the contact was often made by a parent, making the assessment of symptoms more difficult. It is noteworthy, however, that a consensus is emerging in the literature that the younger age intervals (middle teens) form a distinct prodromal group with a poorer prognosis than the older age interval (individuals in their 20s) (Ballageer, Malla, Manchanda, Takhar, Haricharan, 2005).

In the 20-29 age interval, 22 out of 34 individuals described these experiences as psychological (as opposed to somatic) distress attributed to a paranormal cause – these were typically reported as distressing ESP experiences. The importance of this relationship, particularly in this age interval, is in the similarities between their descriptions and positive symptoms of psychosis described in clinical classifications, specifically 'unusual thought content' or 'perceptual abnormalities'.

In the 18 (14.6%) DCs which were suggestive of individuals being prodromal for or in first episode psychosis, 8 had had no previous contact with health specialists about their experiences. In addition, 91 (88.3%) of all DCs reported recurrent distressing anomalous experiences. The description of an experience that is recurrent is concerning, as it suggests that individuals wait for some time before reporting the experience. This is particularly concerning in the 20-29 age interval where the contact with the KPU was often the first contact about the experience.

Distressed contacts as instances of difficult interaction

Both the survey of recorded contacts and the interview data illustrate that DCs may be seen as instances of difficult interaction. When an individual contacts an academic unit to relate a disturbing,

frequently strange or unusual experience, his or her expectations may be unclear. Individuals may have preconceptions about the expertise present at the unit, the desire to understand or even confirm the experience as having a paranormal cause, or the willingness to investigate the experience further. This reinforces the need to engage with these individuals and with their reports in a cautious and non-directive manner, at least until the nature of their expectations becomes clear.

Of all recorded contacts, 59 (48%) were made over the telephone. These, as Study 2 showed, are considered by staff to be difficult interactions, due to the fact that these happen suddenly, with no prior preparation and limited information. It may be important for unit staff who answers these calls to have a procedure for such events. One of the original outcomes of this study was a simple, one-page sequence of questions developed for this purpose (this is still to be piloted and its use evaluated). This includes questions on: (a) the type of distress, anxiety or difficulties in relation to the experience; (b) previous contacts about the experience; (c) personal circumstances; (d) brief medical history; (e) the nature of request that is being made to the unit; (f) the description of the experience, including (if possible) a verbatim narrative of the experience itself. This would allow staff to obtain the necessary information from the distressed individual and to indicate whether, and what, further action is advisable (if that is his/her wish).

Where this information was available, DCs which included a discernable request for help accounted for less than half of all contacts (51, 43.2%). The majority (67, 56.8%) included other types of request (information, explanation, verification of the paranormal nature of the experience) or no request at all. Furthermore, in the analysis of KPU data, out of the 6 'descriptive only' contacts received, 4 were considered by the receiving staff member to warrant no further action from the unit. Although these decisions were likely to have been appropriate within the KPU (where there was considerable interaction between staff and clinical advisors), these still pose difficult problems. Indeed, study 2 highlighted how some participants found that ambiguous descriptions by individuals regarding the purpose of their contact raised great difficulties in structuring an adequate response for them.

The analysis of recorded contacts in Study 1 also suggested that DCs, with or without explicit requests for help, may need to be

read/heard and assessed beyond a literal reading/hearing of the words used in the contact. For example, it was found that women (33), more than men (15), included in their contact a clear request for help with distress caused by an experience. It was also commonly found that descriptions of experiences in very intense and frightening terms would be followed by minimal or unremarkable requests for 'some information' about similar experiences. These observations suggest that there may be socially relevant obstacles to overtly asking for help (e.g. men might be more reluctant to do so than women). Alternatively, these may reflect a particular concern to persuade the listener that the distress is warranted and real.[2]

Overall, these convergent results seem to indicate that units may need to deal with DCs as instances of difficult interaction, and that receiving staff at units may need to: (a) go beyond a literal hearing or reading of the purpose of contact; (b) understand that there are socially patterned ways of talking or writing about distressing or uncomfortable issues; and (c) recognize that these do not necessarily involve an explicit request for help.

Expected expertise and roles attributed to units by distressed individuals

Similar percentages of individuals reported having made previous contact with a mental health specialist (32, 26%), having made no previous contacts at all (29, 23.6%), or provided no information in this respect (33, 26.8%). These three possibilities illustrate three different roles that units are attributed when contacted by distressed individuals. These will be addressed in turn.

In the case of those contacting the KPU after contact with a mental health specialist, the KPU was presumably being used by the individual to explore, or confirm, an alternative interpretation of their experience, i.e. the 'paranormality' of the event. This can be understood as an individual's search for a relatively benign explanation for their distress, in contrast to an unwelcome, frightening and stigmatising clinical explanation. In the 20-29 age interval, 3 out of 7 individuals who reported having had contact with a mental health specialist (prior to contact with the KPU) did indeed request

[2] Relevant work has been developed in this area, by Wooffitt and colleagues, on accounts of anomalous or extraordinary experiences (for instance, see Wooffitt and Allistone, 2005, or Wooffitt, 1992).

verification or confirmation of the paranormal nature of their experience.

This same issue was raised in the interview data, where a participant pointed out that, while the satisfactory exclusion of a paranormal cause for experiences is possible, the attribution of a paranormal cause is dependent on the exclusion of all known non-paranormal causes, and can only be presented to the individual as a hypothesis. Understandably, units are reluctant to provide a confirmation of paranormal events other than in controlled experimental situations. It has been argued that this difficulty is a direct reflection of the status of current knowledge about *psi* and paranormal phenomena in academic parapsychology (e.g. Coelho, 2005). This is therefore mismatched with the expectations of those individuals who may turn to these units expecting them to offer a confirmation of the paranormal nature of an experience. Ultimately, the request for confirmation or verification of the 'paranormality' of experiences cannot be met.

Those contacting the KPU as the first point of contact highlight the responsibility that units have after identification of psychological distress. Study 1 revealed that 3 out of 5 DCs within the 10-19 age interval, and 14 out of 28 within the 20-29 age interval, reported no previous contacts about distress. Among those in the latter group, 10 requested help with their distress.

These expectations and responsibilities may constitute an issue to be considered by academic units. That is, units may need to address their choices regarding: (a) their overall strategy in relation to these contacts (responding or not responding); (b) which responsibilities they define for themselves; (c) what competencies are available to them; and (d) how units and staff represent themselves to the public (e.g on the unit's website), so that the description of their expertise does not create unrealistic expectations. In Study 2, concerns over expertise and ability to manage a caller's distress were also highlighted in Theme 5.1. This suggests that academic staff with post-graduate training in psychology (typically in experimental *psi* research), felt that such contacts would demand skills and knowledge beyond what their experience and training afforded. These are issues which need to be addressed in relation to each unit's circumstances (time constraints, staff's experience, availability of mental health advice resources, etc).

Discussion of future strategies for responding to distressed contacts

The analysis of the interviews in Study 2 strongly suggested that staff were unsure about how to deal with distressed callers and, in some cases, were reluctant to do so. In their frank and helpful comments, the respondents almost uniformly described unease about the ethical/legal/professional difficulties posed by their interactions with these callers, whilst nevertheless acknowledging a sense of responsibility as experts in the field of anomalous experience. It may be important for such staff, particularly those involved with the media, to recognise that, while there may be certain benefits of being seen by the public as one with expertise in paranormal phenomena or anomalous events, such a position will attract a number of distressed individuals whose needs cannot be ignored. Attracting attention of this kind arguably entails responsibilities.

However, the various factors that influence the number of DCs that each unit receives are difficult to determine. The response of units to such contacts, or the expertise or provisions they have in place to deal with them, are unlikely to influence the number of first contacts. It is likely, on common sense grounds, that the use of the term 'parapsychological' – in direct comparison with the study of 'anomalous events' or 'consciousness' – in the unit title will attract those searching the world wide web for authorities on this interpretation of their experience. As already addressed above, it is also likely that the higher the media profile that unit members have for 'parapsychological' interests, the more DCs they might be expected to receive.

The results of both studies reinforce the need for more formal links between units of this type and mental health professionals. The ability to refer distressed individuals (who meet certain criteria) to an appropriate mental health professional would result in more effective interactions and increase the chances of early detection of potential psychotic illness. This would also transfer the responsibility of responding to these contacts to a fully qualified and insured clinician. This clinician's role would be to help the affected individual decide how to deal with their experience in the light of information supplied by the contact, and given the unequal risks attached to different interpretations of their experience.

Ideally, such clinically trained individuals (chartered clinical psychologists or consultant psychiatrists) would have an interest in anomalous experience, appropriate professional clinical training and experience, and indemnity insurance for claims resulting from their clinical practice, allowing the provision of autonomous assessment and advice. Extrapolating from the figures obtained in the interview study, the number referred to such a clinician might be in the order of 5–20 per year (the nature of the 'guesstimates' given by respondents in the absence of records makes any estimate very tentative). The clinician would almost certainly have to absorb this extra work-load into his/her existing one, and the procedures between the units would be, to an extent, heterogeneous.

Assuming that, based on the available KPU figures, 15% of all contacts are at risk of or in first episode psychosis, and that 50% of these had not previously contacted health professional before about their experience, then 7.5% of these would have a significantly increased chance of their distress being identified. Those individuals recognized as having a mental health problem could benefit from early intervention. As these affected individuals are (albeit indirectly) identifying themselves rather than needing to be identified, the benefits to the individual in terms of reduced DUP and therefore improved prognosis, not to mention the cost savings to the Health Services, are likely to be significant.

In Study 1, it was observed that, within the complete data set, many contacting individuals (36, 30%) had already been formally diagnosed with a psychotic illness, and were receiving (or had received) treatment of various kinds. By exploring the possibility that their experiences might be paranormal and not a symptom of illness, and depending on the information they received and conclusion they came to, they may have been at risk of non-compliance with their treatment. It is obviously not possible to quantify the number of people for whom that risk was reduced because they were able to talk to someone with knowledge of both clinical practice *and* parapsychological/anomalous experience research. While it is difficult to place a cost value on such an outcome, it is likely, given the costs involved in re-hospitalisation, that this too is significant.

Although the present studies were limited by the currently existing data and context, they nevertheless suggest that parapsychology or anomalous experience research units have an

important role and hold a privileged position in relation to the mental health of some of those individuals who come into contact with them.

Summary and suggested future directions

1. When academic units declare an interest in spontaneous anomalous events or parapsychology they are likely to attract a small number of distressed individuals who may be at risk of or in first episode, psychosis, and who have not contacted anyone else with mental health knowledge.
2. Early identification and minimal delay in treating psychological distress in psychotic experiences is associated with better outcomes.
3. While there are benefits to units from media exposure, this exposure entails responsibilities.
4. These responsibilities may be addressed by unit staff instituting a procedure which ensures that distressed individuals contacting units are dealt with in an informed and efficient way.
5. This procedure should involve a simple protocol for relevant data gathering (suggestions above) and collaboration with clinical advisors (options also presented above).
6. Staff members at units are urged to limit their interactions with distressed individuals to the extent of their expertise, and define this expertise in a way that does not create unrealistic expectations in individuals who may contact them.
7. The present research suggests that these procedures may require staff receiving such calls to be sensitive and alert to the possibility that: (a) the initial stated purpose of a call does not necessarily represent the actual purpose of the call; and (b) there are socially patterned ways of talking about unusual events, displaying distress and making requests.
8. The projected benefits of such procedures to the affected individuals, their families, communities and health services are likely to be significant.
9. Longer-term investigation in the UK would allow us to understand better the needs of this user-group of parapsychology research units, and evaluate the impact of the suggested changes in addressing their needs.

Acknowledgements

The authors wish to sincerely thank Bial Foundation, and specifically Dr. Luis Portela, for supporting and funding this research project. We would also like to thank the reviewers of this paper for their helpful comments. Finally, the authors wish to register here their debt to Prof. Robert L. Morris. This project is also an outcome of his considerable wisdom, knowledge and sustained support of work on distressing anomalous experiences during his time as the Koestler Chair of Parapsychology.

References

American Psychiatric Association (2000). Diagnostic and Statistical Manual of the American Psychiatric Association, 4th edition – text revision (DSM-IV-TR). Washington DC: American Psychiatric Association.

Ballageer, T., Malla, A., Manchanda, R., Takhar, J., Haricharan, R. (2005). Is adolescent-onset first-episode psychosis different from adult onset? *Journal of the American Academy of Child Adolescent Psychiatry* 44(8), p. 782-789.

Bentall, R. (2000). Hallucinatory experiences. In Etzel Cardena, Steven Jay Lynn and Stanley Krippner S. (Eds) In *Varieties of Anomalous Experience: examining the scientific evidence,* p. 85-120. Washington: American Psychological Association.

Bentall, R. (2003). *Madness Explained*. London: Penguin Books.

Berenbaum, H., Kerns, J., Raghavan, C. (2000). Anomalous experiences, peculiarity and psychopathology. In Etzel Cardeña, Steven Jay Lynn and Stanley Krippner (Eds). *Varieties of anomalous experience: examining the scientific evidence*, p. 25-46. Washington: American Psychological Association.

Cardeña, E., Lynn, S.J., Kripner, S. (2000). Introduction: anomalous experiences in perspective. In Etzel Cardeña, Steven Jay Lynn and Stanley Krippner (Eds). *Varieties of anomalous experience: examining the scientific evidence*, p. 3-21. Washington: American Psychological Association.

Coelho, C. (2005). *Constructing parapsychology – a discourse analysis of accounts of experimental parapsychologists.* Unpublished PhD thesis, University of Edinburgh.

Cougnard, A., Salmi, L.R., Salamon, R., Verdoux, H. (2005). A decision analysis model to assess the feasibility of the early detection of psychosis in the general population. *Schizophrenia Research*, 74(1), p. 27-36.

de Haan, L., Welborn, K., Krikke, M., Linszen, D.H. (2004). Opinions of mothers on the first psychotic episode and the start of treatment of their child. *European Psychiatry*, 19(4), p. 226-229.

Gibbs, G. (2002). *Qualitative data analysis: explorations with NVivo*. Buckingham, Philadelphia : Open University Press.

Hafner, H., Maurer, K., Ruhrmann, S., Bechdolf, A., Klosterkotter, J., Wagner, M., Maier, W., Bottlender, R., Moller, H.J., Gaebel, W., Wolwer, W. (2004). Early detection and secondary prevention of psychosis: facts and visions. *European Archives of Psychiatry and Clinical Neuroscience*, 254(2), p.117-128.

Harrigan, S., McGorry, P., Krstev, H. (2003). Does treatment delay in first-episode psychosis really matter? *Psychological Medicine*, vol. 33(1), p. 97-110.

Hayes, N. (1997). Theory-led thematic analysis: social identification in small companies. In Nicky Hayes (Ed.). *Doing qualitative analysis in psychology.* (93-114). UK: Psychology Press.

Knight T. (2005). You'd better believe it: accepting and working within the client's own reality. *Clinical Psychology Forum,* vol. 155, p. 38-42.

Krippendorff, K. (2004). *Content Analysis: an introduction to its methodology* (Second Edition). London: Sage Publications.

Kuipers, E., Holloway, F., Rabe-Hesketh, S., Tennakoon, L. (2004). An RCT of early intervention in psychosis: Croydon Outreach and Assertive Support Team (COAST). *Social Psychiatry Psychiatric Epidemiology* 39(5), p. 358-363.

Malla, A., Norman, R., Scholten, D., Manchanda, R., McLean, T. (2005). A community intervention for early identification of first episode psychosis: impact on duration of untreated psychosis (DUP) and patient characteristics. *Social Psychiatry Psychiatric Epidemiology* 40(5), p. 337-344.

McGlashan, T. (2005). Early detection and intervention in psychosis: an ethical paradigm shift. *British Journal of Psychiatry*, vol. 187 (Supplement 48), p. s113-s115.

McGorry, P., Nordentoft, M., Simonsen, E. (2005). Early psychosis: a bridge to the future. *British Journal of Psychiatry*, vol. 187 (Supplement 48), p. s1-s3.

Norman, R.M.G., Malla, A.K. (2001). Duration of Untreated Psychosis: a critical examination of the evidence. *Psychological Medicine*, 31, p. 381-400.

Peters, E., Day, S., McKenna, J., Orbach, G. (1999). Delusional ideation in religious and psychotic populations. *British Journal of Clinical Psychology*, vol. 38, p. 83-96.

Tait, L., Lester, H., Birchwood, M., Freemantle, N., Wilson, S. (2005). Design of the BiRmingham Early Detection In untREated psyChosis Trial (REDIRECT): cluster randomised controlled trial of general practitioner education in detection of first episode psychosis. *BMC Health Services Research*, vol. 5(1), p. 19.

Warner, R. (2005). Problems with early and very early intervention in psychosis. British Journal of Psychiatry, vo. 187(Supplement 48), p. s104-s107.

Weber, R.P. (1990). *Basic content analysis* (Second Edition). Sage University Paper, Quantitative Applications in the Social Sciences. London: Sage Publications.

Weeks, D., James J. (1995) Eccentrics: a study of sanity and strangeness. Phoenix: London.

Wooffitt, R. (1992). *Telling tales of the unexpected: the organization of factual discourse*. Hemel Hempstead: Harvester Wheatsheaf.

Wooffitt, R., Allistone, S. (2005). Towards a Discursive Parapsychology: language and the laboratory study of anomalous communication. *Theory and Psychology*, vol. 15(3), p. 325-355.

World Heath Organization (1992). *ICD-10 Classification of Mental and Behavioural Disorders – Clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization.

Appendix 1 – Descriptions of distress categories

1. **Psychological distress attributed to paranormal events or influence by others (typically ESP) in adults.** Examples: Telepathic harassment/abuse/attack; Telepathic external control/manipulation/drainage of thoughts, behaviours, or emotions; *Psi*-related control/persecution by other individual(s) such as health and mental health professionals, researchers, security services or organizations; *Psi*-related control/manipulation by cult leader; Distressing experience of hearing a disembodied voice; Anxiety/guilt over a precognitive dream (and possible consequences); Distress over precognitive ability/episode (and possible consequences); Anxiety over clairvoyant experience (and possible consequences); Multiple mode/complex ESP experiences (telepathy, clairvoyance and precognition); Distressing séance/occult experience.

2. **Somatic distress attributed to paranormal events or influence by others (typically PK) in adults.** Examples: *Psi*-related persecution/abuse/torture/assault by other individual(s) such as health and mental health professionals, researchers, security services or organizations; Feelings of *psi*-related physical intrusion by other individuals; *Psi*-related somatic experiences such as physical pain, discomfort, penetration or bleeding; Sexual assault by a spirit; Feeling of being touched by a spirit.

3. **Both psychological and somatic distress attributed to paranormal events or influence in adults or families (adults and children).** Examples: Multiple mode/complex apparitional or PK experiences; UFO abduction.

4. **Psychological, somatic or psychological and somatic distress regarding experiences/abilities in children attributed to paranormal cause (typically contact by parent/significant other about affected child/adolescent).** Examples: Child's distressing multiple apparitional/*psi* experiences; adolescent's distressing experience of external telepathic control; Teenager's fear of his/her own *psi* abilities

5. **Psychological distress with no attributed cause in adults.** Examples: Feelings of intense fear/anxiety; Distressing unusual images during sleep; Dissemination of private life/feelings of reference in media broadcast; Feelings of predestination.

6. **Somatic distress with no attributed cause in adults.** Examples: Somatic experiences such as physical pain, feelings of penetration or bleeding; Feeling of strange body/presence inside the body; Abnormal electrical equipment activity/interference; Abnormal experiences with

energy/radioactivity; Distressing unusual somatic sleep experience, typically with paralysis.

7. **Both psychological and somatic distress with no attributed cause in adults.** Example: Distressing out-of-body-experience.

8. **Distress regarding conflict between medical/psychiatric and paranormal explanations for unusual experiences.** Examples: Distress regarding psychiatric treatment/diagnosis for ostensible psychic ability; Distress regarding conflict between medication and development of psi ability.

