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Are Vigils Useful?

by Dr Jason Braithwaite

In a controversial article, Jason Braithwaite questions the way many people currently run vigils as part of paranormal investigations. The article is designed to start a debate about the usefulness of vigils as they are commonly run.

Ghost hunts, or vigils as they are more commonly termed, are so often the favourite pastime of ASSAP investigators. These activities are pursued with so much rigour and enthusiasm that one might assume the literature surrounding such excursions to be vibrant, and packed with justifiable suggestions, theories and ideas for what might be taking place. Clearly, this is not the case. When reviewing the literature it soon becomes apparent that information gained from a vigil context is often as anecdotal as the spontaneous experiences it tries to address. As a result, research is frustratingly static and little, if anything, qualifies as a theory.

With these observations in mind, perhaps we need to ask whether such methods in their usual guise are valid for, or even helpful with, aiding scientific exploration and the understanding of such phenomena. In this article I briefly outline some of my main concerns surrounding the logic underlying such pursuits. I will argue two main points:

- that most vigils, as they are currently implemented, are a waste of time;
- that this need not actually be the case - the method itself is not where the main problems lie; it is with its implementation.

For reasons of conciseness and clarity I have restricted this critique to some of the issues pertaining to apparitional research. As a researcher I have no doubt that proper scientific methods can, and should, be applied to these areas of the paranormal, revealing them for what they are, yet doubt that the eventual answers will be paranormal ones. Vigils can greatly aid this process. The problem is that so far they may be hindering our understanding of such fascinating experiences rather then helping. It is also hoped that this article will start a needed debate within active groups of ASSAP, an association that ought to be setting the standards.

Introduction

Firstly, let me say that I dislike both the terms 'ghost hunt' and 'vigil', although I am guilty of passively using the latter. I personally prefer to think of such excursions as field studies. Yet these are relatively trivial grievances when compared with the theory-laden (or more appropriately 'lore-laden') methodologies and thinking that seem to go into such activities. From the start we need to be clear about one central point, that all vigils are assumption-based. Now, this need not be a bad thing. What I mean by 'assumption-based' is that the whole set-up of such studies reflects very clearly the pre-existing assumptions of the investigators present. In many cases this can seriously undermine the validity and usefulness of such pursuits. Vigils rarely represent well-defined hypotheses (also forms of assumptions, but see below) and are even less likely to be placed within the context of attempting to compile functional theories. They lack structure and specific direction so, should 'anything happen', there is no framework in place to help interpret such an occurrence, that is, except for the ever present assumptions of the investigators that are so often orientated towards a sympathetic perspective. This brings us back to the notion that often all that vigils establish are the

pre-existing beliefs and biases of the investigators. These assumptions are rarely made clear, rarely stated, recognised or justified. They do, however, exert their influence on the present methodology. It is this somewhat circular reasoning that, I believe, is stifling research.

Assumption versus Hypothesis

As stated above, all vigils are assumption-based, resulting in a vigil that produces little more than a self-fulfilling prophecy. However, if assumptions are inevitable, and science also makes assumptions, what's the difference between the assumptions of the traditional sciences and those of the 'paranormalist'? In general, a scientific assumption needs to be (or should be) specified as a hypothesis, based on and justified by a reasonable underlying argument drawing on empirical findings. Of course, debate rages over the logic of such arguments, but the point is, the researcher should be aware of the central assumptions they are making. The process of generating well-structured hypotheses and experiments necessitates such clarity. The debates and arguments that emerge from this are the process of science itself. I believe this is distinct from the beliefs and assumptions made by paranormalists in general. The differences can be summarised as ones of awareness, clarity, justifiability, predictability and helpfulness.

These assumptions may be your opinion, your belief or what you think is really going on, without recourse to the broad base of findings (including contradictory ones) that may exist. Are you actually aware of the implications of such assumptions, that often network implicitly with other unquestioned 'belief-based baggage', often totally unsupported by any empirical research? In science, and in the vigil context as a whole, we all make assumptions irrespective of our theoretical persuasions. I argue here that some are more

helpful, useful, and functional than others. As an example, to start off with the assumption that 'ghosts are the spirits of dead people' is an assumption too far for me and one that seems too far stretched for the evidence as well. However, it could be argued that one person's view of 'usefulness' and 'valuable' is different to someone else's. I would counter that it all comes down to a theoretical framework, and the assumptions and hypotheses it generates, to be able to sensibly model, explain and predict phenomena, to integrate a wide variety of findings or justifiably reject them in favour of a viable alternative. This 'justifiability' is often absent from the thinking and pursuits of the paranormalist, placing them in a more comfortable position than the mainstream scientist who cannot get away with such fancy.

The vast majority of vigils are based on nothing more than 'ghost-lore', pseudo-logic masquerading as science and it is the assumption base of these exploits that I am confronting here. They undermine the whole potency of a well-planned field study.

The Role and Potency of Pseudo-logic

Pseudo-logic is dangerous. It is often difficult to spot at first as it can, on the face of it, look quite reasonable. This is why it has such a powerful and detrimental grip on the aims of investigators. As such, pseudo-logic can dilute the effectiveness, reliability and validity of many projects. Pseudo-logic is deeply embedded in vast sets of other sub-assumptions, all of which network together to produce a form of 'logic' that automatically biases one's interpretations towards particular types of pre-existing conceptions. Pseudo-logic can be identified by the use of poor definitions, often unsupported, that start somewhat further down the 'assumption line' than is perhaps helpful. Opinion and belief are also the pseudo-logic assumption's best friend, all of which contribute to

some form of apparent 'coherence'. For those of us pursuing clarity this is deeply frustrating. Listed below are some examples that illustrate this nebulous aspect I am trying to grapple with. The reader is reminded that these are just examples, chosen primarily to illustrate pseudo-logic in action, all of which are common to the debate and all based on the central assumption that apparitions exist in some external sense. They are not meant to be extensive or necessarily mutually exclusive.

1. the idea that equipment and / or sceptics suppress phenomena
2. the idea that there are different 'types' of apparition, eg. playback / anniversary etc.
3. the idea that apparitions have some form of 'intelligence' or 'behaviour'

Number 1 is interesting for a variety of reasons. The idea implies that there is an external phenomenon that is somehow suppressed in some way by the mere presence of equipment or sceptics. This notion is rather convenient for those who support paranormality, yet cannot empirically justify such a claim.

There are two general assumptions regarding the method via which such suppression is generally maintained to occur. One method implies some form of 'intelligence' on the part of the phenomenon (see also point 3). The phenomenon is seen to alter its 'behaviour' in some way, becoming camera-shy. The other method is based on ill-defined notions of geophysics. These are both Nobel prize-winning assumptions. My guess, though, is that no paranormal researcher subscribing to these ideas has a Nobel prize, so I will assume that such assumptions remain totally unsupported. Perhaps even more worrying are the major contradictions. For instance, many reports tell us of 'meaningful recordings' that have been

made and how many sceptics become converted after witnessing some strange event. A slight contradiction, I think. It seems to me that many people use the suppression argument when it suits them. There is no current evidence to suggest that either the presence of equipment or sceptics can suppress phenomena. In fact, there may well be good reason to doubt such events if this does occur. Pseudo-logic would, of course, predict that in some cases it can suppress and in others it does not, but why or how this should occur is still, predictably, a mystery. Although I think this last point spirals the argument even further beyond its level of usefulness, it does indirectly raise an interesting issue. The generalisability of individual cases to the field of research as a whole is an important theoretical question. Of course, there is room for inevitable variability, but there will be underlying commonalities that unify many experiences (though I do not mean necessarily paranormal commonalities). However, I fail to see how the pseudo-logic can cope with and explain this variability (that's 'explain' not 'describe').

In order to address such contradictions you have to admit they exist in the first place, which is something many groups seem to have difficulty with. Despite even these reservations, there is still a central and somewhat more fundamental assumption that runs right through these rather simplistic points. This is the idea that there is a phenomenon, external to the individual, existing in the first place. Point 1 not only assumes this, but also that such external phenomena can actually be affected in some way (or even that 'it chooses to be'!). As for point 2, here the entire idea that individual differences in experiences may well be due to differences in individuals *per se* is completely bypassed. Again, the idea of external (and hence usually paranormal) differences in the nature of the event is assumed. There is remarkably little, if any, evidence to directly suggest the existence of such 'paranormal differences'.

The presence of pseudo-logic here means that witness testimony relating to differing experiences is attributed not to the individual, but directly to this rather unhelpful notion that there are 'differing types or classes of apparition'.

Such pseudo-logic is pure fantasy, and we would do well to move away from such influences. Equally, point 3 suffers on similar grounds. It has almost always simply been assumed that this is so. In fact, the intelligence issue is arguably the weakest claim coming from the pro-paranormalist contingent. The main point about these illustrations (and many more like them) is that they are not just ill-founded, but they are having a very real detrimental effect on contemporary apparitional research.

Contributions from Psychology and Neuroscience

There are numerous assumptions tied up in the examples given; the most damaging and far-reaching is the unquestioning assumption that apparitions exist externally to individuals. These ideas are often pursued at the total expense of other explanations and possibilities, such as the role of individual differences (and similarities), perceptual factors, hallucinations, distorted reasoning, illusions, false memories, belief systems and so on. Even if it is conceded that apparitions exist externally, surely the role of these other factors is important, if not centrally responsible in some way. Confusion arises from whether you think apparitions exist purely as a valid external event, purely as an internal experience or a complex interaction of the two. The problem arises when researchers are not aware of such distinctions, how useful they can be (irrespective of perspective) and the assumptions tied up in all of them. This event / experience distinction can be applied to vigil reasoning, witness testimony and many other aspects of research. It is best cast as a qualitative equation:

$$\text{Occurrence} = \sum_{Experience}^{Event}$$

That is to say, an occurrence is the sum of varying proportions of 'event' and 'experience'. For instance, an 'event' might be a door opening on its own and an experience is witness testimony (eg. seeing the form of a figure walk through the doorway). Both combine into a picture of what that witness believes to have taken place. The overall occurrence itself is usually based totally on witness testimony. What we don't know is what the bias is between experience and event. This will not be 50/50. The bias will always be in favour of the experience, this is why it is placed as the divisible quantity. Usually we only have witness testimony to inform us, so often the event contribution may be small or even non-existent.