European Journal of Parapsychology
Volume 23.1, pages 60-89

ISSN: 0168-7263

Observations on Trouble Management in Psychic Practitioner – Sitter Interaction

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Abstract

This paper presents some findings from a conversation analytic study of interaction between psychic practitioners and their clients, or sitters. As its point of departure, it acknowledges Morris' (2005) argument that it is important to examine the social context of claims to parapsychological cognition. In this, it offers a contribution to our understanding of the ways in which participants in psychic-sitter interaction can establish and sustain the sense that genuine parapsychological abilities are being demonstrated. That is, instead of trying to identify a set of objective criteria by which scientists or academic researchers can arbitrate on the validity of claims of paranormal powers, or the objective existence of the spirits, conversation analytic techniques are deployed to investigate the sense-making practices through which psychic practitioners and their clients themselves negotiate, ratify, clarify, question or reject the status of paranormal knowledge claims as they manage the routine discursive activities of the consultation or demonstration. The empirical sections of the paper examine four kinds of remedial or repair strategies by which psychic practitioners and their sitters work to sustain the authority or authenticity of the practitioners in situations where their genuineness may be questioned or their claimed parapsychological abilities disconfirmed.

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Introduction

One area of parapsychological research promoted by the late Professor Robert Morris and his colleagues at the Koestler Parapsychology Unit was the investigation of 'what's not psi but looks like it' (for example, Roe, 1995; Wiseman and Morris, 1995a, 1995b). Much of this research has concerned psychic claimants: people who profess to have some form of parapsychological cognition, such as the ability to communicate with the dead, and other forms of psychic abilities. Morris (2005, originally 1990-1991) described this project as involving, among other things, analysing 'the social context of the claim and its *negotiation and acceptance in the interactions among claimants and their evaluation*' (Morris, 2005: 25, italics added). In short: what are the features of consultations between psychics and their sitters, or demonstrations to audiences, which facilitate the sense that genuine parapsychological cognition has occurred?

A conversation analytic perspective on psychic-sitter interaction can contribute to this project (Wooffitt, 2003a). There is now a cumulative body of findings about the organization of interaction in everyday and institutional settings, and this provides a valuable resource when we try to understand the activities of psychic practitioners and their clients, especially those verbal activities that seem to bear on the issue of the practitioner's authenticity and credibility.

In this paper, I will discuss four kinds of remedial or repair practices by which psychic practitioners and their sitters work to sustain the authority or authenticity of the practitioners in situations where their genuineness may be questioned or their claimed parapsychological abilities disconfirmed. The first two are available to psychic practitioners.

1. If a claim or prediction about the sitter is not accepted or confirmed, a practitioner may simply abandon that topic, and then move on to another topic. But this can be an inferentially risky strategy, in that a swift progression on to another topic or claim about the sitter might be the basis upon which a sitter infers that the psychic is merely engaged in guessing, rather than using some form of parapsychological cognition.

However, there is a strategy by which psychics can introduce a new topic - known as 'and prefacing', which minimizes the likelihood of a sceptical interpretation by the sitter.

2. The second resource is available only to mediums, and consists of demonstrations of on-going communication from the spirits. These displays of recipiency are not randomly distributed throughout sittings, but cluster at those points in sittings in which the sitter is rejecting or resisting an implied or explicit claim from the medium, and facilitate progression to a new topic.

The third and fourth set of resources are available to sitters.

3. They can either modulate or 'soften' their negative or disconfirmatory responses to the psychic's prior prediction or claim.

4. Alternatively, sitters can engage in a form of embedded or unmarked correction in which the activity of correcting does not become an explicit focus of the exchange.

Within the parapsychological literature, it is common to find the term psychic *claimant* employed to refer to mediums, psychics and so on (for example, see the quote from Morris 2005, above; and Wiseman and Morris, 1994, 1995). Equally, it is common to find the term *pseudo psychics* used to refer to people who claim some form of special powers while actually employing trickery (for example, Roe, 1995; Smith and Wiseman, 1992/1993). First, then, an issue of terminology: why adopt the term psychic *practitioners*? Discussion of this issue allows me to establish the wider methodological principles of the analytic method adopted in the subsequent empirical sections of the paper.

Terminological issues and methodological principles

There are several reasons why we might refer to people who profess special cognitive powers as psychic practitioners. Given the

range of paranormal skills on offer in the occult market place, it would be clumsy to list them all every time a general analytic claim is made. Furthermore, some practitioners can not be identified in relation to a specific parapsychological ability, as they offer a range of different services. Moreover, the goal of this kind of analysis is to describe generic communicative competencies that inform demonstrations of all psychic practitioners, regardless of the distinctive kind of special cognitive ability they profess.

Perhaps most important though: the use of the terms 'psychic claimant' or 'pseudo psychic' reflects the concern of parapsychologists and sceptics alike to assess the evidence for claims to have some kinds of parapsychological cognition. However, I am not interested in trying to discover if psychic practitioners really have special powers, nor to endorse practitioners' claims that they have access to paranormally derived knowledge; neither does the analytic approach adopted here seek to debunk those claims: it is agnostic as to the existence of the paranormal powers claimed by psychic practitioners in their demonstrations. In this, we can make a distinctive methodological and substantive contribution to parapsychological and sceptical investigation of people who claim psychic powers. So, as an alternative to the overriding focus on the ultimate objective existence of psychic powers, we can examine those practices through which such claims are managed by participants in the settings in which they are exhibited. This approach complements the testing of psychics in the artificial environment of the laboratory, in that we can try to understand the social organization of demonstrations of psychic powers in real-life, everyday settings.

The term 'psychic practitioner' also reflects the perspective on language and communication adopted in this study. In the past forty years, and across a range of cognate disciplines, there has been a sustained argument that language use is a form of social action, the dynamic and structural properties of which are independent of putative psychological and sociological variables. Within the social sciences, investigation of the action orientation of language is mainly associated with the analysis of naturally occurring interaction known as conversation analysis (CA). The method of conversation analysis and its relevance to parapsychology has been outlined elsewhere (Wooffitt, 2003a, b). Consequently, it is necessary here to offer only a brief outline of the approach.

Conversation analysis examines the communicative competencies that inform ordinary, everyday talk-in-interaction. The goal of CA is to describe the actions that are accomplished through the design of utterances, and it examines how these actions are produced with respect to the sequences of exchanges in which those actions are performed. As such, it sits at the intersection of linguistics, psychology and sociology. Despite its name, it may be applied to any form of naturally occurring verbal communication. Conversation analysis offers a qualitative description of how people use language in real life settings. Consequently, it is not an experimental approach; neither does it rely on methodological procedures associated with quantitative approaches, such as the development of coding schema. Empirical research, however, is highly formal. Analytic claims are developed and warranted through close description of audio recordings of interaction, facilitated by detailed transcriptions which are presented in the text of published reports. Moreover, analytic claims are generated from examination of collections of individual cases. In this, the approach is more like that of the scientific naturalist than the laboratory scientist. (For introductory overviews of conversation analysis, see Heritage, 1984; Hutchby and Wooffitt, 2008; Sacks, 1992; Schegloff, 2007).

The data corpus used in this analysis consists of audio recordings of 42 sittings and stage demonstrations, and ethnographic notes from a further three stage demonstrations which were not recorded. This amounts to approximately 25 hours of data, recorded or observed. All the practitioners who offered private sittings provided a recording of the sitting to the sitter as part of the fee. One of the practitioners offering stage demonstrations offered a compact disc recording of the event. The corpus contains sittings and demonstrations from twenty eight psychic practitioners.

The sequential order of psychic practitioner-sitter interaction

The discourse of psychic practitioners exhibits some robust sequential properties (Wooffitt, 2000, 2006). One very common feature is that they ask questions which are designed in such a way as to imply that they already possess some knowledge about the sitter or their circumstances. If this implied claim is confirmed or accepted by the sitter, that now-ratified knowledge is attributed to a paranormal source, thereby retrospectively establishing its status as a prediction or

claim about the sitter. The turn-by-turn basis of this attributive sequence can be summarized as:

Turn 1	Psychic:	a question implying a claim about, or knowledge of, the sitter, their circumstances, etc.
Turn 2	Sitter:	minimal confirmation/acceptance
Turn 3	Psychic:	attribution of now-confirmed knowledge claim to a paranormal source

The following instances were analysed in an earlier paper (Wooffitt, 2003a), but it is useful to review that analysis to set the context for the subsequent analyses, and to illustrate the broad characteristics of a conversation analytic approach to psychic-sitter interaction. In each extract, claims confirmed by the sitter are subsequently attributed to a paranormal source: in these cases, either the presence of the spirit, or the spirit's words reproduced as reported speech (and indicated by the use of conventional speech markers).

(1) (JREF:2/PP:F (US)).[1] 'PP' is the psychic practitioner, 'S' is The sitter. Transcription symbols are explained in the appendix.)

1	**T1**	PP:	with you. hh number one thing is your >mother in spirit
2			please?<
3			(0.2)
4	**T2**	S:	Yes
5	**T3**	PP:	>'cause I have (n-m) y'r mother standing right over here,
6			hh and she said "I WANna TAlk to HEr and I want to speak
7			to her" because hh your mother has very lou::d when she
8			comes through. h she speaks with a=in a very lou:d way

(2) (TV:1/M:F/F. In this extract there are two sitters, S1 and S2.)

1	**T1**	PP:	>'ave you 'ad< (.) bit >(o')< trouble with your back as well.
2			(0.2)
3	**T2**	S1	yes a little bi [t
4	**T3**	PP:	[he says "ah'd best send her a bit of sympathy down"
5			so you understand it, ˙hh [h
6		S1	[ye [s
7	**T1**	PP:	[coz y'know h y'try to bottle
8			things up and you don't always let people get close to you in that
9			sense do you
10	**T2**	S1	no.

11	**T3**	PP	he says "she can be quite stubborn at times y'know"
12			(.)
13		PP:	is that true
14		S1:	˚yes˚
15	**T1**	PP:	an' he knows cz h you are fussy about the bungalow aren't
16			you [girl
17	**T2**	S1:	[Yes I am
18	**T3**	PP:	"bless her" he says

Successful demonstrations of parapsychological cognition – that is, where the sitter accepts or confirms the implied knowledge claim and the psychic then invokes its paranormal source – are obviously crucial in sustaining the sense that the practitioner has real powers.

If, however, the psychics' claims are incorrect and rejected, their credibility is challenged, and these moments have to be managed. There are various discursive practices which psychic practitioners can draw upon to minimize the negative inferential impact of an ostensibly incorrect claim (Wooffitt, 2006). But their clients or sitters can also draw upon discursive resources to facilitate a smooth negotiation of those moments when the psychic's powers seem to be disconfirmed. However, these are not necessarily unique to psychic-sitter communication, but reflect norms and expectations which also inform everyday interaction.

Analysis

'And-prefacing' and topic abandonment

If a claim implicative question does not receive an immediate and positive confirmation, and the subsequent silence extends to the point at which the psychic can infer that it anticipates a negative response, a trouble management practice is simply to abandon that topic and launch a new one. There are positive benefits from abandoning what can be anticipated to be rejected knowledge claims. New claim implicative questions offer fresh opportunities to demonstrate extraordinary cognitive powers. In the following case, for example, the question 'an' are y' changing a ca:r,' (identified as T1a, line 1) receives an unequivocally negative response. The sequence projected by this candidate first turn is immediately abandoned and the psychic produces another question on an unrelated topic (identified as T1b).

This stands as a candidate first turn in a projected attributive sequence. This second implied knowledge claim generates a positive albeit cautious and delayed response, thus leading to an attributive turn in which the now-confirmed claim is attributed implicitly to the psychic's paranormal means of cognition (identified as T2b and T3b respectively).

(3) (KOJ:7/F:F)

1	**T1a**	PP:	h an'are y' changing a ca:r,
2			(0.4)
3		S:	No [:.
4	**T1b**	PP:	[and is your da:d, (0.2) 's your dad ehm, (0.8) generous?
5			(1.0)
6	**T2b**	S:	ca:n be.=
7	**T3b**	PP:	=okay, h well I feel ja- your dad is showing you generosity, h but
8			I would say to you. (0.3) there's going to be somebody else very
9			generous around'juh

Abandoning on-going topics, however, raises a number of inferential difficulties. Simply jettisoning implied knowledge claims which seem to be unsuccessful might invite a sceptical interpretation of the authenticity of the medium's or psychic's powers. There are, however, design features of practitioners' turns which work to minimize the sense that they are simply moving to a new topic once there are grounds to infer that an ongoing topic is likely to be met with a negative response.

In extract 3 the first component of the (soon to be) abandoned knowledge claim, and the one that follows it, is 'and' or its contraction 'an''.

1	PP:	h an'are y' changing a ca:r,
2		(0.4)
3	S:	No [:.
4	PP:	[and is your da:d, (0.2) 's your dad ehm, (0.8) generous?

Here is another example, taken from a stage demonstration of mediumship. Here the turn which begins with 'and' follows the question 'Who's Mary' and a trouble implicative silence.

(4) (SD:2/F:Aud (DS))

1	PP:	he said, "I'm Bill" and then your father had also
2		cancer of the lung. hhh *((coughs))* yes, just a minute darling
3		just a minute=hhhh d-who's Mary?
4		(2.3)
5	PP:	hh and who lived at number seventeen.

Beginning turns with 'and' is called 'and-prefacing'. And-prefaced questions are quite common in psychics' discourse, although it is a discursive practice common to some practitioners more than others. And-prefacing does not always occur in turns which introduce new knowledge claims immediately after a rejected and abandoned claim; but it may have some particular function when it is used in this context.

We can learn about their use in psychic-sitter interaction by considering a study by Sorjonen and Heritage of interaction between health care visitors and women who had just recently given birth (Sorjonen and Heritage, 1991). In this context, they observed that and-prefaced questions occur in a series of question-answer sequences. And, as in psychic sitter interaction, and they routinely receive minimal, one word answers. Furthermore, Sorjonen and Heritage describe how, after the production of a minimal response, the questioner's next turn will be another and-prefaced enquiry. Subsequent and-prefaced questions treat the prior answer as sufficient or unproblematic, and thereby move the interaction to a next topic or issue, suggesting a 'working through' of a pre-established series of questions:

> "…if proceeding to a 'next' question acknowledges the sufficiency of a prior answer, the 'and-prefacing' of that 'next' question...does particular work in constituting its relation to the prior question. Specifically it constitutes its status as a 'next' question in a 'line' or 'agenda' of issues or topics. As a socially constructed object, this 'line' is understandable as a pre-existing agenda of questions. As an interactional object it is on-goingly established and sustained with each next and-prefaced enquiry. It is this agenda-based 'nextness' between non-adjacent actions which we regard as the major task of and-prefacing."
>
> (Sorjonen and Heritage, 1991: p. 64)

In this sense, the use of and-prefaced questions establishes the sense that each question is merely one of a pre-existing series of questions.

In extracts 3 and 4 the practitioners produce and-prefaced topic initiating questions, thereby constituting those topics as successive items in a pre-established agenda of related knowledge claims that they are progressively working through. This provides an inferential framework that rationalizes the pursuit of a new topic. It is not that the introduction of a new knowledge claim is an *ad hoc* response to contingencies in the sitting or demonstration (namely, the sitter's/respondent's actual or anticipated negative response), but the routine working through of a pre established agenda of topics relevant to the sitter.

Recipency displays and topic shift

Amongst psychic practitioners, mediums are unique in that they claim to be in contact with the spirits: other sentient entities that can interact with mediums and, via them, participate in the sitting. During sittings, the presence of the spirits may be demonstrated through displays of recipiency: moments when mediums convey that they are in concurrent receipt of communication from the spirit world. Extract 5 provides an example. (In this section we will refer to 'mediums', as opposed to 'psychics' or 'psychic practitioners', as the analysis examines interaction in whish spirit communication is claimed.) At this stage in the sitting, the medium claims to be in contact with a spirit of someone known to the sitter.

(5) (JREF:2/M:F (US))

11	PP:	okay h this person I see them in a bed, I'm not
12		sure yet who it is but let's just keep on going
13		here. h but I see them- (er) had trouble with
14		the heart, and lung area. its very very strong.
15		(0.4) *((tapping sound))*
16	PP:	and I feel breathing problem. (.) let le[t's 's just
17	S:	[okay
18		see more (.) (let's lis(m))
19		(0.4)
20	PP:	mm hm? (0.2) 'kay

21 (0.6)
22 PP: hhh mm hm, (.) mm hm? mm hm?

Here the medium is trying to discern the identity of a spirit, which, it has been proposed, is known to the sitter. He describes some medical problems experienced by the spirit when alive (trouble with the heart and breathing difficulties). He then announces that he is going to enter a period of focused attentiveness to the spirit world, by implication, to identify the spirit: 'let let's 's just see more (.) (let's lis'(m))' (lines 16 and 17). He then produces a series of acknowledgement tokens, 'mm hm', and so on, and a receipt marker, 'kay'. Through these utterances the medium establishes 'listening to' and 'acknowlement of' the spirit's communication.

Extracts 5 and 6 come from the transcript of the audio track of a video tape recording of a sitting. Although the physical features of the sitting are not a central focus of this analysis (and can not be reproduced here as data), it is useful nonetheless to make some tentative remarks on observable features of the practitioner's conduct. In extract 5, for example, during his vocalized series of 'mm hm' acknowledgment tokens, the practitioner closes his eyes and slightly angles his head downwards and to one side, as if in concentration. He physically shapes his body to sustain the sense of ongoing communication from spirit sources. In this sense, his recipiency is embodied, as well as exhibited. Research on interaction in a variety of contexts has shown that embodiment may be a significant feature of interaction in which participants display and manage putative psychological states and attributes (Hepburn, 2004; Wiggins, 2001, 2002; see also Wooffitt and Gilbert, forthcoming, for an ethnographic analysis of the way that a medium displays a disfigured hand as evidence of the presence of a spirit guide). Embodied recipiency displays are a further resource by which the co-presence and participatory status of the spirits can be established. They are inferentially powerful ways of indexing and warranting the claim to be in contact with the spirits (Wooffitt, 2006).

Recipiency displays do not, however, merely signal the presence of and communication from the spirits: they occur in what might be termed inauspicious environments for the medium. In the following extract, the medium has just established that he is communicating with the sitter's grandmother:

(6) (JREF:2/M:F (US))

1	PP:	and she wants to say hello to you, h and she said I mean a lot to her.
2		she means a lot to you 'kay? h she's also talking to me about
3		diamonds, or a diamond. h do you have her diamond, is there a
4		diamond you have of hers >I don't know if there's< a diamond ring, or
5		diamonds.
6	S:	NOo:?
7	PP:	okay. who gave you a diamond ring or diamonds. that
8		you own. h your mother's?
9		(0.8)
10	S:	I have something of my mother'[s ye]s.=
11	PP:	[okay]
12	PP:	=okay I'm talking about diamonds. >someone is here
13		talking< about a diamond=like a diamond ring. h a diamond ring.
14		=did someone give you a diamond or diamond ring,
15	S:	no:,
16	PP:	h do you own diamonds,
17		(0.2)
18	S:	yes,
19	PP:	okay did someone else give them to you,
20		(0.2)
21	S:	yes,
22	PP:	okay that person pass over?
23		(.)
24	S:	yes
25	PP:	okay b'c's that person's standing here. 'kay?
26	S:	'kay,
27	PP:	hold on let's see who it is.
28		(1.0) *(M whispering)*
29	PP:	uhm MAny many times (.) what happens is it's like air traffic 'troller h
30		one person will talk to me and >another person'll talk talk on top of the
31		other person< so that's the story there.
32		(0.4)
33	PP:	hm
34		(0.6)
35	PP:	˙hhhhhh
36		*(PP humming: approx 3 seconds)*
37	PP:	You brought someone's picture with you I am being told.