The point is, thinking of such occurrences in this way adds clarity to the overall situation. It assumes only that people do have strange experiences; it does not force us to think of such experiences in a particular predetermined way. Therefore, I argue that this assumption is a helpful and welcome one. The event / experience distinction is just one of many examples that could be applied by researchers to greatly improve matters. It is not without its own faults and can be misapplied, though this is more to do with the researcher than the technique. Such psychological definitions have been used in other areas of research with great success. The problem for vigils is that most concentrate on the 'event' part of the distinction. There is nothing wrong with that necessarily. However, if it is being pursued exclusively at the expense of other attributes, problems can emerge. Furthermore, it is the 'event' concept we learn the least about from such testimony, so arguably we are dealing with less and less useful information. It seems that the experience aspect provides us with more to consider, so it is

alarming that it is often overlooked and not even addressed. This often means that more complex and diverse ways of thinking about such instances are never considered.

For instance, the three points outlined earlier can be seen to support the general notion that apparitions exist as external concepts. Theoretically, this implies a strong bias towards event notions. However, if we argue that it is not apparitions that exist externally as an event, but that there may well be an external component to the perception of them (eg. electromagnetism that can induce hallucinations), then the emphasis is somewhat shifted. We would now be arguing for an event / experience co-variation where what is experienced as an apparition is a more complex product of brain and environment, therefore not independent of the individual.

On the whole, pseudo-logic will not consider such questions (as it already assumes what apparitions are), so they not only go unanswered but, rather disappointingly, they also go unasked. Ironically, there is growing evidence for the induced hallucinatory accounts, though there is still a great deal to be addressed. The assumptions you make will affect the questions you ask and think are important, the way you set about tackling them and the manner with which you interpret them. Why take cameras or night-vision apparatus to locations if you are in search of a hallucination? If you think night vision glasses are important this assumes you have already admitted that there is something 'external' going on, at least to some degree. To the best of my knowledge 'night-vision goggles' are not very useful for recording brain activity, so I fail to see why some people see them as so necessary. I am not saying such technology is not interesting and useful (if just from the perspective of control), what I am saying is that if that is all you are doing then this reflects what you think is important for understanding such instances. As such, the vigil is limited and seriously compromised.

As long as you, as a competent researcher, are aware of these assumptions, then the problem is greatly reduced.

Vigils in the Dark

If I were to put a figure on it I would guess that approximately 95% - 98% of all apparitional research currently being carried out is based on the nonsensical assumptions that belong more to 19th century parlour rooms than contemporary scientific investigation. Let me give one final example that I feel illustrates very well the nature of the problem. Can someone please tell me (and justify with reliable data) what is going on with the relatively widely used (so I am told) method of 'vigils in the dark'? Why are such projects carried out? What purpose do they serve? Hundreds of investigations are carried out by many groups on a regular basis, many of which adopt such methodology. What is worse is that ASSAP seems to be encouraging it. Such pursuits are in fact nonsense, and I am confident that I can illustrate why.

Rarely is the situation one in which there is no other way to run an investigation than in the dark (though this can be the case with some external vigils). More alarmingly, such vigils are usually carried out in perfectly equipped surroundings where the fully functional light switches remain firmly in the off position. So, if it is not a matter of 'there was no other way to do it', why do it at all? Vigils are ostensibly observational studies, as well as data-gathering excursions. Indeed, apart from measuring equipment, human observations are another valuable form of data. How can individuals reliably observe in the dark? The truth is you cannot, you are in a seriously compromised position, both in terms of your role on the project and theoretically. It could be argued that all you need to do is turn torches on when you need optimal conditions (for note taking, recording readings, etc.). Well, now you have a

situation with, say, ten (usual vigil size) torches being randomly switched on and off, pointed in random directions, causing all manner of stray light effects that could be misinterpreted by others. Coupled to these concerns, the visual and perceptual systems of the investigators will be in constant varying states of adaptation undermining people's capacity for stable and reliable observation.

Putting aside the issues of torches, vigils in the dark have more serious implications. Such conditions are actually conducive to observers' reporting 'strange-experiences', though these have little if anything to do with 'paranormality'. The experiant and the vigil organisers could mislead themselves here. There is overwhelming evidence supporting the notion that seriously low and no lighting conditions influence individual perceptual judgements, physiology and neural activity. High levels of arousal, expectations, suggestibility and ambiguous stimuli are all linked to a compromised visual system. What we actually have here is a recipe for an experience! I would be surprised if you did not scare yourself half to death. Thus, we come to what I consider to be the only possible explanation for endorsing and implementing such methods - thrill seeking.

It must be very exciting to stay in a reputedly haunted house with the lights off, but scientific it certainly is not. Such methods belong to the antics of 19th century charlatans and should remain there. I believe that vigils in the dark are seriously compromised excursions, compromised beyond the levels of usefulness, and we should have nothing to do with them. The pseudo-logic that seems to underlie such practices goes something like '…the dark is conducive to producing paranormal phenomena…' or even more disturbing '…ghosts like the dark…'. These ideas are based on the pseudo-logical reasoning that if an apparition is experienced in the dark, 'it' (i.e. the apparition) is dependent on the dark. Again, it is

assumed that an externally existing and aware object is present, and not for one moment is the notion of hallucination entertained. It follows that vigils must try to recreate the same environment in the hope it may 'trigger' such happenings. Let me explain further the pseudo-logic here:

Assumption (i): that the dark and the phenomenon are causally linked and dependent in some way
Assumption (ii): that recreating the same environment may act as a 'trigger', though how this happens is never explained

Assumption (i) is similar to the earlier examples, in that it assumes an unspecified, undefined external mechanism with undertones of 'intelligence' on the part of the phenomena. There has never been a theory proposed which concentrates on the 'event' notion of apparitions that has explained how the dark can create, produce or is conducive to such phenomena. By the same token, many of my earlier points outlined the multitude of considerations with regard to the dark, arousal, expectation, etc., all of which converge on the dark being more conducive in an experiential sense, thus creating the most productive environment possible for illusions, distortions, 'corner of the eye' phenomena, and even complex hallucinations. If these areas of research are of interest to you, then vigils in the dark are your best bet. However, most groups are concentrating on 'event' aspects of the equation, something they have distanced from experiential explanations (with no evidence, I might add) and pursue such activities on the premise that 'ghosts exist'. I would argue against this interpretation and I would add that such methods make such distinctions between event / experience difficult.

One point is particularly important here. It is worthwhile trying to recreate such scenarios when dealing with witness accounts. But you would, or should, do this long before the vigil stage of an

investigation (eg. as part of a site examination or testing statements etc). The potential role of lighting in optical effects does need to be ascertained, but not in a vigil *per se.* In this sense recreating lighting conditions, all lighting conditions, is important. But the critical difference here is the assumption we are making regarding the recreation of lighting conditions available during any experience.

As mentioned earlier, how can such ideas be consistent with the notion that so many experiences take place in good lighting? Indeed, this is a common counter-argument whenever sceptics try to explain strange experiences via poor lighting. So now paranormalists are saying that such phenomena are not dependent on the dark, and thus yet again we go full circle. What all of these contradictions may, of course, indicate is that most of the commonly touted information on apparitions is incorrect, unhelpful, misleading and is hampering research a good deal. What we need to do is tackle these inconsistencies head on and ask how we can improve the situation. The first step is to acknowledge that there is a problem. For instance, vigils in the dark are conducive only to misperceptions and fraud, two elements researchers should be trying to eliminate. Any theory, paranormal, neurophysiological or psychological will need to be able to stand up to these criticisms.

With assumption (ii) the idea of an environmental cause again assumes some vague, undefined mechanism via which an ill-understood phenomenon is said to be triggered by an equally vague and nebulous mechanism. This idea of an environmental trigger (in its usual guise) is yet another incarnation of the fundamental assumption that runs through many vigils. That is the idea that there is an external / environmental cause or factor. Why should recreating the environmental conditions (eg. room lighting) trigger anything paranormal just because, for example, an individual had an experience with the lights off? Again, how can

such ideas be consistent with the apparent wide and varied conditions in which such experiences are said to occur. Surely, in a typical situation, lighting conditions are quite average on a night by night (or day by day) basis. Presumably the phenomena do not take place every night, so I completely fail to make the somewhat unquestioned jump of causality in reasoning.

Case Specifics and Generalizations

One theme we have encountered on more than one occasion here is the often ill-defined relationship that seems to exist between the 'occurrences' of a specific case and the notions running through general 'apparitional lore'. The problem is that general apparitional lore filters its way into those conducting vigils. Where do such ideas come from and are they useful? The ideas come from the turn of the last century and romantic literature. Generally speaking, such notions are not useful for understanding such phenomena but they may help generate one or two useful questions for us here. There is a great contradiction (as this paper repeatedly shows) between researchers' and general claims regarding the paranormal. Some of these are totally inconsistent and unhelpful, and some reconcilable with further research. Many inconsistencies could well be 'pseudo-inconsistencies', where we compare our findings with arguments that have no basis in anything other than belief and superstition. These issues are complex, I raise and acknowledge them here briefly purely for the reader's own contemplation. One solution for all of us might be to reject outright all of this parlour room nonsense and base all our ideas on new information gained in a proper context.

Summary of the main problems of vigils

- the fundamental assumption that there is a paranormal, external, event-related aspect to apparitional phenomena that exists independent of individuals (and possibly intelligent)
- the expectations and assumptions of team members expressed in vigil design
- the lack of consideration or provision made for alternative explanations
- the manner in which pseudo-ideas are represented in an almost unquestioned manner in experimental design and subsequent happenings interpreted in terms of them (self-fulfilling)
- the use of poor methodology (eg. vigils in the dark)
- the lack of clearly stated hypotheses in relation to vigil set up
- the highly variant theoretical starting points that investigators choose to proceed from
- the total contradictions in so much of the ghost-lore approach which apparently go unnoticed and are selectively chosen to suit the particular arguments at any one time
- the majority of vigil equipment is externally directed

Conclusion

With this paper I have tried to highlight just some of what I believe are the fundamental problems with contemporary research into apparitional phenomena. ASSAP will greatly benefit from the ensuing debate, I am sure.

Vigils and Tools

by Maurice Townsend

Readers will have noticed that Jason Braithwaite's controversial articles dominate this issue of *Anomaly*. With six months to wait before any comments can appear on Jason's opinions, I have inserted this article in the middle to bring some initial thoughts on his opinions to the readership. This is not intended to stifle debate but rather to kick it off. We welcome your views on all of the articles, including this one. We look forward to your comments.

I believe that Jason Braithwaite has made some important points about the way we are conducting research in ASSAP at the moment that should be welcomed. I would like to make some initial comments on his first article, about the way vigils are conducted. Then I will introduce his second article about the use of electromagnetic instrumentation with some thoughts of my own on that subject.

Vigils

I have to say that, in general, I agree with Jason's criticisms of the way some vigils are currently organised. Having said that, I do think there are some points that need to be made in answer to his criticism of current methodologies.