The sitter is presented with a series of statements that are designed to be heard as implied knowledge claims: that she has her grandmother's diamond or a diamond ring; that she has her mother's diamond or diamond ring; or that someone gave her a diamond or a

diamond ring. The sitter does not respond positively: she produces an unequivocal 'no' twice, and a circumspect positive response answer, ' I have something of my mother's yes'.

The medium then asks a series of general questions about diamonds. Each question builds on the sitter's answer to the prior. Despite the fact that the sitter sometimes replies cautiously or negatively to the medium's questions, he is able incrementally to identify some broad characteristics of the person who gave the sitter diamonds, culminating in the discovery that it was someone who is now dead. The medium then sets up a test for himself: he announces that the spirit of the diamond giver is with him, and says 'hold on let's see who it is', which implies that he will go on to reveal their identity. In this context, not being able subsequently to identify the spirit would significantly damage his credibility and authority.

It is at this point in this sequence that the first of two recipiency displays occurs. The medium whispers for one second (line 28), so quietly that transcription is impossible, but it plainly suggests receipt of ongoing communication from the spirit world. In his next utterance the medium does not reveal the spirit's identity, but instead describes the link between the living and the spirit world, likening his role to that of an air traffic controller. He then reports that it is sometimes hard to hear the spirits clearly because their utterances can overlap (lines 29 to 31). The second recipiency display is a brief acknowledgement token, 'hm' and some seconds of quiet humming (lines 33 to 36). After this period of recipiency - which, recall, was initiated to resolve ambiguity about the identity of a spirit - the medium's next turn moves a new topic: 'You brought someone's picture with you I am being told.'. The subject of the diamonds is permanently abandoned, and the identity of the spirit is never revealed.

This recipiency display thus occurs in a particular sequential context (sitter's disconfirmation of knowledge claims, or hesitant and conditional acceptance), and just prior to a specific action (medium's initiation of new topic). Similar properties can be observed if we consider the sequence of interaction from which extract 5 was taken:

(5 expanded)

1 PP: an' I feel there was either oxygen given to this person.

2		(.)
3	PP:	they ha(d) oxygen before they died. where there
4		was trouble
5		*((feigns breathing difficulties))*
6	PP:	like this.
7		(0.8)
8	S:	m:aybe.
9	PP:	okay.=
10	S:	=yeah
11	PP:	okay h this person I see them in a bed, I'm not
12		sure yet who it is but let's just keep on going
13		here. h but I see them- (er) had trouble with
14		the heart, and lung area. its very very strong.
15		(0.4) *((tapping sound))*
16	PP:	and I feel breathing problem. (.) let le[t's 's just
17	S:	[okay
18		see more (.) (let's lis(m))
19		(0.4)
20	PP:	mm hm? (0.2) 'kay
21		(0.6)
22	PP:	hhh mm hm, (.) mm hm? mm hm?
23		(0.6)
24	PP:	hh hhhhh
25		(0.5)
26	PP:	for some reason you have a grandmother here as we:ll.

The medium reports that the person whose spirit he is now in contact with (and who is apparently known to the sitter) was given oxygen and had breathing difficulties before death. The sitter says 'maybe', which is an extremely cautious response, and certainly not an unequivocal confirmation. In response to a subsequent claim about breathing difficulties, she says 'okay' which conspicuously offers no position on the veracity of the medium's statement. It is clear that the medium' claim's about the person before death are, at best, imprecise, or worse, simply wrong. It is at this point that the medium states he will attend to the spirits, and the recipiency display follows. At the end of the display, the medium introduces a new topic, the sitter's grandmother. This topic is the focus for subsequent interaction, and the problematic topic of the person with breathing difficulties is permanently abandoned.

Recipiency displays are a powerful inferential resource by which a medium can manage actual or potentially damaging implications of

simply abandoning a topic in the light of negative or cautious sitter responses. By invoking the agency and presence of the spirits, the medium portrays the introduction of a new topic as merely a response to the spirits' communication. The new topic – and the subsequent abandonment of the (problematic) prior topic – is thereby portrayed as being motivated by the spirits' concerns. Moreover, recipiency displays allow the medium to portray the very moment in which spirits are interacting with this world, and, presumably, providing messages for the sitter. In an environment in which sitters may be keenly motivated to receive messages from the spirits of loved ones, the possibility that the medium is, right at that moment and right in front of them, currently receiving messages from the spirits, may well mean that sitters may be led to focus on what the medium will say next. Recipiency displays, and the on-going intervention of the spirits they propose, thus divert the trajectory of the sitting away from those moments in which implied knowledge claims are rejected, or met with hesitant or conditional responses.

Modulated sitter disconfirmations

Sitters rarely unequivocally reject implied knowledge claims, even when they seem to have little personal relevance. Instead, responses tend to be designed first, so that they do not topicalize and focus on what could be interpreted as an error on the part of the psychic; and second, so that or they establish an interpretative frame which allows for the possibility that the psychic's implied claim could be correct. To illustrate: in extract 7, the psychic implies that someone known to the sitter is pregnant.

(7) (KOJ:7/F:F. Orthographic transcription)

1	PP:	who's pregnant around you?
2	S:	nobody that I know of.
3	PP:	You're going to hear about somebody that's got pregnant,
4		unmarried as well,

The sitter replies 'nobody that I know of' (line 2), which suggests that it is only the limitations of the sitter's knowledge which prevents a confirmation or acceptance of the implied claim. This clearly allows for the possibility that the psychic may be correct, an assumption

developed by the psychic in the subsequent turn. A further example is provided in the following extract.

(8) (JREF:1/F:M)

1	PP:	is there a wedding coming up?
2		(1.0)
3	S:	not- not to my knowledge

This kind of response establishes the sitter's epistemic doubt, in that it suggests the contingent and potentially defeasible nature of the sitter's basis for not accepting the psychic's prior claim.

Even when sitters do go on to produce an unequivocal rejection of the psychic's implied claim, such as a blunt 'no', epistemic doubt formulations may be offered first, thereby modulating the degree and severity of the rejection:

(9) (SD:2/F:Aud (DS). 'R' is the respondent in the audience.)

1	PP:	An' is it, er, (.) a child grown up in the spirit world they're telling me,
2		(1.3)
3	R:	I (0.3) don't know Doris, (.) no.

In this extract, the practitioner's turn is unusual, in that it is a statement, not a question; and it identifies a paranormal source – in this case, the spirits – prior to the confirmation by the respondent. But most significant, it makes a highly distinctive, and rather specific claim about the respondent: that she knows of a child who died. The respondent denies the claim with a simple 'no'; this response, however, is prefaced by an epistemic doubt formulation, ' I (0.3) don't know Doris,' (line 3). So, even in circumstances in which that is likely that the sitter or respondent has 'expert' status with respect to the knowledge claim implied by the psychic's prior turn, the force of the negative response may be modulated or softened.

This is particularly clear in extract 10. Prior to the interaction in this extract, the practitioner has reportedly established contact with the spirit of the sitter's dead husband. In this section, the practitioner is describing how the sitter would respond to her husband's personality.

(10) (JREF:2/M:F (US))

1	PP:	hh ahm I feel at times that your husband could be very serious (.) he
2		could be very serious sometimes very-c'd be very serious h like his
3		mind worked in a way where h he was very serious and rigid about
4		certain ways of believing, (.) and you kinda like hadduh (.) crack him
5		up a little bit and make make laughter make light of some situations.
6	S:	MMmmm I do [n't think so= [so much.]
7	PP:	[(th-) =th[e opposite,]>the opposi [te.<
8	S:	[Yes=

Here the psychic claims that the sitter's husband was an extremely serious character, and that she, the sitter, had to defuse this seriousness, that she would have to 'make light of some situations' (line 5). It transpires that this is an inaccurate description of their relationship, as acknowledged by the psychic's subsequent claim, 'the opposite', (line 7), and the sitter's subsequent emphatic confirmation (line 8). So, even when initially responding to a claim about her life with her husband which transpires to be entirely false, the sitter produces a modulated formulation 'MMmmm I don't think so so much', (line 6) rather than an flat, unequivocal 'no'.

Why do sitters produce epistemic doubt markers, when there is evidence to suggest that they are aware that the practitioner's claim is entirely incorrect?

In everyday interaction, it is common for speakers to design turns to address and defuse potentially delicate interpersonal matters. To illustrate, consider the following extract, which comes from a corpus of telephone conversations (The following discussion is informed by the analysis presented in Heritage, 1988):

(11) (From Atkinson and Drew 1979: 58)

1	B:	Uh if you'd care to come over and
2		visit a little while this morning
3		I'll give you a cup of coffee
4	A:	hehh Well that's awfully sweet of you,
5		I don't think I can make it this morning
6		hh uhm I'm running an ad in the paper and and uh I
7		have to stay near the phone.

In declining B's invitation for coffee, A does not issue a blunt refusal, but says 'I don't think I can make it this morning' (line 5). This modulates the inferential force of the declination, in that it portrays the uncertain or conditional basis of the action. This turn, then, is designed to minimise interpersonal disharmony which may result from a sensitive act as turning down an invitation (Heritage, 1984: 265-280).

Conversation analytic studies of various forms of talk-in-interaction suggest that there is a normative orientation to minimizing interpersonal harmony in the production of broadly negative or disaffiliative activities such as corrections, rejections of offers or invitations, and disagreements with assessments (Davidson, 1984; Pomerantz, 1984; Schegloff, 1992; Schegloff *et al*, 1977). The data presented in this section suggest that this normative orientation also informs the sitter's conduct in consultations with psychic practitioners. Further evidence of this normative orientation is can be found in the way in which sitters address and repair incorrect claims.

Embedded or unmarked repair

Jefferson (1987) described two forms of conversational correction. In exposed correction, one speaker will explicitly design a turn to be seen to be correcting another; this means that the error momentarily becomes the topic of the interaction. For example:

(13) (From Jefferson, 1987:87)

1 L: They're going to drive ba:ck Wednesday.
2 N: Tomorrow.
3 L: Tomorrow. Right

In this extract L simply gets the day of a journey wrong. The error is subsequently exposed by N in a turn which does correction and no other activity. This explicit correction is acknowledged by L in his next turn via a repeat and confirmation of the correct day.

This kind of explicit correction can be a potentially sensitive matter, in that it implies some (albeit possibly minor) lapse of competence on the part of the corrected party. In embedded correction, however, the activity of correcting is not topicalised, but is accomplished in the course of the interaction.

Jefferson begins analysis of embedded correction by noting some properties of cases in which speakers make consecutive reference to the 'same' object or state of affairs by using alternative items. For example:

(14) (From Jefferson, 1987:93.)

1	K:	Well-if you're gonna race, the police have said to us.
2	R:	That makes it even better. The challenge of running from the cops!
3	K:	The cops say if you wanna race, uh go out at four or five in the morning on the freeway...

Here, K says 'police', R says 'cops', and then K says 'cops' also. Jefferson notes other examples of this pattern and states that 'Over and above sheer consecutive reference, then, it appears that when a next speaker produces, not a proterm or a repeat, but an alternative item, correction may be underway' (Jefferson, 1987: p. 93).

In cases of embedded correction the activity of repair is accomplished in the course of the interaction, and does not lead to repair *per se* becoming the focus for the exchange. This ensures that the smooth trajectory of the exchange is preserved. Furthermore, in cases of exposed correction the repair is accompanied by instructings, queryings, and the like, which specifically address lapses in competence. But embedded corrections permit of no place for such explicit accountings, and issues concerning the speaker's competence are not raised. This means that the issue of the speaker's competence does not become the focus of the participants' interaction. In this sense, embedded correction is a device that works to preserve interpersonal harmony.

It is noticeable that while exposed repair is extremely rare in psychic-sitter interaction, embedded repair is routine. The following extract comes from the transcript of stage demonstration of mediumship. The medium is talking to a particular respondent from the audience, and is here referring to his occupation after the Second World War.

(12) (SD:2/F:Aud (DS). 'R' is the respondent in the audience.)

1	PP:	are you in insurance now
2		(0.3)
3	R:	I have been
4	PP:	*((laughing))* I said "What's he been doing since he

5 came out of the mob like?" (0.8) an he said "Oh,
6 insurance, y'know."

The question ' are you in insurance now' (line 1) implies that the medium knows about the respondent's current employment. The respondent's reply 'I have been' (line 3) however, reveals that while he used to work in insurance, currently, he does not. The implied claim about the respondent's work is thus incorrect. The respondent, however, the does not draw attention to this error. His utterance, 'I have been', is a form of embedded and unmarked correction: there are no components to his utterance which identify that he is engaged in the activity of correction, for example. In this sense it has similar properties to embedded correction found in ordinary conversation.

This unmarked correction is highly facilitative: in the absence of any overt identification of error or the relevance of correction, the medium may, in the subsequent turns, address the error implicitly identified by the respondent's turn, without being seen to be explicitly engaged in the activity of error correction. And this is what happens: she recites a conversation with her spirit source, and it is presented as having happened prior to the moment in which it is rehearsed in the demonstration. This establishes that whatever passed between medium and spirits happened prior to the respondent's disclosure about having been in insurance (Wooffitt, 1998). An error that could inform a sceptical assessment of the medium's competence, or even her authenticity, is thereby handled implicitly in the unfolding of the interaction.

The spirit is reported as responding to the medium's question about the audience respondent's occupation with 'Oh, insurance, y'know.' In a series of papers, Heritage has analyzed the use of the particle 'oh' in everyday interaction (Heritage, 1984, 1998, 2002; Raymond and Heritage, 2006). One use of 'oh' analyzed by Heritage is relevant to this instant. He argues that the particle can be used by a speaker to assert that knowledge of, or position on, a topic is held independently of other speakers, and prior to its occasioning by another speaker. The use of 'oh' in extract 12, reflects these sociolinguistic properties, in that it portrays the longstanding nature of the spirits' knowledge about the audience respondent. The spirit's knowledge, then, is established as being independent of any

contingencies arising in the on-going interaction between the medium and the audience.

Here is another, slightly more subtle example. The psychic is talking about the sitter's boyfriend and his attitude towards her college studies.

(15) (UniS:3/F:F. Simplified transcription.)

1	PP:	he's not (.) f<u>uss</u>ed about it c's he doesn't really understand why
2		it's so important to you
3		(0.4)
4	S:	ri:ght (0.5) right.
5		(0.2)
6	PP:	(>I think-<) (0.4) does he work with his h<u>a</u>:nds,
7		(0.6)
8	S:	He works in computer dr<u>a</u>wing.
9		(0.6)
10	PP:	what, graphics, [( )]
11	S:	[yeah] (0.2) yeah
12	PP:	(˚mm˚) o(h)kay (0.8) are you fairly arty as well
13		(0.4)
14	S:	YE:ah I [am actually]
15	PP:	[yeah c's I got 'n] arty feel with (.) yeah=
16	S:	=ye [ah
17	PP:	[yeah

Earlier in the sitting, the sitter has complained that her boyfriend, who is not a student, is not supportive of her academic work. In the first turn in this extract, the psychic characterizes the boyfriend's uninterest, which receives repeated positive acknowledgement from the sitter, 'ri:ght (0.5) right.' (line 4).

The psychic then issues a question about the boyfriend which implies that she knows something about him, namely, his line of work: 'does he work with his ha:nds,' (line 6), thus tacitly suggesting manual work, and a range of possible trades, such as carpenter, electrician, builder, decorator, gardener, and so on. The sitter replies with an unmarked correction, reporting that he works in 'computer drawing' (line 8). After a clarification as to what the boyfriend does do, the psychic asks a new question, 'are you arty as well' (line 12). This turn is designed to facilitate a positive response, in that the 'as well' trades on the lay or 'taken-for-granted' logic that people in relationships are

likely to share common interests. It also constitutes the candidate first turn of a next potential attributive sequence; and once the sitter says 'YE:ah', the psychic says 'yeah c's I got 'n arty feel' (line 15), thereby attributing the now confirmed knowledge claim to an unspecified paranormal source. As in the case in the previous extract, the unmarked correction here is facilitative, in that it allows the psychic to move to the first turn of the next candidate attributive sequence, without having to engage in the kind of overt self-correction made relevant by turns which explicitly identify error.

The sitter's unmarked correction utterance is carefully designed to minimize the potentially damaging inferential consequences of the psychic's error. It transpires that the boyfriend is a graphic artist. This is not an unusual or little known or term. The psychic uses it in her subsequent attempt to identify what exactly the boyfriend does, which is then confirmed by the sitter herself. Yet, in response to the psychic's question, the sitter did not state that the boyfriend was a graphic artist, but that he did 'computer drawing'. This term not only works as a component in an unmarked correction, but also minimizes the degree to which the psychic's prior turn is in error. This is because this description of the boyfriend's work establishes 'common ground' with the psychic's implied knowledge claim. 'Drawing' is a physical activity; this resonates with the physical nature of trades conventionally described as involving 'working with hands'. Moreover, 'drawing' specifically requires manual skills and dexterity, attributes and requirements not invoked by 'graphic artist'. 'He does computer drawing' thus works to preserve the authenticity of the psychic, as it formulates the boyfriend's work so that it minimizes the discrepancy between what is actually the case, and what is implied in her prior question.

Discussion

In this paper I have examined four discursive strategies available to participants in psychic-sitter interaction through which the credibility and authenticity of practitioners can be sustained in the light of what seems to be disconfirmatory evidence. These strategies are largely informed by broader normative expectations relevant to everyday forms of talk-in-interaction, and mobilize repair strategies

through which participants in mundane discourse identify and address troubles or difficulties in such a way as to defuse potentially delicate interpersonal tensions.

Parapsychologists and counter advocates might wonder how a CA informed analysis of psychic practitioner-sitter interaction relates to cold reading accounts of psychic performance, and it is worth outlining two relevant issues.

Cold reading accounts emphasize psychological factors that are likely to lead people to interpret a psychic practitioner's claims as demonstrations of genuine paranormal abilities. The CA approach can complement this by identifying the wider culturally available normative conventions that inform communication in psychic-sitter interaction. Consider the case of embedded correction identified above: this is a generic interactional phenomenon through which participants in verbal encounters can identify and address errors in such a way as to avoid face-threatening explicit correction. The organization of embedded or unmarked correction is not connected to speaker's personality, topic, context, the status of the participants, and so on. But it does reflect a normative orientation to the preservation of interpersonal harmony. To understand the apparent success of psychic practitioners, then, it may be important to supplement studies of individual psychologies with an analysis of socially organised communicative competencies that underpin the talk through which sittings and demonstrations are conducted.

Cold reading accounts explicitly presume a sceptical position. In the sceptical literature psychic practitioners and sitters are regarded as deceptive, manipulative, gullible or deluded. By contrast, the CA approach is agnostic as to the truth or falsity of claims that are advanced in interaction. It focuses on the mechanisms by which such claims are advanced, and the organized ways in which they are treated by co-participants. This neutral concern with the organization of interaction has the benefit of being able to identify practices and yield findings which are often obscured if the analysis is motivated by a priori assumptions and theoretical positions – for example, that deception is occurring – which lead the analyst to attempt to understand interaction in terms of 'common sense' or vernacular characterizations – for example, 'how deception is occurring' (Schegloff, 1997, 1999; Widdicombe 1995; Wooffitt, 2005). Take, for example, the case of word selection examined in extract 15: there, we

noted how the sitter's report of her boyfriend's work as computer drawing worked to gloss the degree of error in the psychic's prior implied claim that he worked with his hands. Not only, then, is there a form of unmarked or embedded correction going on here, but the lexical choices out of which that activity is built exhibit a level of inferential sophistication unlikely to be captured by cold reading accounts which merely emphasize overt forms of manipulation, suggestion or deception. If we are to take seriously Morris's call for a greater understanding of 'the social context of [a] claim and its negotiation and acceptance in the interactions among claimants and their evaluation', we need to examine those contexts as they are produced by participants; and we need to study the production, acceptance or negotiation of claims to parapsychological abilities in the degree of detail which informs the way that people actually produce, accept or negotiate them.

This argument not only stands as a critique of the rather gross characterisation of psychic-sitter interaction offered by cold reading accounts. It is has a broader relevance for experimental parapsychology more generally. To sketch that wider relevance, I want to conclude by making some preliminary remarks about social scientific parapsychology, and the contribution to this that conversation analytic studies of naturally-occurring interaction can make.

Of course, this is an optimistic and perhaps premature step, as there seems to be no such thing as social scientific parapsychology. White has called for an approach to exceptional experiences that draws on methods and theories from a range of social science disciplines (White, 1990); and Radin has more recently sketched some of the possible relationships between psi and large group behaviour (Radin, 1997, 2005). But, in the main, parapsychological research continues to focus on assessing the apparent abilities of people to engage in extrasensorimotor communication with each other and their environment. And those research efforts not directed toward documenting psi or its properties often bear on psychological characteristics of people who claim to experience psi phenomena or who display evidence of psi abilities in laboratory conditions.

That research tends to be conducted in laboratories is not surprising, given the importance of establishing evidence of psi that is acceptable to the wider scientific community. But it is a pity that

attention is so focused on experimental laboratory work, because the 'home environment' for ostensible psi experiences is not the laboratory, but everyday life. And everyday life is social.

Ostensibly parapsychological experiences occur to people enmeshed in a range of cultural, social and interpersonal contexts; they come to light for scientific investigation because people speak and write of them, using socially organised discursive and communicative skills; and their consequences are seen in changes in individuals' social identities, values and belief systems. Be they the operation of genuine psi, or the outcome of complex interpersonal and cognitive events which erroneously give rise to the sense that a psychic event has occurred, anomalous experiences are inextricably implicated in precisely the social processes social scientists study.

Ultimately, the findings of experimental parapsychology will have to answer to the details of those social contexts, and the everyday interactions of which they consist, which are the home environment of many spontaneous, ostensible psi experiences. Drawing on the empirical procedures and cumulative findings of social scientific methods, such as conversation analysis, can only facilitate the integration of experimental findings and real life contexts which, surely, must come, if parapsychology is to have ecological validity as a description of human capabilities and experiences.

Acknowledgements

I would like to thank two anonymous referees who provided valuable advice about an earlier draft of this paper.

References

Atkinson, J. M., and Heritage, J. (Eds.) (1984). *Structures of Social Action: Studies in Conversation Analysis*. Cambridge: Cambridge University Press.

Davidson, J. (1984). 'Subsequent versions of invitations, offers, requests, and proposals dealing with potential or actual rejection' in J. M. Atkinson and J. Heritage (eds.) *Structures of Social Action: Studies in Conversation Analysis*. Cambridge: Cambridge University Press, 102-128.

Drew, P., and Heritage, J. (1992). *Talk At Work: Interaction in Institutional Settings*. Cambridge: Cambridge University Press.

Hepburn, A. (2004) 'Crying: Notes on description, transcription and interaction'

Research on Language and Social Interaction, 37, 251-290.

Heritage, J. (1984a). *Garfinkel and Ethnomethodology*. Cambridge: Polity Press.

Heritage, J. (1984b). A change-of-state token and aspects of its sequential placement. In J. M. Atkinson and J. Heritage (eds), *Structures of Social Action*, Cambridge: Cambridge University Press, 299–345.

Heritage, J. (1988). 'Explanations as accounts: a conversation analytic perspective' in C. Antaki (ed.) *Analysing Everyday Explanation: A Casebook of Methods*. London and Newbury Park, Ca.: Sage, 127-144.

Heritage, J. (1998). 'Oh-prefaced response to inquiry' *Language in Society*, 27: 291-334.

Heritage, J. (2002). 'Oh-prefaced response to assessment: A method of modifying agreement/disagreement' in Celia Ford et al. (eds.) *The Language of Turn and Sequence*. Oxford: Oxford University Press, 196-224.

Hutchby, I., and Wooffitt, R. (2008). *Conversation Analysis: Principles, Practices and Applications.* Second edition. Oxford: Polity Press.

Jefferson, G. (1987). 'On exposed and embedded correction in conversation' in G. Button and J. R. E Lee (eds.) *Talk and Social Organisation*. Clevedon: Multilingual Matters, 86-100.

Morris, R. L. (2005). 'Parapsychology in the Twenty-First Century' in M. A. Thalbourne and L. Storm (eds.) *Parapsychology in the Twenty-First Century: Essays on the Future of Psychical Research*. North Carolina and London: McFarland, 21-27. (Originally published as 'Parapsychology in the 1990s: addressing the challenge' in the *European Journal of Parapsychology*, 1990-91, vol 8: 1-26.)

Pomerantz, A. (1984). 'Agreeing and disagreeing with assessments: some features of preferred/dispreferred turn-shapes' in J. M Atkinson and J. Heritage, (eds.) *Structures of Social Action: Studies in Conversation Analysis*. Cambridge: Cambridge University Press, 79-112.

Radin, D. (1997). *The Conscious Universe: The Scientific Truth of Psychic Phenomena*. San Francisco: HarperEdge.

Radin, D. (2005). Social Parapsychology. *Shift: At The Frontiers of Consciousness*, *no.7* June-August: 40-42.

Raymond, G., and Heritage, J. (2006). The epistemics of social relations: Owning grandchildren. *Language in Society, 35,* 677-705.

Roe, C. A. (1995). Pseudopsychics and the Barnum effect. *European Journal of Parapsychology, 11,* 76-91.

Sacks, H. (1992). *Lectures on Conversation,* Volumes I and II, edited by G. Jefferson and E. A. Schegloff, Oxford and Cambridge, Mass.: Basil Blackwell.

Schegloff, E. A. (1992). Repair after next turn: the last structurally provided defense of intersubjectivity in conversation. *American Journal of Sociology, 97*, 1295-1345.

Schegloff, E. A. (1997). Whose text? Whose context? *Discourse and Society, 8*, 165-187.

Schegloff, E. A. (1999). 'Schegloff's texts' as 'Billig's data': a critical reply. *Discourse and Society 10*(4), 558-572.

Schegloff, E. A., Jefferson, G., and Sacks, H. (1977). The preference for self-correction in the organisation of repair in conversation. *Language, 53*, 361-382

Smith, M. and Wiseman, R. (1992/1993). The effect of belief in the paranormal and prior set upon the observation of a "psychic" demonstration. *European Journal of Parapsychology, 9,* 24-34.

Sorjonen, M. L., and Heritage, J. (1991). Constituting and maintaining activities across sequences: And-prefacing as a feature of question design. *Language in Society, 23*, 1, 1-29

Ten Have, P. (1999). *Doing Conversation Analysis: a Practical Guide.* London and Thousand Oaks: Sage.

White, R. A. (1990). An experience-centred approach to parapsychology. *Exceptional Human Experience, 8*, 7-36.

Widdicombe, S. (1995). Identity, politics and talk: A case for the mundane and the everyday. In S. Wilkinson and C. Kitzinger (eds.) *Feminism and Discourse: Psychological Perspective.* London and Thousand Oaks Ca.: Sage, 106-127.

Wiggins, S. (2001). Construction and action in food evaluation: conversational data. *Journal of language and Social Psychology, 20*, 4, 445-463.

Wiggins, S. (2002). Talking with your mouth full: Gustatory Mmms and the embodiment of pleasure. *Research on Language and Social Interaction, 35*(3), 311-336.

Wiseman, R., and Morris, R. L. (1994). Modelling the stratagems of psychic fraud. *European Journal of Parapsychology, 10*, 31-44.

Wiseman, R., and Morris, R. L. (1995a). Recalling pseudo-psychic demonstrations. *British Journal of Psychology, 86*, 113-126.

Wiseman, R., and Morris, R. L. (1995b). *Guidelines for Testing Psychic Claimants.* Hatfield: University of Hertfordshire Press.

Wiseman, R., and Schlitz, M. (1997). Experimenter effects and the remote detection of staring. *Journal of Parapsychology, 61,* 197-207.

Wooffitt, R. (2000). Some properties of the interactional organisation of displays of paranormal cognition in psychic-sitter interaction. *Sociology*, *43,* 3, 457-479.

Wooffitt, R. (2003a). The organization of demonstrations of paranormal cognition in psychic-sitter interaction. *Proceedings of the 46th Annual Convention of the Parapsychological Association.* New York: The Parapsychological Association, 329-346.

Wooffitt, R. (2003b). Conversation analysis and parapsychology: Experimenter-subject interaction in ganzfeld experiments. *Journal of Parapsychology, 67*, 299-324.

Wooffitt, R. (2005). *Conversation Analysis and Discourse Analysis: A Comparative and Critical Introduction.* London: Sage.

Wooffitt, R. (2006). *The Language of Mediums and Psychics: the Social Organisation of Everyday Miracles* Aldershot: Ashgate.

Wooffitt, R., and Gilbert, H. (Forthcoming). Discourse, rhetoric and the accomplishment of mediumship in stage demonstrations. *Mortality*.

Appendix A: Transcription symbols

The transcription symbols used here are common to conversation analytic research, and were developed by Gail Jefferson. The following symbols are used in the data:

(.5)	The number in brackets indicates a time gap in tenths of a second.
(.)	A dot enclosed in a bracket indicates pause in the talk less then two tenths of a second.
˙hh	A dot before an 'h' indicates speaker in-breath. The more h's, the longer the inbreath.
hh	An 'h' indicates an out-breath. The more 'h's the longer the breath.
(( ))	A description enclosed in a double bracket indicates a non-verbal activity. For example ((banging sound))
-	A dash indicates the sharp cut-off of the prior word or sound.
:::	Colons indicate that the speaker has stretched the preceding sound or letter. The more colons the greater the extent of the stretching.
( )	Empty parentheses indicate the presence of an unclear fragment on the tape.
(guess)	The words within a single bracket indicate the transcriber's best guess at an unclear fragment.
.	A full stop indicates a stopping fall in tone. It does not necessarily indicate the end of a sentence.
Under	Underlined fragments indicate speaker emphasis.
↑↓	Pointed arrows indicate a marked falling or rising intonational shift. They are placed immediately before the onset of the shift.
CAPITALS	With the exception of proper nouns, capital letters indicate a section of speech noticeably louder than that surrounding it.
° °	Degree signs are used to indicate that the talk they encompass is spoken noticeably quieter than the surrounding talk.
°° °°	Double degree signs have been used to indicate whispered or extremely quiet talk.
Thaght	A 'gh' indicates that word in which it is placed had a guttural pronunciation.
> <	More than' and 'less than' signs indicate that the talk they encompass was produced noticeably quicker than the surrounding talk.
=	The 'equals' sign indicates contiguous utterances. For example:

S2	yeah September	[seventy six=
S1		[September
S2	=it would be	

S2 yeah that's right

[Square brackets between adjacent lines of concurrent speech
] indicate the onset and end of a spate of overlapping talk.

A more detailed description of these transcription symbols can be found in Atkinson and Heritage (1984: ix-xvi).

European Journal of Parapsychology
Volume 23.1, pages 90-126

ISSN: 0168-7263

Sleeping With the Entity; Part II – Temporally Complex Distortions in the Magnetic field from Human Movement in a Bed Located in an English Castles Reputedly Haunted Bedroom

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Abstract

Recent findings from an investigation into a reputedly haunted location have suggested that a bed located in the haunted bedroom is providing a considerable distortion in the background magnetic field – which may indicate the presence of a ferromagnetic material (Braithwaite & Townsend, 2005). One speculation put forward has been that that movement from an occupant in the bed could generate severe time-based magnetic distortions that vary in sympathy with such movement and thus could be one crucial source of complexity in localised magnetic fields. Until now this has remained untested. Using precision high-speed, magnetic measuring equipment, the present study provides the first empirical test of this suggestion by measuring the magnetic fields when a bed-occupant laid still or simulated normal movements in the bed. The findings confirmed that movement in the bed induces large and complex distortions in the magnetic field surrounding the bed occupant. These distortions were maximal around the bed occupants' skull area. The potential implications for such magnetic fields in this instance of a reputed haunting are discussed.

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Introduction

There is no controversy that the apparitional and haunt-type experience is a very real experience to the individual observer. Indeed, to the observer the haunt-type experience can be as real as any other. The controversy over apparitions and haunt-type phenomena then is not one of experience, but one of explanation. Recent scientific evidence has identified factors associated to the individual (e.g., neurophysiological, cognitive and/or behavioural factors), to the situation (demand characteristics), and to the immediate microenvironment (i.e., context, suggestive factors and/or energetic factors), that may be crucial for understanding such anomalous perceptions in normal observers. (Braithwaite, 2004; Brathwaite, Perez-Aquino, & Townsend, 2004; Braithwaite & Townsend, 2005; Houran, 2000; Houran & Lange, 2004; Lange & Houran, 2001, 1999; 1998; 1997; Lange, Houran, Harte, & Havens, 1996; Makarec & Persinger, 1990; Neppe, 1983; Persinger, 2001; Persinger & Makarec, 1993; 1986; Persinger, Koren, & O'Connor, 2001; Persinger, Tiller, & Koren, 2000; Wiseman, Watt, Stevens, Greening, & O'Keeffe, 2003). Under some circumstances any one of these factors may be individually sufficient to influence and bias the perceptions / impressions of the observer. Under other circumstances a number of these factors may interact in a mutually supportive way (in an additive or multiplicative manner) to produce a similar result. Indeed, it may even be the case that such factors, and combinations of them, may co-vary and counteract each other reducing the likelihood of anomalous reports in some cases. Collectively, these findings are starting to show how differing factors can contribute under differing conditions, to induce subtle yet unnerving behavioural responses in human observers (see Evans, 2001; Lange & Houran, 2001, 1998; 1997; Lange et al., 1996; see McCue, 2002).

It is clear that these contemporary approaches suggest that searching for a single explanation for apparitional haunt-type experiences is a folly. As such, it would be inappropriate to class all such experiences as a consequence of the same process and thus requiring a single, unitary explanation. The more helpful view would be to fractionate this notion of a unitary explanation and begin a detailed assessment of the many potential factors underlying the haunt-type experience and how these factors may interact or impede each other in the natural setting. With this aim in mind, current

scientific explorations are now investigating the critical dimensions that distinguish such reputedly haunted locations, and differentiate certain observers (and their predispositions) that are prone to such experiences from other individuals who are not. As a consequence of this fractionation, any successful scientific model for these experiences is likely to be a multi-factorial one. The present investigation is concerned only with one of these factors – namely the potential role of complex magnetic fields in a cluster of experiences reported from a spontaneous case of a classic castle haunting. This focus does not negate the potential role for many other factors in this case of a reputed haunting but merely assesses the potential of magnetic anomalies in some of the more striking reports.

The neuromagnetics of haunt-type experiences

Recent studies have shown that anomalous perceptions, impressions and interpretations can be artificially induced in the observer by applying temporally complex, low intensity magnetic fields to the outer cortex of the brain (Cook & Persinger, 2001; 1997; Persinger, 2003; 2001; 1999, 1988; Persinger, Koren, & O'Conner, 2001; Persinger, & Richards, 1994, Persinger, Richards, & Koren, 1997; Persinger, Tiller & Koren, 2000; Richards, Persinger & Koren, 1993; Richards, Koren, & Persinger, 2002; see Persinger & Koren, 2001a for a review). These complex magnetic fields have been shown to have the capacity to alter electroencechalographic activity, to influence experiences, or both (Cook, Thomas, & Prato, 2004, 2002; Dobson, StPierre, Wieser, Fuller, 2000; Fuller, Dobson, Wieser, Moser, 1995; Marino, Nilsen, Chesson & Frilot, 2004; Persinger & Healey, 2002; Persinger et al., 2001; 2000; 1997; Richards et al., 1993: Ruttan, Persinger & Koren, 1990). When behavioural experiences do occur, many of these experiences reported mirror those of haunt-type reports and other paranormal experiences (see Persinger, 2001).

Further research has shown that the likelihood of the effect occurring can be increased, if individuals have displayed signs of an increased degree of neuronal instability/susceptibility (Cook & Persinger, 2001; Makarec & Persinger, 1987; Persinger, 2003; 1993, 1988; Persinger & Makarec, 1993; 1986; Persinger & Koren, 2001b). This may reflect an increased excitability in such brains where inhibitory

processes and connections may either be reduced in number or are structurally present but functionally impaired. According to this 'neuromagnetic' account, anomalous perceptions can arise because complex magnetic fields can induce partial micro-seizure type responses in unstable regions of the brain (i.e., the hippocampus, amygdale, entorhinal cortex and parahipppocampal regions: see Persinger & Koren, 2001a for a review). The implication is that if the resultant micro-seizure cascades and propagates through enough neural landscape, with sufficient energy, then internal thoughts, images, memories, feelings and emotions could be endowed with enough activation that they become recruited and reintegrated into the current ongoing perceptual experience (Persinger & Healey, 2002; Ruttan et al., 1990). At the neural level the result would be disinhibition of local neuronal cell assemblies, at the cognitive level this could result with internal representations becoming excessively activated and thus, they may compete with external information to represent the contents of consciousness. Under these circumstances consciousness is not lost, but somewhat embellished.

Persinger and colleagues have argued that this low-intensity neuromagnetic account can be applied to the natural setting and may explain a number of spontaneous anomalous experiences reported in the natural setting (Persinger et al., 2001; 2000; Richards, et al., 1993; see Persinger & Koren, 2001a, 2001b; Roll & Persinger, 2001; for reviews). More specifically, the prediction is that locations associated with repeated instances of anomalous haunt-type experiences may indeed contain complex magnetic waveforms (particularly when the experiences are reported from the same places within such buildings). By this account, discrete shifts in the localized magnetic field can elicit sympathetic changes and shifts in the neural activity of certain observers, under certain circumstances.

Although an influential idea with some empirical support, it is important to point out that the specific biophysics of how complex, low intensity magnetic fields impact on the brain and influence experience, are somewhat obscure. This has led to some controversy over the biophysical plausibility of weak magnetic fields influencing neural processing (Braithwaite, 2008; Granqvist, Fredrikson, Unge, Hagenfeldt, Valind, Larhammer, & Larsson, 2004; Larsson, Fredrikson, Larhammar, & Granqvist, 2005; Persinger & Koren, 2005). Although some have suggested that complex magnetic fields are sufficient to

induce anomalous haunt reports (and that such a mechanism may indeed be quite common: Persinger & Koren, 2001a) others have pointed out that the evidence is questionable and that a role for such energetic factors is unlikely or untenable (Granqvist et al., 2004; Larsson et al., 2005). While it is controversial that such weak magnetic fields are sufficient on their own to induce more direct sensory hallucination, it may be more the case that complex fields can subtly bias the observer's impressions of contextually ambiguous stimuli towards a paranormal interpretation (due to the co-presence of a suggestible observer, loaded visual context and a particular magnetic context: cf. Houran, 2000; Lange & Houran, 2001, 1997; Lange et al., 1996). By this account magnetic fields may only be partially involved and their effects could be mediated by other complementary contextual and behavioural aspects (see also Braithwaite, 2004; 2008; Braithwaite et al., 2004; Braithwaite & Townsend, 2005; for a discussion). Within this framework, what many haunt-type experiences could represent is, in essence, a spontaneously occurring magnetically induced, but contextually mediated, hallucination.

Experience-inducing fields (EIFs) & reputedly haunted locations

A number of field-based investigations have reported the existence of magnetic anomalies at locations associated with haunt-type reports (Nichols & Roll, 1999; 1998; Roll & Nichols, 1999; see Persinger & Koren, 2001a; Roll & Persinger, 2001 for reviews). However, many of these studies were technically limited and do not provide any detailed assessment of the anomalies (or indeed comprehensive baseline measurements). More recently, studies with improved technology and methods have detailed both space-based and time-based anomalies, which may distinguish certain locations relative to baselines (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005; Wiseman et al. 2003). These potential *"Experience Inducing Fields"* (EIFs: see Braithwaite, 2004) appear to vary more over time (i.e., are more complex) in specific areas associated with haunt-type experiences relative to proximal baseline areas (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005; Persinger & Koren, 2001b; Persinger & Richards, 1994; Persinger et al., 2001; 1997; Roll & Persinger, 2001; Wiseman et al. 2003). These findings are consistent

with the laboratory studies where field complexity is a potent attribute for such fields to be able to engage with ongoing neural processes.