One of Jason's most important points is that we are basing our vigil techniques on implicit assumptions about apparitions. I believe many of these assumptions derive mainly from the extensive literature on hauntings. They are, in fact, derived from witness testimony. To that extent they are theories based on empirical evidence (but see below). However, I would agree with Jason that

ghosts could be entirely hallucinatory, in which case the theories that assume ghosts to be external to the human mind may be entirely wrong. I therefore think he is right to say that we should not assume anything about the nature of ghosts in vigil design.

As anyone who has been on the ASSAP Training Course will know, I do a section on the theory of paranormal research. In it, I suggest a method of assessing how objective (or 'external') an event might be by the use of controls. I suggest that each incident in a case be given an arbitrary score, between 0 and 10 (where 0 is a complete absence of controls and 10, laboratory conditions), which effectively measures how objective the experience is. This, admittedly crude, method can be used both for the original witness testimony (where there may be informal controls) and subsequent vigils (where there are deliberate controls). The controls are designed to eliminate the possibility of misperception (simply misinterpreting something normal as paranormal), fraud and hallucination (for instance, if other witnesses see exactly the same thing or an instrument records it, it is probably external). I further suggest that incidents are not given paranormal classifications (like 'ghost') in reports but described in simple neutral language ('a figure was apparently seen to vanish into a wall'). I would therefore suggest that ASSAP has not been encouraging assumption-led investigations.

What is required in order to establish whether ghosts are really an internal phenomenon is to have a witness fully 'wired up' when they see a ghost in a fully 'wired up' room. For the witness, this wiring-up would consist of as many ways of monitoring brain function as was practicable. For the room, it would consist of as many instruments to measure physical environmental quantities that could be afforded.

There are, of course, many practical problems with this ideal scenario. The cost, for one, would be astronomical. Secondly, these phenomena are, as anyone who has been on a vigil knows, frustratingly rare. In addition, experts would need to be on hand to interpret the readings from all the complex instruments to make sure we understood what was really going on. The only way I can see this happening is by encouraging the cooperation of such experts, who would own and be competent to run such equipment and would attend vigils out of their own interest.

I would now like to look at some specific points that Jason has raised. He feels that our concentration on external events shows an implicit assumption in vigil design. This may be so, but some of the bias may be due to cost! Quite simply, it is cheaper to buy a digital thermometer or a video camera than an EEG. Also, we do cover the possibility of hallucination by the strict use of pairs of observers on vigils, which ASSAP has always advocated. Of course, this does not eliminate the possibility of hallucinations caused by external EM (electromagnetic) fields. Perhaps we should look into having TWO pairs of observers monitoring a single location from different viewpoints, where the distance between the pairs might help to eliminate the possibility.

I still believe we should use whatever instruments we can afford, to monitor the environment during vigils. This is simply because we don't know, as yet, what causes the experience of ghosts. Also, of course, there have been instances of external phenomena actually being recorded on instruments. The most famous one in ASSAP's investigations was the rattling door in Dover Castle. If it is possible to cheaply 'wire up' subjects to monitor them, then I am all for it (though not instead of environmental monitoring, otherwise we are again becoming assumption-led). Also, I totally agree that if we are to use environmental monitoring equipment then we must be able

to accurately interpret the readings. If we don't know what constitute 'normal' readings then how can we possibly claim to observe 'abnormal' ones?

As far as holding vigils in the dark is concerned, I really cannot defend the practice. The ASSAP Training Course notes do not actually advocate holding vigils in the dark, though it has been recommended for low-light phenomena (which have been photographed on ASSAP vigils). However, this involves only a small minority of cases. I have to say, I think Jason is quite right on this. Let's have vigils in the light! Incidentally, rather than being 'scared half to death', I find the dark in vigils more conducive to sleep (which is not entirely useful for observation either)!

On the subject of 'suppressing' phenomena, let us not forget that Schmeidler's 'sheep/goat' experiment (and others subsequently) demonstrated the 'experimenter effect' in the laboratory. And in the context of 'field studies', Ken Batcheldor, a respected paranormal researcher, published a theory based on his extensive research with sitter groups (table tilting). His theory was that external phenomena (table movements, sounds, lights, etc.) could be unconsciously produced by the people taking part in the session. He proposed that if people were consciously aware they were producing PK, a barrier to the idea in their unconscious mind would stop it. Therefore, he deliberately introduced ambiguities, eg. multiple participants (so that everyone would think it was someone or something else 'doing it'), darkness (for sensory ambiguity) and even a little deliberate pushing, just at first, to start things off. Subsequent phenomena, such as full table levitation, became unambiguously extraordinary. However, when he tried to record the sessions with infra-red video, full levitation was never achieved with the camera on, even when he was the only person in the room aware they were being filmed!

The method of suppression, in this theory, is in the mind of the participants who are producing the phenomena.

We should, therefore, include the possibility that external phenomena could be produced internally by people using some form of PK. I would, therefore, propose that, while most sessions in a vigil are held with the lights on, there could be one session with them off. In the dark session no phenomena would be regarded as objective unless there were multiple witnesses and / or instrumental recordings.

Measuring Electric and Magnetic Fields

Jason's second article discusses the measurement of electromagnetic (EM) fields on investigations. He raises the important point that, while EM meters have become popular on investigations recently, the equipment in use fails to address the most important theory currently linking EM with paranormal phenomena, and so he questions their usefulness. I have to say, I agree with his views on this subject.

I have looked at what is available at a reasonable cost for amateur paranormal investigators and tested some units. I was not encouraged by what I found. While I applaud the idea of using whatever instruments we can on investigations, we have to understand the limitations of cheap equipment and not read more into data so obtained than is scientifically justified.

Unfortunately, the kind of equipment that would be ideal (see 'The Right Tools' in this issue) is very expensive, though it might be possible to hire it. What cheap equipment exists is mostly aimed at environmental monitoring for health and safety. Most meters available are deliberately tuned to pick up 50 or 60Hz AC electric or

magnetic fields produced by mains appliances and wiring. Some don't even give a reading but merely switch on a light if a particular threshold (based on safety considerations) is exceeded.

I have never been convinced that monitoring mains-produced EM fields is particularly useful. Reports of apparitions predate the introduction of mains electricity and, to this day, there are reports of ghosts outside buildings well away from electrical installations. It is possible, of course, that excessive mains fields could affect people but scientists have still not yet reached a consensus on the subject. If we are looking for 'Persinger-type' fields (see 'The Right Tools' in this issue) then we need to look at frequencies below 30Hz. I have not come across any cheap instruments that can sense those frequencies, though I'd love to hear if anyone else has.

Another cheap meter sometimes available is the 'DC' or earth-field type. I have seen types that only react if there is a change in the local field and then fall back to zero. This means you have no idea of whether the current field is high or low, or rising or falling, only that it is changing. Interesting though this information might be, I can't see how it would tell you much about the origins of the paranormal phenomena. What we really need to know are field strengths, direction and frequency (preferably between 0 and 50Hz, with spectrum analysis). I have recently seen a new, reasonably cheap, digital meter that at least shows you DC magnetic field strength continuously. It's a move in the right direction but still well short of ideal for our purposes.

The biggest concern with cheap instruments is, however, the way readings are being interpreted. When changes are noted in EM fields, observers should be trying to see if they are natural variations (eg. solar storms, operation of electrical equipment, movement of magnetic objects, etc.), but I have not heard of many

people doing this. If we saw an unexpected light on a vigil we would investigate to see if it had a natural cause. So why are EM fields any different? If you don't know what could cause such changes naturally, how can you possibly say if they are abnormal?

The Right Tools

by Dr Jason Braithwaite

Many researchers now routinely measure electromagnetism (EM) on investigations. Jason Braithwaite feels that existing instruments are inadequate if we are to find out anything useful about the possible contribution of EM in the paranormal.

Recent advances from cognitive neuroscience have revealed that particular magnetic and electromagnetic fields (MFs / EMFs) can induce strange and exceptional human experiences under controlled laboratory conditions. Many of these experiences mimic those reported spontaneously in more natural everyday settings from individuals. Examples of this include instances of temporal-lobe epilepsy, migraine attacks with aura (visual hallucinations) and even the perception and experience of apparitions in normal waking adults. In the case of apparitions, researchers have argued that such EMFs (or some aspect of them) could be present at locations that seem to produce multiple instances of these experiences spontaneously (though the natural source of such fields remains unclear). Although laboratory-based data clearly demonstrate that the brain can indeed be stimulated by such EMFs (resulting in a strange experience), it remains to be shown whether these fields are actually available naturally in the real world. Furthermore, EMFs have never been empirically quantified with the commonly reported experience of apparitions. Therefore, the EMF / brain account remains to be systematically field-tested.

The EMF / brain account basically states that complex EMFs of particular frequencies and strengths available in particular environments can stimulate the brain and induce strange, anomalous experiences. Therefore, the experience of, say,

apparitions may represent an instance where an observer has been exposed to such complex EMFs. Although a good deal of research is needed to refine this idea, the laboratory data are both interesting and convincing. However, as noted above, despite the data from the artificial inducement of such experiences, there has yet to be a detailed plausible study that tests this account in the real spontaneous situation.

One way to field-test the EMF / brain account is to take regular field measurements from environments that have been reliably shown (by serious investigation) to be associated with repeated spontaneous strange experiences and compare these with a number of other comparison sites chosen to act as baselines. Such locations may represent a natural environmental setting for spontaneous MF / EM- induced hallucinations. If this account is accurate, then such findings would have important implications for both environmental physics and brain science.

The Challenge

Unlike other attempts to account for such experiences, the EMF / brain account provides a testable framework for the occurrence of such spontaneous experiences. This does not mean that it is necessarily correct in its current form, just that it is certainly worthy of investigation. A project designed for the purpose of monitoring EMFs would illuminate our understanding of such strange experiences even if such fields were NOT responsible! The challenge for researchers now is to try to provide a framework for carrying out meaningful research directed towards providing a more refined picture of EMF variance and its potential links to the human brain. To do this properly requires considerable skill in research design and interpretation as well as the correct use of appropriate technology. This paper will address the latter, and I will

attempt to outline what an appropriate measuring system ought to consist of if our efforts are to be truly worthwhile.