Braithwaite and colleagues (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005) have provided a detailed and comprehensive assessment of a specific magnetic anomaly implicated in some experiences associated with a recurrent haunting[1]. The case is that of a reputedly haunted first-floor bedroom (the Tapestry Room: TR) in Muncaster Castle, Cumbria UK. In the original study, Braithwaite (2004) noted that many of the original and core reports from the bedroom were provided by overnight occupants of the bed. In addition, some of the reports from bed occupants were particularly striking, vivid and prolonged and were associated with a number of relatively consistent physiological factors.

The fact that many observers were located in the same place for some time before the experiences occurred is interesting. Braithwaite (2004) assumed that if some aspect of the TR experiences had a magnetic component to them then perhaps such anomalies would be maximal around the head/pillow area where the potential for brain stimulation is optimal. If complex distortions in magnetic fields are involved in some of the experiences reported in this case, then arguably this represents a point in space where such stimulatory fields with experience inducing properties should exist. This is exactly what was found.

In a follow up study, Braithwaite and Townsend (2005) separated natural static and man-made artificial magnetic fields by employing a frequency-based analysis on the signals. This revealed a large (over 70,000nT) difference in the background DC-static magnetic field over a short (1-metre) distance. This huge difference, over such a short spatial distance implied that the mesh support of the bed may well be ferromagnetic and thus capable of significantly distorting the earth's geomagnetic field around its immediate location.[2] Small time-based

[1] It is important to note that previous investigations have been concerned with investigating a role for magnetic fields only for a selection of what has been termed *core TR bed experiences* (see Braithwaite 2004). These occurred before the haunting was well reported and predate modern unregulated media like the internet (circa 1950s – 1980s) where some released information concerning the haunting is freely available (though it is often reported erroneously). As the role of information-based expectation and suggestion cannot be ruled out for more recent experiences – we have always ignored these latter accounts within the scope of this research.

[2] The bed could be either highly magnetically permeable or actually weakly magnetised – though it is difficult to make a firm conclusion based on the current available data. However, this is largely irrelevant as both possibilities make exactly the same predictions with regard to the potential to generate distortions in the

anomalies were also noted in the 50Hz man-made artificial magnetic fields (ranging from 40nT – 80nT in amplitude), though due to their weak amplitude these were not considered to be important.

Based on their findings, Braithwaite and Townsend (2005) speculated that if the bed mesh support was highly magnetically permeable, and thus endowed with the ability to severely distort the earth's magnetic field, then the variability of the magnetic fields in and around the bed would be considerably exaggerated by any human movement within the bed. This would provide an additional source of considerable time-based variability in the magnetic microenvironment surrounding the bed occupant. Indeed, due to the high magnetic gradient of the bed, such movement-related anomalies may well be considerably more excessive and complex than anything previously encountered and measured at this site. This might not only provide yet more complexity to this environment – but may actually be a source of the most complex fields of all. Note that such fields would be completely absent from any basic survey of the room and would be totally depended on the dynamic human movement of a bed occupant.

The present study

The present study sought to directly investigate the suggestion that human movement in the TR bed could generate complex time-based distortions in the magnetic fields surrounding the bed. If this was the case then this would implicate human movement in the bed as a major source of magnetic distortions surrounding the bed occupant. Depending on the amplitude and complexity of these fields, the magnetic distortions could have experience-inducing properties similar to that seen from laboratory studies (cf. Persinger & Koren, 2001a). To do this, the present study had a volunteer occupy the bed and simulate natural and modest movements within it.

All experiments reported in the present study took place at Muncaster Castle, Ravenglass, Cumbria on the evening of March 31st 2006, between 7:30pm and 11:30pm. This location has been the subject of a number of previous investigations (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005). The specific region, the bedroom, is situated on the first-floor and known as the Tapestry

background magnetic field. Therefore, this distinction is functionally redundant for the present purposes.

Room (TR). For this study the sensors could not be placed on the bed and had to be moved to a new higher position to allow for a volunteer to occupy the bed (and move freely within it) and not come into contact with the sensors. One sensor (the Active sensor) was placed over the pillow region and the other sensor was located approximately 2m away from the bed (to act as a baseline). Both sensors were fixed to non-magnetic stands.

Before conducting the experiment proper, a preliminary survey based on the overall DC field strengths for the new sensor locations was carried out. The field strength in the pillow region was 25,262nT and was 44,782nT in the baseline region (a difference of 19,520nT). This is in line with previous studies of this particular magnetic anomaly (Braithwaite, 2004; Braithwaite, et al., 2004; Braithwaite & Townsend, 2005). However, it is important to note here that these values, and indeed the amplitudes associated with the time-based variability measured in the experiments, are likely to underestimate the true nature of the diverse field strengths around the bed occupant. This is because the sensors themselves were placed at an increased distance far above the occupant relative to prior studies. As the present investigation is concerned more with time-based variability and not the spatial differences (which have been investigated elsewhere), the DC differences between the sensor locations will not be considered further.

In Experiment 1 the sensors remained in the same positions as with the previous experiment, but now an individual volunteer lay on the bed and generated a series of time-controlled natural bed movements (analogous to normal turning in the bed from side to side). The prediction was that if the mesh in the bed was permeable (and hence ferromagnetic) then such movements may have the capacity to generate large and complex distortions in the localised magnetic fields. In addition, based on prior studies, it was predicted that the severity of the anomalies would be greater in the pillow area relative to the baseline area.

Experiment 2 repeated the basic procedure from Experiment 1 but the baseline sensor was now positioned over the mid-point of the bed. This allowed us to assess whether the anomalies were greater in the pillow-region relative to other proximal locations from within the bed region itself (both existing within the spread of the anomalies which surround the bed occupants).

Based on the collective evidence reported here, it is concluded that human movement in the TR bed can and does generate highly complex magnetic distortions which is consistent with the iron-mesh bed support being, at the very least, ferromagnetic. Coupled to this, movements from a bed occupant induce considerable time-based variability in the localised magnetic field. Note – these would be missed by a simple spatial survey. The true strength and diversity of the fields generated would be dependent on both space-based and time-based factors interacting to create a highly complex magnetic microenvironment. The nature of this complexity observed and reported here, is generally comparable in those employed in laboratory studies which appear to be potent at inducing anomalous perceptions in certain observers.

Experiment 1: Generating movement-related magnetic fields

Method

Design & procedure: All the precise magnetic measurements were taken using the Magnetic Anomaly Detection System (MADS) which employs two separate digital fluxgate magnetometers interfaced directly to laptop computers. The measurements from sensor locations were time-linked and synchronised so that the same magnetic events can be assessed at both separate locations. The sensors were configured to sample at their maximum rate of 250 samples/second covering a frequency range from DC to 125Hz (see Braithwaite, 2006; for an overview of the system). Both sensors were placed in purpose-built plastic trays that were mounted on sturdy non-magnetic tripods. The tripods consisted of three stabilising legs, a vertical central post and a horizontal adjustable boom arm. The boom arm allowed for the sensors to be placed over the middle regions of the bed above the occupant. The legs of both tripods were spread wide and were directly positioned against each other (interleaved). This was to ensure that mere vibration from movement of the bed occupant, through the floor, and into the tripods, could not be an explanation for any differences between the sensors (this was also investigated directly and is discussed later).

One sensor was placed above and in the middle of the pillow region of the bed (to measure fields surrounding the head area of any bed occupant). This was termed the 'Active sensor'. The other was placed approximately 2.0 metres south-east away from the bed and the magnetic distortion it creates. This was termed the 'Baseline sensor'. The height of the active sensor had to be fixed so as to allow for an individual to get onto the bed and move within it without disturbing the sensor itself. This height was fixed at 60cm above the mattress of the bed. The baseline sensor was then matched to this height before being placed in its own position. The measuring period was fixed at 120 seconds (time-linked) for both sensor locations.

The Experiment took the following form. Firstly a volunteer 'bed occupant' (IT) lay on the bed and simulated semi-natural bed movements in a pre-determined manner rotating from side to side. The volunteer was asked to rotate 180 degrees from facing in one direction (lying on one shoulder), on to their backs (facing upwards towards the ceiling) and over onto the other shoulder in order to face in the other direction. They were instructed to do this at a reasonable and natural pace (designed to simulate a bed occupant naturally shifting position from being uncomfortable) and were instructed to start each roll by an experimenter who timed the onset of each movement and the still period between movements. A full roll from one position to the other took approximately 4-seconds. On reaching the final position the bed occupant remained still for approximately 1-2 seconds before being instructed to repeat the procedure again and turn back to face the other direction. The volunteer repeated this turn-stop-rest-turn back procedure for approximately 60seconds before stopping and remaining static for a further baseline period of 60 seconds. Therefore, each measurement period consisted of 60 seconds of movement data and 60seconds of baseline non-movement data (but where the bed was occupied with the volunteer remaining still) from both time-linked synchronised sensors.

Data preparation & analysis procedure: The MADS produces discrete time-series data sets for each sensor placed in each location. These data sets are directly comparable to neurophysiological measures like those produced by the electroencephalogram (EEG). In both cases the data measured is highly detailed, powerful and are well known to be

inherently non-stationary over larger portions of the data series (i.e., does not vary evenly around a mean).

In many cases, such as when clinical neurophysiologists explore the EEG trace of an epileptic brain, a visual analysis of the complex data can be sufficient. However, this can be over-simplistic and limited. In contrast, other researchers who want to apply revealing formal analyses attempt to correct for such non-stationarity using a variety of procedures; such as applying normalisation functions to the data, taking log values or computing mean averages on small segments of the data (Patterson, 2000; Stearns & David, 1988). One problem when looking for complex time-based anomalies (of unknown values and profiles) is that these procedures can cancel out the very things being investigated and underestimate the true nature of the effects under study.

To navigate around these problems and make the magnetic data fit for formal analysis the present study employed a variety of techniques and precautions to address the potential for statistical error. Firstly, a full and detailed visual analysis of the magnetic fields from both sensor locations over the different time periods was carried out. This revealed the extent of the magnetic anomalies over time. Secondly, the variability in the raw signals was summarised by adopting a moving-window approach where the standard deviation (as a measure of variability) was computed in separate discrete 4-second intervals. Based on the sampling rate of 250 samples/sec this predicts that each standard deviation is based on approximately 1000 raw magnetic samples. The whole 120seconds produced 60 discrete standard deviations per sensor. Each 2min measuring period was broken up over time into an early time period (initial 60 secs worth = 15 standard deviations) versus a later time period (the latter 60 secs = 15 standard deviations).

Next, a subtraction procedure where the early period was subtracted from the later period to generate a set of subtraction scores that reflect the difference of variability at each location over time was carried out. These subtracted standard deviations (one series from each sensor) were analysed via non-parametric (distribution-free) statistics (the Mann-Whitney *U* test). Non-parametric statistics were adopted as they make no assumptions of distribution shape and do not require equal variances from the data sets being compared. The hypothesis was that human movement in the bed would generate considerable

variability in the localised magnetic field, and, that this variability will be far larger in the pillow region relative to other baseline regions. As a consequence, it was expected that if correct, there should be a degree of heterogeneity between the variance of the two locations. This expectation could, depending on the degree of the variability produced, violate a central assumption of parametric statistics.

In addition to the non-parametric analysis a multi-response permutation procedure (MRPP) on the subtracted deviations in a manner identical to that described for the non-parametric analysis was also employed. The MRPP has the distinct advantage that it can liberate the researcher from the stringent assumptions of parametric approaches. In addition, MRPPs are known to be particularly robust when dealing with non-normal data *and* heterogeneous variances (Cai, 2006; Good, 1993; Mielke, 1984; Mielke & Berry, 2001; 1994; Mielke, Berry, & Johnson, 1976). The MRPP procedure was calculated via computer programme macros proposed and made available by Cai (2006). Running both this procedure and the non-parametric procedure ensures that the measures are both sensitive enough, but not over sensitive to, the expected unequal variability. The MRPP statistic is reported in Appendix A (Table 2) along with a further brief discussion of these issues. Only the non-parametric analyses are reported in the main paper. Unless otherwise stated these procedures was used in all the experiments reported here. The time-varying components of the amplitudes measured were separated by applying Fast Fourier Transforms (FFTs) to the data. The FFTs were carried out on the total combined data (x,y,z axes combined via a Root-Mean-Square procedure) for both sensor locations. There were two stages to the FFT procedure. Firstly, a standard overall FFT on the complete 2-min (120 seconds) raw data sets was carried out. This revealed how much of the magnetic energy was contained within what major frequency components (between DC – 125Hz). Coupled to this, a Short-Term Fourier-Transform (STFT) based on a 'moving window' approach where samples were measured at discrete temporal intervals through the signal was conducted (see Braithwaite & Townsend, 2005; for a similar technique). The STFT moving window approach was identical to that outlined above (based on 4-sec averages) and they were analysed in the same way previously discussed. All frequency-based and FFT analyses were carried out using Sigview signal analysis software (www.Sigview.com).

Results & Discussion

The magnetic data are shown in Figure 1. Here the time periods are termed 'occupant-moving' and 'occupant-still'. It is clear from Figure 1 that large, complex and highly variant magnetic anomalies were present in the data during the occupant moving period, and that this variability was far greater in the pillow region than the baseline region. The data were formally analysed by comparing 'occupant moving' versus 'occupant still' time periods as a factor. A statistical comparison of the variability from these time periods revealed that the differences were significant, $U = 244$, $z = 5.519$, $p < .001$ (see figure 1). The variability of magnetic distortion in the pillow region was significantly influenced by human movement in the bed.

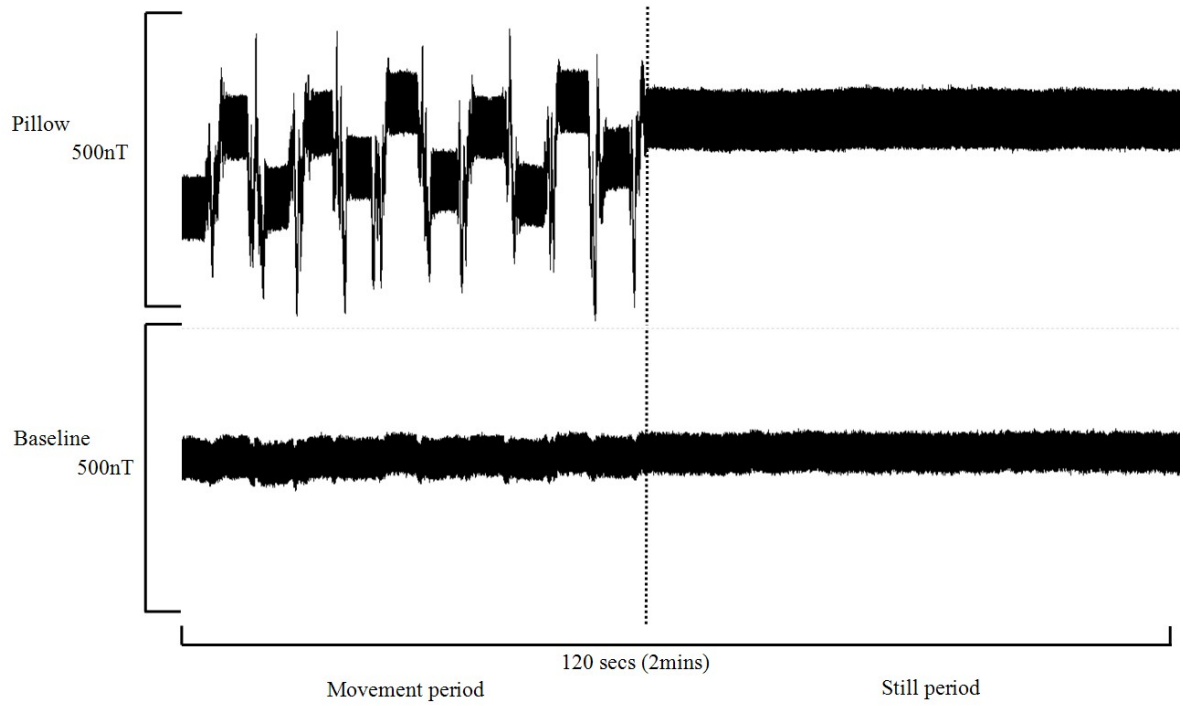

Figure 1. Time synchronised magnetic data from both the pillow (top panel) and baseline (bottom panel) location for both occupant moving and occupant still time periods. The magnetic fields are clearly being influenced by the movement of the bed occupant. This was most notable for the pillow region.

Frequency components analysis: An overall Fast Fourier Transformation (FFT) was carried out on the raw signals, from each

sensor. This was done separately for the 'occupant-moving' and 'occupant-still' periods of the time series for both sensors (see Figure 2). There were considerable contributions from low-frequency components that often far exceeded the amplitudes of the 50Hz field (see Figure 3 and 4). Although these components were also measured in the baseline – they were greatly reduced in that location. The presence of such multiple frequencies, their varying amplitudes and varying time periods all add to create a very complex magnetic environment which is particularly prominent in the pillow region. The variability from the 50Hz component was analysed in the same way as that for the amplitude data; via a 4-second moving-window STFT applied to the entire data series. The 50Hz peak values were found not to be significantly different, $U = 106$, $z = .266$, $p = .790$. This suggests and confirms that the variability measured in the pillow area is in no way related to variability in the background 50Hz magnetic fields as these were not contributing to the increased variability seen in the movement period.

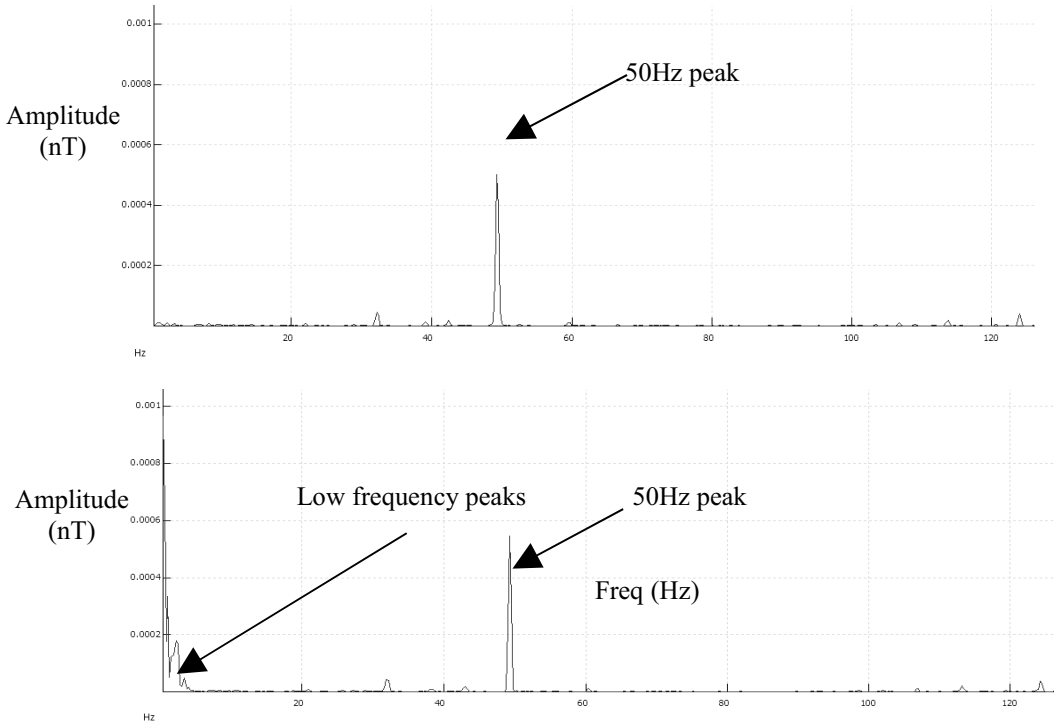

Figure 2. FFT outputs from the pillow region sensor for both the occupant still (top panel) and occupant moving (bottom panel) periods. Substantial low-frequency components are only present during the occupant moving period.