Many researchers and groups are now trying to investigate the link between magnetic fields / EMFs and strange experience. The problem is the EMF / brain account is often misunderstood. A good deal of hard work and effort on the part of researchers is going to waste due to such misunderstandings, poor assumptions and even worse experimental designs. Also, a big problem is the technological aspect of actually field-testing the EMF account. What sort of fields do we need to look for? What field strengths? What field frequencies? What about the role of DC magnetic fields? What about AC fields? In this present paper I would like to discuss some of the important technological considerations involved in choosing appropriate devices geared towards measuring such fields. That is to say - to ascertain the usefulness of devices that are commercially available for research as well as looking at important issues we all need to consider if we decide to go down this path.

Some devices and some problems

Many research groups have tried in the past to accurately measure a number of electric and magnetic components at specific locations of interest. However, due to either poor funding (most researchers give their time voluntarily and are often not funded on these projects), poor theory, inadequate experimental design or perhaps a lack of understanding of EMFs, this work has been somewhat fragmented and unhelpful. This means that the majority of data so far gathered, though interesting, are largely uninformative.

The use of EMF meters is discussed briefly in Maurice Townsend's article elsewhere in this issue. However, for me a BIG problem is the way such devices are being used. That is to say the context in

which measurements are taken. Many researchers seem to assume that when they observe a field change on a meter 'something' is really taking place - not necessarily so. Groups seem confused and seem to believe that they are carrying out important research that directly bears on the EMF / brain account - it certainly does not. This could be applied to any device / meter in principle and it could reflect many things. For instance, a lack of experience in measuring such fields, lack of understanding of how such fields occur and vary naturally, a lack of appreciation of the way in which the device should be used, and an inability to interpret results in a meaningful manner. Even if we assume an appropriate device is being used - the importance of context does not diminish. How are you going to take readings? How are you going to interpret them? How are you going to decide that some given reading is 'odd'? Based on what criteria can you claim an 'anomalous recording'? Much of this may reflect the need for proper research design, and I will cover important issues relating to this in future articles, suffice to say here that existing meters / devices may well be inappropriate but the correct use of such technology is equally important.

A Useful Device

So what should one be looking for in a device? This is not an easy question to answer, as it may depend on the questions you are asking in relation to EMFs. I am not a physicist, electrical engineer, or radio enthusiast, but I can tell you from discussions with experts in all these fields that measuring EMFs is not as straightforward as it may, at first, appear. Indeed, a number of recent protocols have been devised by scientific industries to enable reliable and accurate measurements to be taken. So the problem is not simply one limited to paranormal researchers and our possible lack of understanding in certain areas. I will outline what I regard as a minimum requirement for an appropriate system. These suggestions are based

on neurophysiological evidence for EMFs known to be important for inducing hallucinations.

I do not agree that, because we know very little about how such fields could be involved, we therefore need to measure 'everything'. There are a number of reasons for this. For instance, if it were possible to get such a system, I would imagine that it would be extremely expensive. Furthermore, it is not clear how you would be able to interpret all the data (assuming you get the time in the first place). So I find the idea limited in application. I think a better approach is to look at the experimental studies and see what they have identified as being 'experience-inducing' fields.

Neurophysiological evidence

The notion that weak magnetic fields can induce hallucinations has been pioneered by Dr Michael Persinger. Dr Persinger has published widely on a technique he has developed for inducing all aspects of strange experience artificially in the laboratory. Many components of the out-of-body and near-death experience can be induced, including: seeing oneself from outside the body, travelling down a tunnel of light, conversations with spiritual beings, etc. The same holds for apparitions: seeing figures, sensing a presence, hairs standing on end, feeling uncomfortable, hearing noises / voices / music, sensations of being touched and / or grabbed, and so on. Applied to the spontaneous situation, the argument goes that the experience of apparitions may be due to such fields existing at locations and stimulating the brain - the result is a strange experience that is in reality a magnetically induced hallucination. There are no ghosts or spirits, no externally existing intelligence in the room - the experience is in your head. The only component existing externally to you is the EMF.

Differing brain regions can be stimulated to produce differing aspects of the experience. Much of the evidence has been cast as being in terms of temporal lobe stimulation. This may be true to some degree, but the temporal lobe enjoys large interconnectivity with many other cortical and sub-cortical regions. Although such fields may be directed towards the temporal lobe, the resulting experience is likely to draw upon many brain regions. It is my personal opinion that these other regions will include the dorso-lateral pre-frontal cortex, the superior temporal sulcus region, and deeply embedded limbic structures like the hippocampus and amygdala. Nevertheless, the main take-home message is that particular EMFs have neurophysiological correlates and consequences for conscious experience.

EMF Characteristics

Dr Persinger generally refers to the fields he uses as weak-complex electromagnetic fields. Based on work he has published on inducing near-death experiences (NDEs) Dr Persinger describes the following general EMF characteristics. Complex sequences of weak magnetic fields are applied to the brain via solenoids that are worn by the participant in a modified helmet construction. These complex fields can consist of frequency-amplitude or phase-modulated sequences of patterns controlled by computer. Waves are 'pulsed' to create more complex sequences of fields. The intensity of the fields typically used are generally in the range of 0.1 - 1 microTesla (mT), though as much as 5 mT have been used in some cases. Dr Persinger argues that field complexity rather than excessive field magnitude is an important factor. Incremental voltages (that are digital-to-analog converted) typically could involve 200 - 10,000 sequences. These pulsed fields can be emitted themselves in short bursts of, say, 3ms (3-milliseconds) duration every 3000ms / 5000ms for a period of between 15 and 30mins (it is not clear if increasing the

magnitude reduces the exposure time). Varying the number of bursts and their duration applied to varying brain regions creates many distinct experiences. These fields interact with and stimulate the natural temporal processing patterns within localised neural systems. The resulting change in brain wave activity has consequences for conscious experience. These are findings from the laboratory. Our job as researchers is to ascertain the possible natural and spontaneous environmental homologue of these fields. The problem is that these homologues themselves may well be legion.

Nevertheless, based on these findings, I would argue for a system to be able to do the following. Firstly the system should be portable, and useful for both internal and external building measurements. The device or system ideally should be able to continuously measure (I) the magnetic field strength, and (ii) field frequency at a given strength (for AC fields). The measuring of strength and frequency combined is particularly important for quantifying the fields in a detailed way. Overall field readings and deviations would need to be quantified. Multi-axis (3-way) measurement is also something that would make measurements more meaningful and comprehensive. A sampling rate of 1-3 seconds (or better) would also be helpful. Ideally a device that can cover a frequency spectrum from around 0-500Hz would be very useful. Fields as low as 27Hz, 14Hz, and 7-12Hz have been suggested as being particularly important. Most commercially available devices measure into the MHz range, but few go down to <30Hz, and even fewer do so reliably. Furthermore, devices calibrated to, say, 50-60Hz optimal may be of little use to your needs (eg. ones calibrated specifically for powerline frequency only). If the device can go down to 5Hz or so, it needs to be able to do so effectively. The brain generally operates at 2-50Hz, and these very low-frequency fields have been implicated in brain stimulation studies.

Field strengths can vary in their ability to stimulate the brain, though these too seem to have a particular range of interest (we are currently awaiting the data on field strength and stimulation, but accuracy in the microTesla range seems appropriate in order to be consistent with other scientific data). For instance, as mentioned above, 1 - 5mT have been documented as having brain stimulation properties over several tens of seconds. A device that measures field strength in terms of increments of 0.5 mT could seem helpful. A spectrum analytical component would also be extremely useful , as we have been informed that this could indicate the presence of carrier and harmonic waves, which may vary in terms of their ability to induce strange experiences. Simply measuring frequency alone, or strength alone may misrepresent other important EMF characteristics. This, of course, could be done by separate software complementing any device - though you need the system to give you the option. Sensors and meters should also be interfaced to computers so you can log all data for further analysis away from the field. Some other suggestions have been to configure numerous sensors together in an orthogonal manner so as to be able to plot any field anomaly that may occur in this virtual space (though this is unlikely to be productive with such low frequency fields). Such a configuration could allow for the monitoring of field direction through space. However, opinions differ on this issue. A system based on these requirements should be able to indicate the presence of the types of EMFs that have neurophysiological consequences - for both AC and DC characteristics.

There are some devices on the market that may meet some of our requirements. Although it is unlikely that such systems will be optimal for all our needs, they may be entirely useful. The main problem with many field meters is that they are not optimal at low frequencies (not very sensitive); they often only record in one direction at a time, are not compatible with computers, or provide

no way of sustained recording of fields. Devices we have found at present that can meet many of our requirements are also expensive, approx in the £6000 / £7000 range for meters, appropriate probes, and supporting software. Nevertheless, some systems do exist for EMFs. Most notably the PMM8053 ELF meter coupled to the EHP50A probe and the EFA 200 / 300 series (by narda systems) seem to be the best on offer from the manufacturer market that we can find for EMFs (note that these are not DC devices). Other devices could prove useful for other tasks, more general surveys, site examinations, etc., however for the level of quantification we would like to carry out the PMM or EFA systems seem a very attractive option. These systems are far too expensive to buy - but can be rented from companies in the UK. In terms of sensors for measuring natural geomagnetic deviations etc, these can be cheaper. Good sensors are available from Speakesensors.com and AppliedPhysicalsystems.com. These seem to be state of the art sensors and, with the correct hardware and software, could meet most of your needs for measuring important components of both DC and AC fields.

Some Final Thoughts

It is important to note, and be clear about, the fact that laboratory-based research has typically used very low-frequency, complex, varying electromagnetic fields to stimulate the brain. However, this does not necessarily imply that other types of fields could not also have brain-stimulation consequences and thus be important for us to measure and quantify. The method used in laboratories is mainly one of convenience: it is a paradigm that illustrates some conditions under which such effects can occur, not all the conditions under which such effects could occur! An experimenter uses a computer to generate an electric current and create magnetic fields that can be manipulated quite easily. Therefore, we should not take the actual

method too literally, just as a guide to inform our needs. It is up to us as scientific thinkers to come up with plausible scenarios in which such effects could occur. However, I would like to make the following observations. It is unlikely that the important fields involved will be greatly weaker than the background sources - as this would predict far greater experiences than those recorded. Also it is unlikely that exceptionally high-frequency and / or strong fields are crucial. Such fields are far too rarely available to be responsible. These general observations should help you decide on a range of characteristics that suits your needs and questions.

Summary

Getting the right equipment is only part of the story. Getting the wrong equipment, or using equipment incorrectly, means that the story you are constructing is little more than fiction. It is not easy to know how to measure so many variables in a helpful and appropriate way. If in doubt, seek advice from people who may be able to help. There are lots of cheap meters available but few, if any, are helpful in paranormal research. The main purpose of this paper was to point out some important shortcomings in both cheap technology and the assumptions of inexperienced researchers. I hope some of the information covered is of use to groups in identifying the need to record these environmental components as effectively as they can.

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