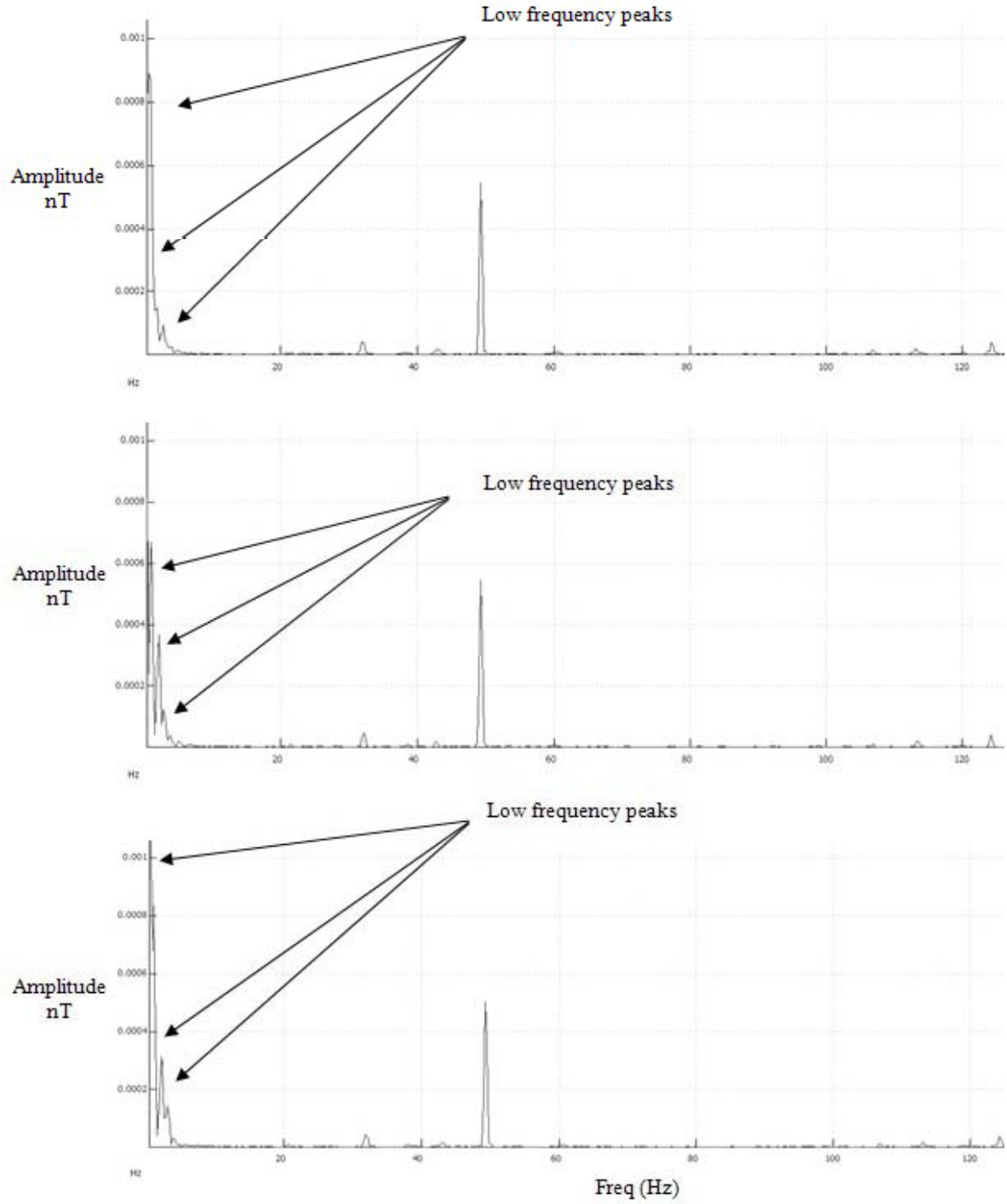

Figure 3. Three examples of the low-frequency waveforms that occurred in the pillow region at various discrete periods during the occupant-moving period. Note that for the most part, these components are either equal to or far stronger in amplitude than the artificial 50Hz component. There are also more of them and they are more variant and complex than the 50Hz component.

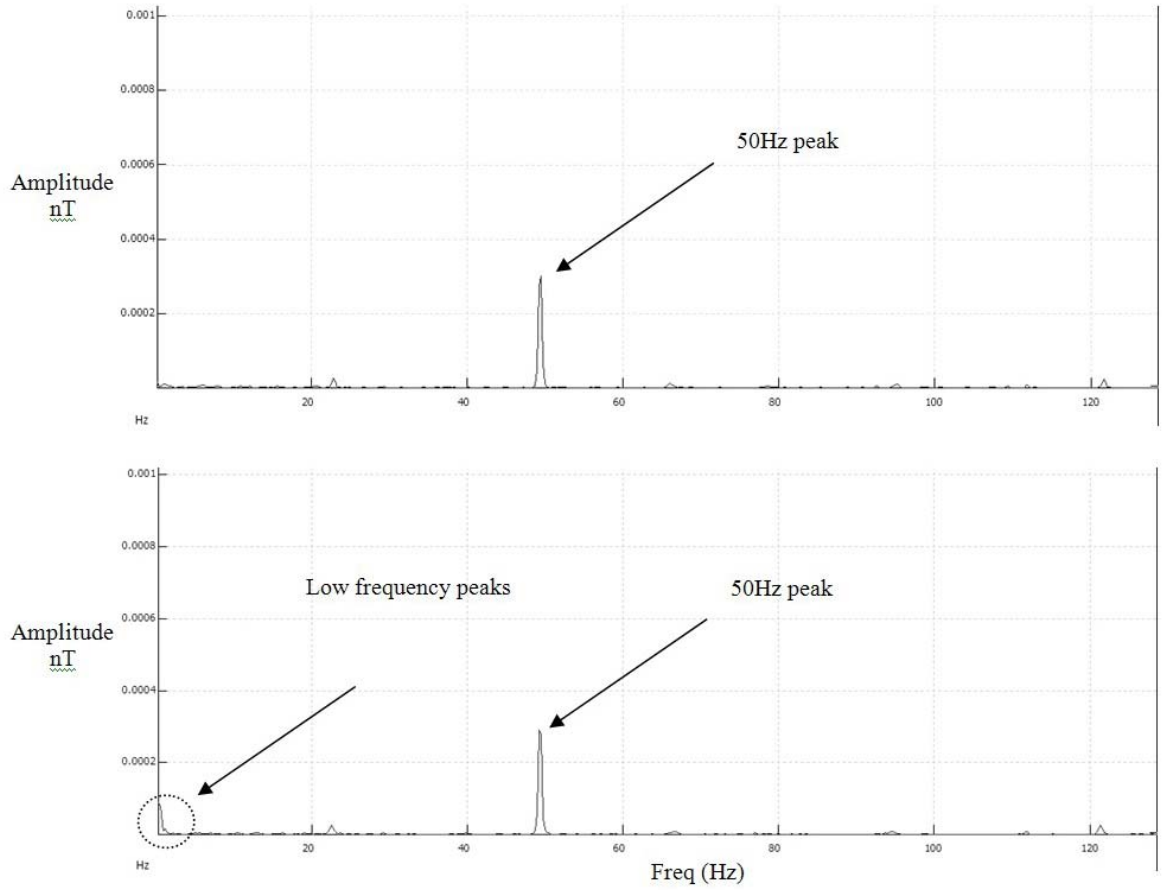

Figure 4. FFT outputs from the baseline sensor for both the occupant still (top panel) and occupant moving (bottom panel) periods. The low-frequency components are marginal here and are only present during the occupant moving period.

Movement-related waveform anomalies: The movement period produced eleven discrete instances of very complex movement-related magnetic waveforms. There are some characteristics of these waveforms that are particularly noteworthy. Firstly each movement produced a series of complex peaks and dips (see Figure 5 for an example). Secondly, a huge DC offset in the fields occurred after each movement.

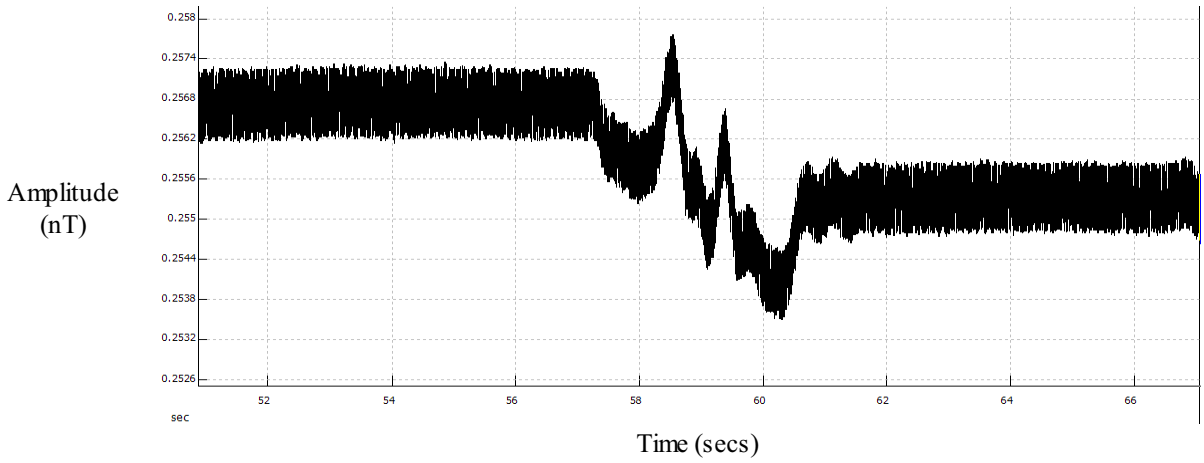

Figure 5. An instance of a movement-related magnetic anomaly from the pillow region. Note how the background waveform offsets downwards after the movement period.

This DC field returned back to its original position when the occupant rolled back to his original position. This adds a further dimension to the complexity of the magnetic microenvironment in that the background DC field is constantly shifting upwards or downwards as a consequence of human movement. Thirdly, the direction of the spikes and dips is also influenced by the direction of the overall DC field before the movement occurs. For example, Figure 6 shows two examples where the DC background field is lower, and the movement based anomalies have a predominant downward spike in them as the overall DC background increases. The opposite occurs during the following movement where the movement based anomalies have predominant upward spikes as the DC background returns to where it was originally.

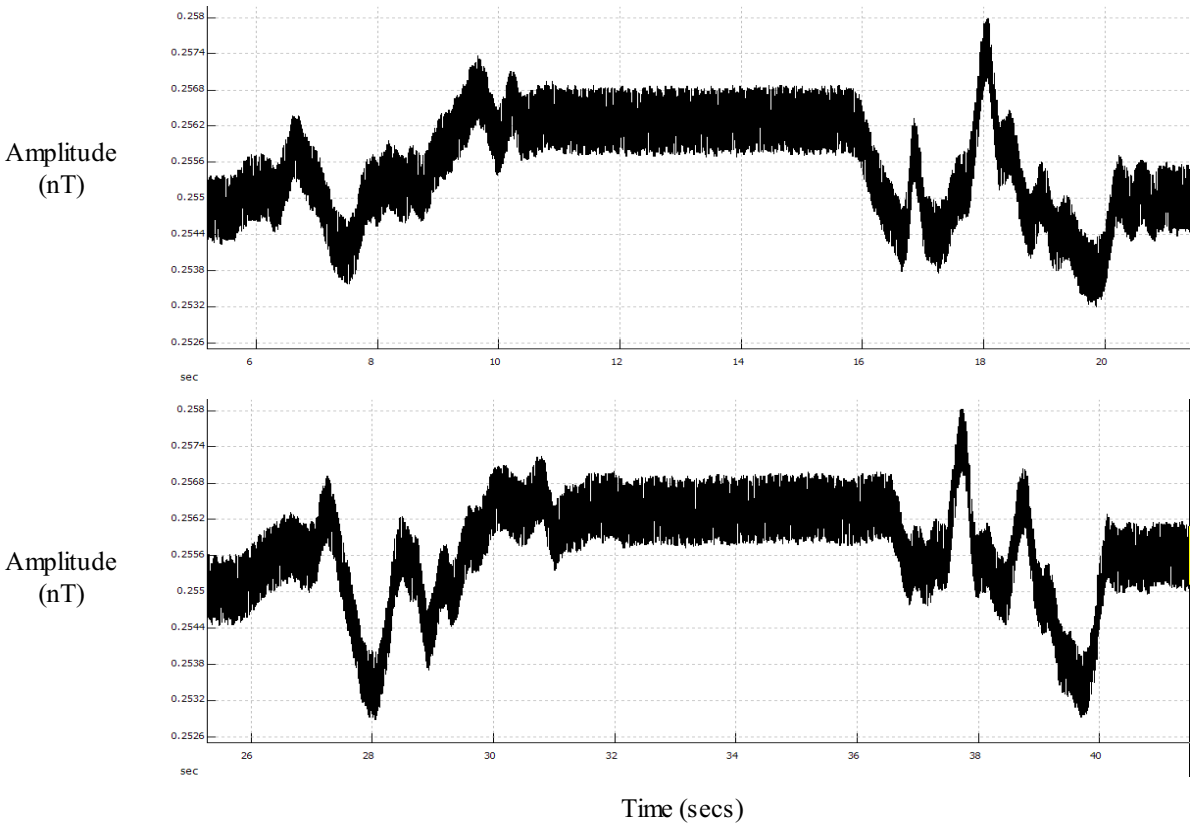

Figure 6. Two separate examples of movement-related anomalies and DC offsets which were measured in the pillow region. Note how after the movement period the field is shifted either upwards or downwards. Note also the direction of the predominant spikes is reversed across the movements.

All eleven individual movement-related anomalies from the pillow area are illustrated in Figure 7. When viewed in the temporal order in which they occurred the DC offset is clear to see. In addition the reversed spiking pattern is shown. It is also noteworthy that no two periods of movement are identical and many complex waveform patterns can be induced by relatively modest and natural movement in the bed. These movement-based anomalies can be described as producing highly irregular variation around a general trend (which is either moving upwards or downwards depending on the occupant's roll). Their associated frequency components are given in table 1.

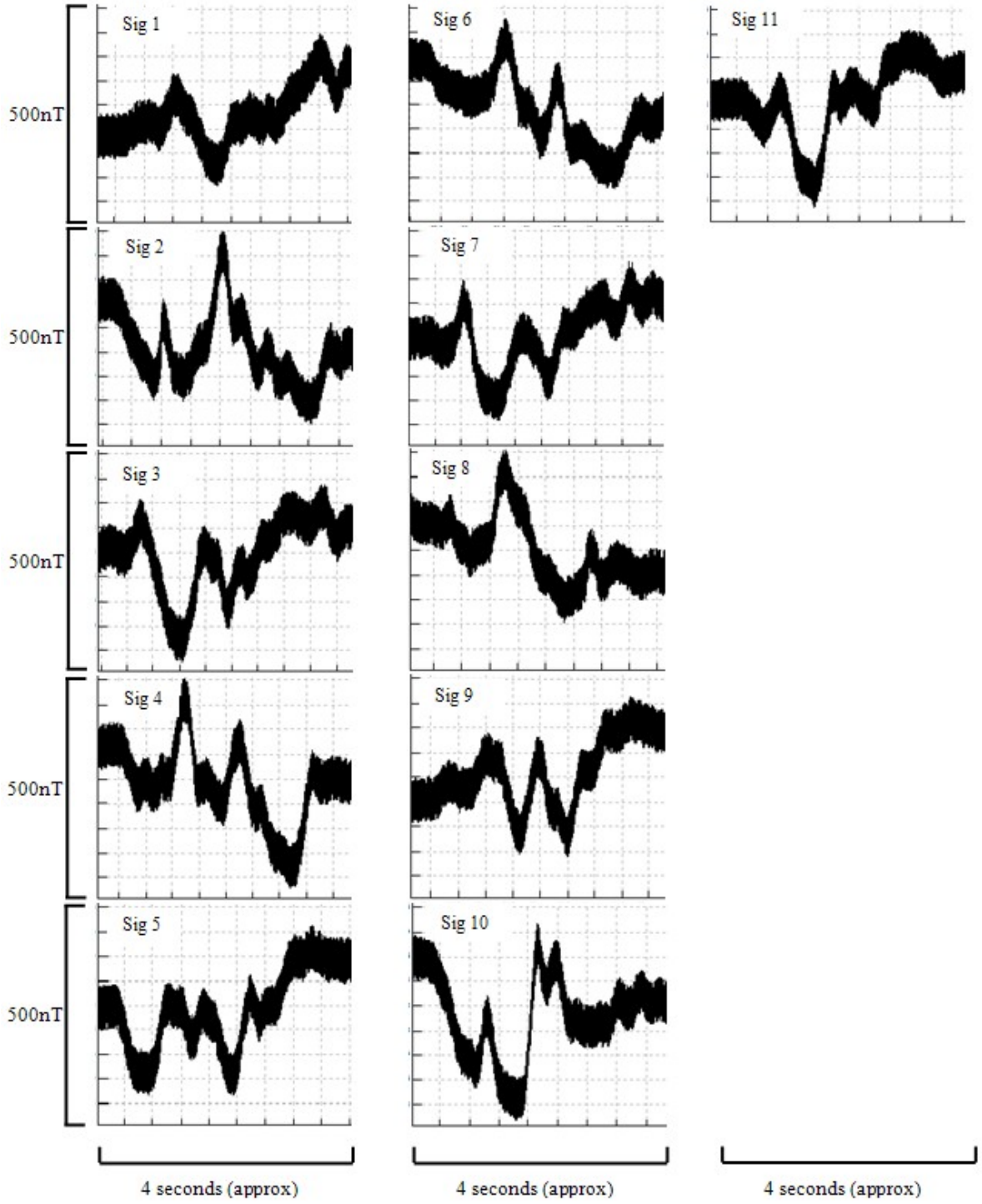

Figure 7. All eleven movement-related magnetic waveforms from the pillow region. When viewed in sequence the DC offset of 'up' then 'down' (and so on) is clearly apparent. The general trend for a reversal in the magnetic spiking patterns is also apparent.

Table 1: Low-frequency components (left column) and their associated range of amplitudes (right column) from all the movement-related magnetic field distortions.

Frequency components (Hz)	Peak amplitudes (nT)
0.2	70 - 148
0.5	58 - 127
0.7	52 - 61
1.0	60 - 72
1.2	50 - 58
2.0	44 - 56
>3	5 - 28

The results from Experiment 1 are clear. Human movement in the TR bed induces massive distortions in the localised magnetic field that vary in sympathy with that movement. The range of the induced variability in the magnetic field was around 540nT in the pillow area. It was 120nT in the baseline area. The findings show that the TR metal-mesh bed support is almost certainly ferromagnetic. As a consequence of this, the bed itself is not only providing a strong localised distortion in the static magnetic field (as suggested elsewhere, Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005) but when coupled to human occupation in the bed and movement within it; it is also a potent source of time-based variation in the magnetic field. Therefore, any bed occupant would not only be immersed in a spatial inhomogeneous magnetic field, but one that can contain time-based complexity as well.

For the 50Hz AC-magnetic power source the magnetic field in the pillow area was around 40nT compared to it being around 20nT for the mid-room location. So the difference over space from the 50Hz source is small and, as would be expected, was dropping off with increasing distance from the wire-carrying walls. Clearly, the magnetic fields during the movement period have nothing to do with any coincidental concurrent anomalies that might have taken place within the artificial man-made 50Hz source. As such, the 50Hz fields are not discussed any further.

Although the evidence from Experiment 1 suggests that complex and variant magnetic fields are generated when occupants of the bed are moving, there is a further important factor to consider. For

example, when the bed occupant was turning they may have been generating excessive vibration through the bed frame and into the floor which may have been transferred to the sensor stands. Such vibration may have been sufficient to induce tiny movements in the sensors. This means that it is possible that the increased variability seen is not due to an actual changing magnetic field, but the sensor being moved in tiny amounts through a spatial variant magnetic field (principally the geomagnetic field).

However, evidence from Experiment 1 does speak against this as a complete explanation. Importantly, the legs of the sensor stands were interleaved and in full contact with each other. This means that vibration can be transmitted through both stands and to both sensors in an approximately equal manner. If the floor was vibrating, or indeed only one sensor stand was, this mechanical energy should have been transmitted to the other stand to some degree. The prediction would be that a mechanical vibration should have impacted on both sensors roughly equally. It did not.

To investigate this possibility more formally we carried out a direct test for mechanical vibration. The procedure followed that of Experiment 1 but consisted of a time period where an experimenter walked around the room (and near to the sensor stands) in an attempt to induce vibration and movement into the sensor stands. This 'walkabout' period was compared to a period where no one was walking around and no vibration was present in the room. If vibration was responsible for the waveforms seen in Experiment 1, then it would be expected that comparable waveforms during the walkabout period should occur. We found no evidence for this. There were no reliable differences in the variability of the magnetic field due to any vibration induced by human movement in the room ($U = 742$, $z = 0.697$, $p = .486$). Generating comparable vibration to that of the bed-occupant from Experiment 1, without generating movement in a magnetic bed, did not induce reliable distortions in the measured waveforms. These findings suggest that mechanical vibration of the sensors is not crucially responsible for the complex magnetic waveforms that were measured previously. This lends support to the notion that the distortions measured in Experiment 1 are indeed due to large changes induced in the localised magnetic field (via mechanical distortion of the magnetically permeable component of the bed).

Experiment 2 sought to assess the spatial complexity and distribution of the movement-related anomalies more by moving the baseline sensor over the mid-bed area. Here both the sensors were now 'inside' the spatial distortion the bed creates. This provided a further reference source with which to examine the complex nature of the anomalies surrounding the occupant.

Experiment 2: Pillow vs. mid-bed fields

Design & procedure

The design and procedure was identical to Experiment 1 except that the baseline sensor was moved from a mid-room location, to a mid-bed location. This new location was now directly over the bed midpoint and approximately 90cm from the pillow sensor. The rest of the procedure was identical to that outlined for Experiment 1.

Results

The signal data are provided in Figure 8. A visual analysis shows that movement-related anomalies now exist in both signals. There are clear ripples in the data from the mid-bed position

As with Experiment 1, subtractions were made between the movement-period and the still-period for each sensor. A Mann-Whitney U test revealed a significant difference in the variability between the pillow and new mid-bed region, $U = 359$, $p < .001$; $z = 4.279$. Although the movement related variability was now present in both signals, the anomalies were significantly more variable in the pillow area relative to the proximal mid-bed position. This suggests that these movement-related anomalies are maximal around the skull area of the bed occupants. In addition to this, there also appeared to be some evidence for a reversal of the direction of the effects in the mid-bed area (see Figure 8).

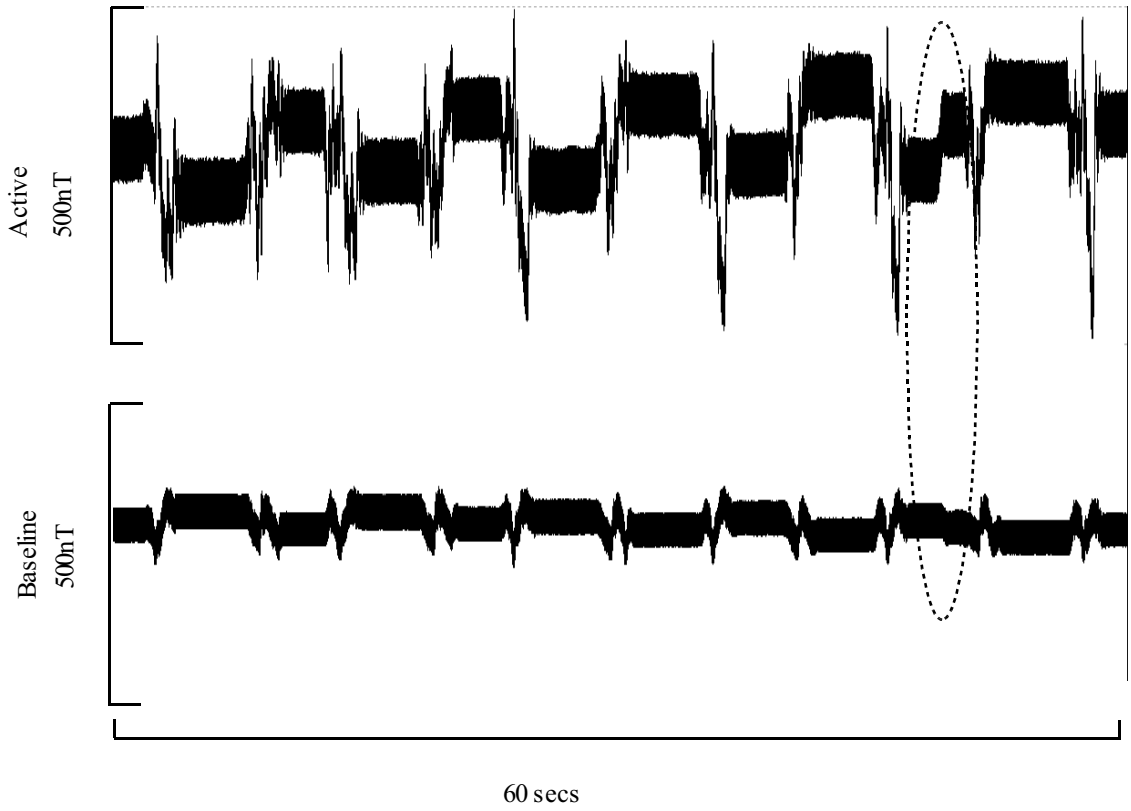

Figure 8. Synchronised magnetic data from both the pillow (top panel) and new mid-bed baseline (bottom panel) regions for when the occupant was moving. The distortions can now be seen in both signals. Note also, the fields in the mid-bed region appear to show a reversed pattern to those in the pillow region. The highlighted dotted region shows a DC period stepping up in the pillow region yet stepping down in the baseline.

General Discussion

A growing number of studies have demonstrated that some haunt-type experiences appear to be associated with magnetically complex microenvironments (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005; Nichols & Roll, 1998, 1999; Persinger et al., 2001; Persinger & Koren, 2001a 2001b; Roll & Nichols, 1999; Wiseman et al., 2003; see Persinger & Koren, 2001a; Roll & Persinger, 2001 for reviews; though see Braithwaite, 2008; for a critique). The present study investigated and confirmed the prior suggestion that an iron mesh bed support in a reputedly haunted castle bedroom could be responsible for generating considerable time-based distortions in the

ambient magnetic field. Previous research had identified the bed support's role in producing a large localised distortion in the geomagnetic field (Braithwaite, 2004; Braithwaite et al., 2004; Braithwaite & Townsend, 2005). The extent of this anomaly was so large, that it suggested the bed mesh may well certainly be ferromagnetic (and possibly even magnetised). To examine this issue a volunteer bed-occupant simulated natural movements in the bed. The prediction was that if the iron mesh was ferromagnetic, then any movement of that mesh would generate complex magnetic waveforms that vary in sympathy with that movement. This is exactly what was found.

The findings presented here strongly suggest that movement in the bed is indeed capable of inducing complex time-based distortions in the magnetic fields. As a consequence of this, any movement in the material supporting the bed generated large and complex waveforms surrounding the bed occupant. This means that as well as providing a static spatially inhomogeneous magnetic field, the bed can also generate severe time-based anomalies as well. The waveforms are not due to anomalies in the 50Hz power supply or vibration-based artefacts; they represent clear changes in the magnetic fields related to human movement. These anomalies exist significantly above the background random variation (measured during non-movement periods) and generate considerably more magnetic energy to that provided by the man-made 50Hz systems. The movement-based magnetic fields are also highly complex, varying greatly over time and containing many multiple low-frequency components.

Laboratory studies that have elicited neuronal responses and / or experiential changes have identified the importance of time-based variability and complexity in the stimulatory fields (see Cook & Persinger, 2001; 1997; Cook et al., 2004; Persinger, 2001; Persinger & Healey, 2002; Persinger et al., 2001; 2000; 1997 Persinger, & Richards, 1994; Richards, Persinger & Koren, 1993; Ruttan et al., 1990). The fact that these complex anomalies here are most prominent in an area where occupants spend some time before reporting experiences is not inconsistent with the suggestion that such fields might be associated with striking reports of anomalous experiences. The implications of these findings are discussed below.

Alternative accounts: Are the magnetic anomalies just a coincidence?

One possible alternative explanation for the co-existence of the magnetic anomalies measured here (and in earlier studies), and the occurrence of haunt-reports, is that they are little more than a coincidence. In this sense, the findings could be questioned as being equivalent to a false-positive. Implicit within this account is that (i) the haunt-type experiences require other non-magnetic explanations and (ii) these particular magnetic fields do not have the capacity to influence neural or behavioural processes. This alternative possibility requires serious consideration.

It is certainly the case that neither the present study, nor earlier investigations, provides a *causal* case for the anomalous perceptions reported by occupants of the TR bed to be solely due to the magnetic anomalies in that environment. Indeed, this claim has never been made and should not be assumed here. Our previous research has established the existence of highly complex magnetic anomalies in a crucial region of a reputed haunting. This is a fundamental aspect of the neuromagnetic account. Without the presence of a complex magnetic field – there is no stimulatory processes to be had. Although the presence of such anomalies does not establish a causal relationship (just an association), a causal relationship would require the presence of such fields in the first place. Therefore, although the present findings do not casually *prove* the neuromagnetic account in this case, they are certainly in line with it and the central predictions generated from that account. In addition, the parameters of the magnetic waveforms reported here are comparable to those employed in laboratory studies known to be statistically related to anomalous perceptions and impressions (see Persinger, 2001; Persinger & Koren, 2001a for reviews). The suggestion that these findings are a false-positive is further undermined by other independent field- based investigations reporting similar associations (Persinger, 2001; Persinger & Koren, 2001b; Persinger et al., 2001; Persinger & Koren, 2001a).

Interestingly, the types of complexity seen in these anomalies are not typical – and have not been documented in baseline regions or baseline locations (at least the ones sampled so far). As part of our previous research, we have surveyed a variety of baseline areas from inside the TR and other baseline rooms from around the castle. For the

most part the geomagnetic fields measured have been relatively spatially uniformed (range of 15,000nT) and the 50hz sources are reasonably temporally stable (<100nT on average). In addition, surveys of modern domestic living environments in high-density and low-density regions have also been carried out (to act as baselines: see Braithwaite et al., 2005). Without investigating appropriate baselines, one cannot say with any real degree of confidence that such anomalies are restricted to and define areas associated with anomalous perceptions (see Houran & Brugger, 2000).

The extensive investigations of baseline areas and baseline locations has revealed that while domestic environments may contain stronger background ambient magnetic fields, they do not display evidence of complex time-based anomalies. The fields may display the occasional pulses (usually transient affairs lasting around 200milliseconds and not exceeding 100nT away from the source) but these are simple in form, and merely reflect an electrical device being turned on or off (see Braithwaite et al., 2005; Braithwaite & Townsend, 2005 for examples of simple basic pulses). If the device is turning on then the background strength of the field increases after the pulse, but again this increase is very, very small. These are quantitatively distinct from the EIF profiles discussed here. Nevertheless, such baseline studies go against the idea of a false-positive explanation of this magnetic anomaly – as they would make the prediction that such anomalies should be more common-place. Whether or not these particular magnetic anomalies are crucial for inducing strange experiences – they are certainly not commonly available.

Could the TR-bed experiences be explained by suggestion, experiential context or mere expectation?

To what extent might the striking core TR-bed experiences be due to the power of suggestion, the experiential context, or simple expectation? In other words, although complex magnetic fields may well be present, it may be the presence of these other factors that are crucial. The context and setting of an ancient castle is of course unavoidable in this instance. The ancient castle is perhaps the ancestral home of the classic English ghost story and such buildings are certainly culturally embedded into such stories and legends (Evans, 2001). In

some circumstances the roles of suggestibility and context are clearly sufficient to induce anomalous reports and interpretations and are central to some accounts of haunt-reports (i.e., Houran, 2000; Lange & Houran, 1997, 2001). Such an ancient and suggestive context may well predispose suggestible individuals to interpret otherwise ambiguous stimuli in a paranormal manner.

However, the main limitation with the proposition that mere suggestion and expectation could be responsible for the core TR-bed reports is that none of these generic ideas explains clearly why the experiences cluster specifically in the TR bed. Presumably, human factors leading to 'suggestibility' would apply to the whole castle and all or most of the living spaces contained within it. Yet the striking and more consistent experiences seem relatively tied to a precise region within the 80 – 90 roomed castle. If the uncontroversial possibility that some observers are more suggestible than others is accepted, then the question becomes one of why other areas of the castle appear to be relatively impotent in inducing striking effects in those observers? Therefore, to make suggestibility work for the more consistent and striking experiences, it would need to be refined so that it became more specific and explained why general human 'suggestibility' appears to be so geographically selective.[3] This of course is not impossible, though it is important to point out that the mere generic notion of 'suggestibility', while present and involved, is somewhat incomplete and not as comprehensive an explanation as it might first appear. In addition, the clustering of TR-bed experiences cannot be explained by differences in room occupancy/use frequency as a host of neighbouring rooms (including the West Dressing room, Kings room, Bishops Bedroom, Bishops Dressing room) have been used roughly equally over the years by the family or as guest rooms (and they are all visited by day tourists). Braithwaite et al (2004) noted that a further problem for suggestibility alone being responsible is that for many instances, eyewitnesses have stayed at the castle for some time, occupying a number of other bedrooms before staying in the TR. Others have stayed in the other rooms after staying in the TR. It is not clear why

[3] Note also that one may want to make the argument that the more 'suggestible' observers have been allocated to the TR more frequently – but as all the rooms have been used by guests roughly equally over the years there is little evidence to suggest such a bias occurred. In addition, interviews with some of the still living core TR bed witnesses suggests this was the only experience these individuals had ever encountered (at that time) and they held no particular beliefs about the paranormal. Indeed, one witness (an ex-war veteran decorated with the VC) described himself as a complete skeptic about such matters.

generic suggestibility alone could be crucially influencing perceptions only when these observers were in the TR. In addition, two of the core eyewitnesses who have reported quite profound experiences (which share some degree of consistency) in the TR were close friends of the family and owned their own ancient homes. Arguably such individuals are somewhat familiar with grand suggestive surroundings and may be relatively immune to it. It is unclear why, after spending a lifetime in such environments, one or a few nights in this castle bedroom exerts an effect.

One way to improve the generic notion of suggestibility to account for the TR-bed experiences might be to acknowledge the additional effects of immediate room/experiential context. Maybe there is something specific about the context of the TR that makes it more 'suggestible' (in some way)? By this account, the immediate experiential context of the TR would be conducive to anomalous reports by initiating a subtle attentional-bias in observers – which might not be the case for other rooms/areas within the castle. This idea is attractive as it helps to make the generic notion of 'suggestibility' more geographically specific – and both factors combined provide a highly plausible account for haunt-reports (see Houran, 2000; Lange & Houran, 1997; 2001; Wiseman et al., 2003).

However, in this case it is unclear what this might be. Other rooms are equally as elegant as the TR, contain ornate furnishings, also contain tapestries, have other suggestive features like wood panelling and gothic carvings, and indeed one room is painted in exactly the same colour as the TR (a kind of turquoise). All bedrooms are equipped with similar light fixings, have similar lighting levels and many are of a roughly comparable size. Despite these contextual similarities, impressive haunt-reports from these other locations are noticeably absent or thin. Contextual effects may struggle to explain why such reports have not been forthcoming from other guests staying in adjacent rooms. While this certainly does not rule out any role for context, the reasons for why the TR appears to be so contextually-loaded currently remain unclear.[4]

One further possibility for a cluster of similar experiences to occur in the TR might be prior knowledge of previous experiences. Under these circumstances, observers would need to have relatively specific

[4] The role of context for these rooms and baseline areas is currently being assessed by a separate series of studies.

knowledge for a particular type of experience, for that particular area, or both. Of the core witnesses who reported perhaps the most striking experiences from being in the TR-bed, all reported having no explicit prior knowledge concerning the experiences reported at the castle at the time they reported their own (between the 1960s – late 1980s). The primary experiences were often unpleasant and the family did not openly discuss or share the reports from the TR (at least when these particular witnesses had reported their experiences). Therefore, although specific expectation could be a factor in some more recent experiences (and I would suggest that it certainly is) it is not clear why, for these earlier experiences, in the absence of any specific prior knowledge, expectation should be higher for the TR relative to other rooms.

This suggests that while context may be playing a role, something additional may be needed to explain the more severe reports from the core TR-bed occupants. One possibility predicted by the neuromagnetic account is that for the core TR-bed experiences, this additional component could be the presence of highly complex magnetic fields. These fields may well have the capacity to elicit a stronger neuronal response from observers which may lead to such experiences becoming endowed with more intensity – though this suggestion remains to be formally tested. While the presence of suggestibility, context and expectation may well have been present for prior accounts (to varying degrees) the real question is whether these factors alone or combined were sufficient to induce the core TR-bed experiences. It is reasonable to assume that these factors do have an important role to play in most of the accounts from the castle and indeed most of the recent TR-bed accounts (as this case has risen in prominence in the literature). However, many questions remain if these factors are going to be extended to account for all experiences from the TR-bed.

Are the movement-based anomalies potential EIFs?

Do the magnetic fields generated by movement in the bed have, at least in principle, experience-inducing properties? If one views the neuromagnetic account as implausible then the answer is a simple one: no. However, if one views the account as being plausible and

evidenced by the laboratory studies to some degree, then a more considered answer is required. If we accept the laboratory studies which have induced neurophysiological responses and experiential changes in observers, then a considered comparison between the magnetic fields employed in those studies and the present ones would be revealing. Collectively, Persinger's experimental laboratory studies have shown that fields from around 1000nT – 5000nT (maximum of 10,000nT), have the capacity to elicit electrical seizure-type activity in susceptible brains (as long as they also contain complex patterns over time - see Persinger & Koren, 2001a, 2001b). At around 500nT – 700nT, the movement related anomalies reported in the present study appear somewhat weaker than those reported from laboratory studies – and thus are arguably insufficient to induce neurocognitive responses. However, there are some important observations worth noting. As highlighted in the Introduction, the measurements reported here were taken at an increased distance (around 60cm) above the bed occupant's head and body. This means that these measures likely underestimate the true magnitude of the variability around the skull of the bed occupant (as the sensors were quite far away from the bed-mesh which is providing the anomaly). Based on previous studies, the current investigation, and other unpublished investigations that have been carried out, a tentative and conservative estimate of around 1000nT – 3000nT for the true variability around the skull region seems plausible. In addition, the high spatial gradient available in the bed could magnify this variability and the complexity even further. In terms of amplitude alone, these values are indeed proximal to the range of energy known to have neurophysiological correlates and experience-inducing properties. Furthermore, the time-based complexity of these movement-related fields is considerable. As complexity has been identified as a crucial factor for magnetic fields to have implications for experience this provides further support that these fields could constitute EIFs. Note also that a recent study identified a malfunctioning electric bed-side clock as a source of EIFs associated with haunt reports (Persinger & Koren, 2001b; see also Persinger & Koren, 2001a). Here, pulses of around 4000nT were measured emitting from the device which was within 20cm of the occupant's skull. The temporal complexity of those documented fields is far less than those reported here (the field consisted of a train of constant pulses). It is also more than noteworthy that both that previous study, and the present

case, involved a magnetic anomaly in a region where an individual would spend some considerable amount of time (i.e., increased exposure time).

Although these observations and associations do not establish a *casual* relationship between the magnetic fields and the anomalous reports, the similarity between the amplitudes and temporal complexity found in the present study, to other independent laboratory and field studies, suggests the present magnetic fields may not be benign. One way to directly establish whether these fields have the capacity to influence experience would be to directly stimulate the brains of observers with the magnetic patterns reported here. This could be done by applying and 'replaying' the complex patterns back through solenoid-based magnetic coils applied to the skulls of observers. As long as the integrity of the spatio-temporal complexity can be maintained, and suitable observers are used, this would provide a particularly insightful test of the neuromagnetic account for this particular case of a haunting. These fascinating experiments are currently being planned.

Conclusion

The present study investigated the speculation that movement in a ferromagnetic bed mesh support from a reputedly haunted bedroom had the capacity to generate severe time-based distortions in the localised magnetic field. It did. Temporally complex distortions in the background magnetic field were created by a human occupant simulating natural human movement in the bed. These fields have been missed by previous investigations. The present findings provide yet further evidence that this specific region is, at the very least, associated with highly complex magnetic fields which differ significantly from proximal baseline regions. That this exact location is also associated with some striking haunt-type reports is consistent with a neuromagnetic account for some haunt-type experiences. Accordingly, the co-existence of these magnetic fields and the presence of striking anomalous human experience may not be a coincidence.

References

Braithwaite, J. J. (2008) Putting magnetism in its place: A critical examination of the weak-intensity magnetic field account for anomalous haunt-type experiences. *Journal of the Society of Psychical Research, 72.1,* 34-50.

Braithwaite, J. J. (2006). Using digital magnetometry to quantify anomalous magnetic fields associated with spontaneous strange experiences: The magnetic anomaly detection system (MADS). *Journal of Parapsychology, 69*(1), 151-171.

Braithwaite, J. J. (2004). Magnetic variances associated with 'haunt-type' experiences: A comparison using time-synchronised baseline measurements. E*uropean Journal of Parapsychology, 19*, 3-29.

Braithwaite, J. J., Perez-Aquino, K., & Townsend, M. (2005). In search of magnetic anomalies associated with haunt-type experiences: Pulses and patterns in dual time-synchronized measurements. *Journal of Parapsychology, 68*(2), 255-288.

Braithwaite, J. J., & Townsend, M. (2005). Sleeping with the entity: A magnetic investigation of an English castle's reputedly haunted bedroom. *European Journal of Parapsychology, 20.1*, 65-78.

Cai, L. (2006) Multi-response permutation procedure as an alternative to the analysis of variance: An SPSS implementation. *Behavior Research Methods, 38* (1), 51-59.

Chatfield, C. (1989). *The analysis of time series*. London: Chapman & Hall.

Cook, C. M., & Persinger, M. A. (2001). Geophysical variables and behavior: XCII. Experimental elicitation of the experience of a sentient being by right hemispheric, weak magnetic fields: interaction with temporal lobe sensitivity. *Perceptual and Motor Skills, 2*, 447-448.

Cook, C. M., & Persinger, M. A. (1997). Experimental induction of the sensed presence in normal subjects and an exceptional subject. *Perceptual and Motor Skills, 85*, 683-693.

Cook, C. M., Thomas, A. W., & Prato, F. S. (2002). Human electrophysiological and cognitive effects of exposure to ELF magnetic and ELF modulated RF and microwave fields: A review of recent studies. *Bioelectromagnetics, 23*, 144-157.

Cook, C. M., Thomas, A. W., & Prato, F. S. (2004). Resting EEG is affected by exposure to a pulsed ELF magnetic fields. *Bioelectromagnetics, 25*, 196-203.

Dobson, J., St Pierre, T., Wieser, H. G., & Fuller, M. (2000). Changes in Paroxysmal brainwave patterns of epileptics by weak-field magnetic stimulation. *Bioelectromagnetics, 21*, 94-99.

Evans, H. (2001). The ghost experience in a wider context. In J. Houran & R. Lange (Eds.), *Hauntings & Poltergeists* (pp. 41-61). Jefferson, North Carolina: McFarland & Company, Inc.

Fuller, M., Dobson, J., Wieser, H. G., & Moser, S. (1995). On the sensitivity of the human brain to magnetic fields: Evocation of epileptiform activity. *Brain Research Bulletin, 36*, 155-159.

Good, P. (1993). *Permutation tests: A practical guide to resampling methods for testing hypotheses*. New York: Springer-Verlag.

Granqvist, P., Fredrikson, M., Unge, P., Hagenfeldt, A., Valind, S., Larhammar, D., Larsson, M. (2004). Sensed Presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak complex magnetic fields. *Neuroscience Letters, 379*(1), 1-6.

Houran, J. (2000). Toward a psychology of 'entity encounter experiences'. *Journal of the Society for Psychical Research, 64*(860), 141-158.

Houran, J., & Brugger, P. (2000). The need for independent control sites: A Methodological suggestion with special reference to haunting and poltergeist field research. *European Journal of Parapsychology, 15*, 30-45.

Houran, J., & Lange, R. (2004). Redefining delusion based on studies of subjective paranormal ideation. *Psychological Reports, 94*, 501-513.

Lange, R., & Houran, J. (1997). Context induced paranormal experiences: Support for Houran and Lange's model of haunting phenomena. *Perceptual and Motor Skills, 84*, 1455-1458.

Lange, R., & Houran, J. (1998). Delusions of the paranormal: A haunting question of perception. *The Journal of Nervous and Mental Disease, 186*(10), 637-645.

Lange, R., & Houran, J. (1999). The role of fear in delusions of the paranormal. *The Journal of Nervous and Mental Disease, 187*(3), 159-166.

Lange, R., & Houran, J. (2001). Ambiguous stimuli brought to life: The Psychological dynamics of hauntings and poltergeists. In J. Houran & R. Lange (Eds.), *Hauntings and poltergeists: Multidisciplinary perspectives* (pp. 280-306). Jefferson, North Carolina: McFarland & Company Inc.

Lange, R., Houran, J., Harte, T. M., & Havens, R. (1996). Contextual mediation of perceptions in hauntings and poltergeist-like experiences. *Perceptual and Motor Skills, 82*, 755-762.

Larsson, M., Fredrikson, M., Larhammar, D., & Granqvist, P. (2005). Reply to M.A. Persinger and S. A. Koren's response to Granqvist et al. Sensed presence and mystical experiences are predicted by suggestibility, not by the application of transcranial weak magnetic fields. *Neuroscience Letters, 380*, 348-350.

Makarec, K., & Persinger, M. A. (1987). Electroencephalographic correlates of temporal lobe signs and imagings. *Perceptual and Motor Skills, 64*, 1124-1126.

Makarec, K., & Persinger, M. A. (1990). Electroenchephalographic validation of a temporal lobe signs inventory in a normal population. *Journal of Research in Personality, 24*, 323-327.

Marino, A. A., Nilsen, E., Chesson, A. L. J., & Frilot, C. (2004.). Effect of low-Frequency magnetic fields on brain electrical activity in human subjects. *Clinical Neurophysiology, 115*, 1195-1201.

McCue, P. A. (2002). Theories of haunting: A critical overview. *Journal of the Society for Psychical Research, 66*(866), 1-21.

Mielke, P. W. (1984). Meteorological application of permutation techniques based on Distance functions. In P. R. Krishnaiah & P. K. Sen (Eds.), *Handbook of statistics* (Vol 4, pp. 813-830). Amsterdam: North-Holland.

Mielke, P. W., & Berry, K. J. (1994). Permutation tests for common locations among samples with unequal variances. *Journal of Educational and Behavioral Statistics, 19*, 217-236.

Mielke, P. W., & Berry, K. J. (2001). *Permutation methods: A distance function approach*. New York: Springer-Verlag.

Mielke, P. W., Berry, K. J., & Johnson, E. S. (1976). Multi-response permutation procedures for a priori classifications. *Communications in Statistics - Theory and Methods, 5*, 1409-1424.

Neppe, V. M. (1983). Temporal lobe symptomology in subjective paranormal experients. *The Journal of the American Society for Psychical Research, 77*(1), 1-29.

Nichols, A., & Roll, W. G. (1998). *The Jacksonville water poltergeist: electromagnetic and neuropsychological aspects.* Paper presented at the Proceedings of presented papers: The Parapsychological Association 41st Annual Convention.

Nichols, A., & Roll, W. G. (1999). *Discovery of electromagnetic anomalies at two reputedly haunted castles in Scandinavia.* Paper presented at the Proceedings of presented papers: The Parapsychological Association 42nd Annual Convention.

Patterson, K. (2000). *An introduction to applied econometrics: a time series approach*. New York: Palgrave.

Persinger, M. A. (1988). Increased geomagnetic activity and the occurrence of bereavement hallucinations: Evidence for a melatonin mediated microseizuring in the temporal lobe? *Neuroscience Letters, 88*, 271-274.

Persinger, M. A. (1993). Average diurnal changes in melatonin levels are associated with hourly incidence of bereavement apparitions: Support for the hypothesis of temporal (limbic) lobe microseizuring. *Perceptual & Motor Skills, 76*(2), 444-446.

Persinger, M. A. (1999). Increased emergence of alpha activity over the left but not the right temporal lobe within a dark acoustic chamber: Differential response to the left but not to the right hemisphere to transcerebral magnetic fields. *International Journal of Psychophysiology, 34*, 163-169.

Persinger, M. A. (2001). The neuropsychiatry of paranormal experiences. *Journal of Neuropsychiatry and Clinical Neuroscience, 13*, 515-524.

Persinger, M. A. (2003). The sensed presence within experimental settings: Implications for male and female concept of self. *The Journal of Psychology, 137*(1), 5-16.

Persinger, M. A., & Healey, F. (2002). Experimental facilitation of the sensed presence: Possible intercalation between the hemispheres induced by complex magnetic fields. *The Journal of Nervous and Mental Disease, 190*(8), 533-541.

Persinger, M. A., & Koren, S. (2005). A response to Granqvist et al. "Sensed presence and mystical experiences are predicted by suggestibility, not by not by the application of transcranial weak magnetic fields". *Neuroscience Letters, 380*, 346-347.

Persinger, M. A., & Koren, S. A. (2001a). Predicting the characteristics of haunt phenomena from geomagnetic factors and brain sensitivity: Evidence from field and experimental studies. In J. Houran & R. Lange (Eds.), *Hauntings and*

poltergeists: Multidisciplinary perspectives (pp. 179-194.). Jefferson, North Carolina: McFarland & Company, Inc.

Persinger, M. A., & Koren, S. A. (2001b). Experiences of spiritual visitation and impregnation: Potential induction by frequency-modulated transients from an adjacent clock. *Perceptual and Motor Skills, 92*, 35-36.

Persinger, M. A., Koren, S. A., & O'Connor, R. P. (2001). Geophysical variables and behaviour: CIV. power-frequency magnetic field transients (5 microtesla) and reports of haunt experiences within an electronically dense house. *Perceptual and Motor Skills, 3*(1), 673-674.

Persinger, M. A., & Makarec, K. (1986). Temporal lobe epileptic signs and correlative behaviours displayed by normal populations. *Journal of General Psychology, 114*, 179-195.

Persinger, M. A., & Makarec, K. (1993). Complex partial epileptic-like signs as a continuum from normals to epileptics. Normative data and clinical populations. *Journal of Clinical Psychology, 49*, 33-45.

Persinger, M. A., & Richards, P. M. (1994). Quantitative electroencephalographic validation of the left and right temporal lobe indicators in normal people. *Perceptual and Motor Skills, 79*, 1571-1578.

Persinger, M. A., Richards, P. M., & Koren, S. A. (1997). Differential entrainment of electroencephalographic activity by weak complex electromagnetic fields. *Perceptual and Motor Skills, 84*, 527-536.

Persinger, M. A., Tiller, S. G., & Koren, S. A. (2000). Experimental stimulation of a haunt experience and elicitation of paroxysmal electroenchephalographic activity by transcerebral complex magnetic fields: induction of a synthetic 'ghost'? *Perceptual and Motor Skills, 90*, 659-674.

Richards, M. A., Koren, S. A., & Persinger, M. A. (2002). Circumcerebral application of weak complex magnetic fields with derivatives and changes in electroenchaphalographic power spectra within the theta range: Implications for states of consciousness. *Perceptual and Motor Skills, 95*, 671-686.

Richards, P. M., Persinger, M. A., & Koren, S. A. (1993). Modification of activation and elevation properties of narratives by weak complex magnetic field patterns that stimulate limbic burst. *International Journal of Neuroscience, 71*, 71-85.

Roll, W. G., & Nichols, A. (1999). *A haunting at an army post.* Paper presented at the Proceedings of presented papers: The Parapsychological Association 39th Annual Convention.

Roll, W. G., & Persinger, M. A. (2001). Investigations of poltergeists and haunts: A review and interpretation. In J. Houran & R. Lange (Eds.), *Hauntings and poltergeists: Multidisciplinary perspectives* (pp. 123-163). Jefferson, North Carolina: McFarland & Company, Inc.

Ruttan, L., Persinger, M. A., & Koren, S. (1990). Enhancement of temporal lobe-related experiences during brief exposures to milligauss intensity extremely low frequency magnetic fields. *Journal of Bioelectricity, 9*(1), 33-54.

Stearns, S. D., & David, R. A. (1988). *Signal processing algorithms.* Englewood Cliffs NJ: Prentice-Hall.

Wiseman, R., Watt, C., Stevens, P., Greening, E., & O'Keeffe, C. (2003). An investigation into alleged 'hauntings'. *British Journal of Psychology, 94*, 195-211.

Appendix A

In order to cope with the non-stationarity, non-normal distributions, and unequal variability that is inherent with time-series data we employed non-parametric (distribution free) analyses. However, another method not commonly known to psychologists is that of the Multi-response permutation procedure (MRPP). The MRPP is particularly robust to unequal variability/inhomogeneity of variance and is not tied to the limitations of parametric assumptions. Good statistical arguments have been made for preferring this procedure over comparable and more popular ones (such as ANOVA and T-tests) when the assumptions of normality and equal variances are violated (see, Cai, 2006; Good, 1993; Mielke, 1984; Mielke &Berry, 2001; 1994). In addition, the MRPP allows for the exact probabilities associated with any given statistic to be calculated, as opposed to an approximate value when parametric assumptions are violated (to run the MRPP analysis we employed SPSS macros supplied by Cai, 2006). This procedure is related here as a comparison to the methods employed and reported in the main text. The interpretations remain unaltered and hence the MRPP does not challenge or modify the findings in the present paper.

Table 2: Outputs from the Multi-response Permutation Procedure (MRPP)

Experiment	*t*-statistic	Exact *p*-value
Exp 1	14.28	<.001
Mech vibration exp	0.411	.522
Exp 2	17.69	<.001

European Journal of Parapsychology
Volume 23.1, pages 127-129

ISSN: 0168-7263

Book Review

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A review of "The Gift: ESP, the Extraordinary Experiences of Ordinary People" By Sally Rhine Feather and Michael Schmicker (2005)

The Gift concerns the apparently psychic experiences of the general public, and is co-written by the daughter of J.B. and Louisa Rhine. As such, it bears a family resemblance to the compilations of spontaneous experiences written by Louisa (1961, 1967, 1981). Like Louisa Rhine, the authors assert that finding proof of ESP can only occur in the lab, because eyewitness testimony is often unreliable. But to understand ESP better, one has to observe how it manifests itself in everyday life. The experiences in the book are taken from the archives of the Rhine Research Centre.

The book begins by giving examples of experiences of apparent precognition, clairvoyance and telepathy, variants of J.B. Rhine's generic 'extrasensory perception.' The authors then give a brief rundown of the history of ESP research, beginning with the experiments of the Rhines, and progressing to more recent studies. They outline the variables that seem to affect the reporting of ESP experiences, claiming a positive correlation between ESP and IQ, and that more women than men tend to report experiences. They glance at some of the personality variables that seem to affect psi performance in the lab, including studies that suggest that extroverts seem to score better than introverts do. Also mentioned are Honorton's studies of meditators, intuitive personalities and believers versus non-believers. The authors unfortunately do not mention more recent work on transliminality, schizotypy or thin-boundaried personalies, so the discussion feels a little dated for a book published in 2005.

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The rest of the book gives numerous accounts of psychic experiences, divided into chapters with different themes. One concerns ESP associated with disasters, another psi between mother and child, and a third details experiences between lovers. A notable chapter recounts several apparent premonitions of 9/11, one of the most interesting being Becky's story. She had planned a trip to Florida with her family months in advance, and was due to fly on September 11th, 2001. As the date approached, she became unusually anxious, a state confirmed by her husband in a later interview. On September the fourth, Becky had a strange dream, in which she heard a man's name repeating the number 2830. Then the voice began repeating a name like 'Rooks' or 'Horooks.' She awoke with a strong urge to write the dream down. Becky, incidentally, had a history of psychic experiences and intuitions. Then, after the 9/11 attack happened, they discovered that 'Horrocks' had been the name of the co-pilot of one of the planes that slammed into the World Trade Centre. However, they still didn't understand what '2830' referred to. On September 13th, Becky wrote the number down and posted it to herself, so the post mark would give evidence of when she had had the intuition. In May 2002, a study was published that established that 2830 was the death count of the attack.

This account illustrates both the fascination and problematic nature of psychic experiences. Taken at face value, the coincidences are extraordinary, but Rhine Feather remains correctly cautious in her interpretation of psychic claims. It's all too easy to interpret intuitions after the fact, and to reconstruct events to make them more fantastic than they actually are. On the other hand, this is a reasonably strong case that's corroborated and backed up by documentation, so makes a worthy addition to the Rhine Centre's database.

Another intriguing chapter, entitled *Is Fate Inevitable*?, details a study undertaken on 433 premonition cases in which there was enough of a threat to make intervention desirable. This was partly in response to a debate they'd had with Dick Bierman – who argued that if you can make a successful intervention and change the future as the result of a premonition, then by definition you haven't had a premonition because that future hasn't happened. They found that in two thirds of the 433 cases, no intervention occurred, and the event was allowed to happen. Sometimes people attempted to intervene and failed, and occasionally the attempt at intervention caused the event that the experient had tried to avoid! However, there are a number of cases on

record of successful interventions. A trolley car-conductor had a premonitory dream of an accident with bright red truck that allowed him to slam the brakes on in time. Another man had a premonition of a tornado, and was able to take precautionary measures that prevented a sign crashing into the plate-glass window of his auto dealership. A woman dreamt of a chandelier crashing onto a crib and crushing her baby, and went to fetch her baby before the disaster happened. These accounts are fascinating, and raise questions about the nature of both causality and of premonition experiences.

The book ends with a short chapter giving advice of what to do if you suspect that you have some ability at ESP. Rhine Feather emphasises the need to strike a balance between open-mindedness and critical judgement when evaluating your own ability, but suggests home testing. There is also a reading list that includes a number of useful web addresses.

Rhine Feather and Schmicker's book is probably best seen as a continuation of the work begun by Louisa Rhine, and all of these should be required reading for parapsychologists, especially those who specialize in lab work. As Evans (1982) points out, the experiment to test an alleged phenomenon can only be secondary to the phenomenon itself. This book will hopefully serve to remind the researcher of the rich and complex nature of the 'primary' phenomena.

Publication Details: *Rhine Feather, S. & Schmicker, M. (2005). The Gift: ESP, the Extraordinary Experiences of Ordinary People. St. Martin's Press. 284 pp. ISBN: 0-312-32919-9. Publication price: $23.95. (Hardback).*

References

Evans, H. (1982) *Intrusions: Society and the Paranormal*. London: Routledge and Kegan Paul.

Rhine, L.E. (1981) *The Invisible Picture*. Jefferson North Carolina: Macfarland.

Rhine, L.E. (1967) *ESP in Life and Lab*. New York: Jefferson.

Rhine, L.E. (1961) Hidden Channels of the Mind. London: Gollancz.