

ANOMALY

JOURNAL OF RESEARCH INTO THE PARANORMAL

The Association for the Scientific Study of Anomalous Phenomena was formed in 1981 to study a wide range of paranormal phenomena. These fall into the broad categories of psychic phenomena, earth mysteries, Ufology and Fortean phenomena. ASSAP holds no corporate views and the views expressed by individual authors are their own.

Anomaly is sent free to all members of the Association or is otherwise available for £2.50 (\$5).

ASSAP is a registered charity (327422) and a company limited by guarantee (2075226).

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Printed by Cambrian Printers, Aberystwyth

EDITORIAL

Following many years as Anomaly Editor Maurice Townsend has moved onto other projects. Veteran Maurice left big shoes to fill and, as you can see, it took a whole team to fill them. Anyone who would like to join the Anomaly team please email us on anomaly@assap.org

You'll also notice we've invested in the physical production of Anomaly; we hope you appreciate the change.

This May's edition of Anomaly sees Ian Stevenson's reply to my article of Issue 39 by considering the role of mediums and the clergy in relation to paranormal client care whilst Stefan Lobuczek writes to us with his thoughts on the future of Electronic Voice Phenomena (EVP).

Finally in this issue is an article presenting ASSAP's funded research into the causes of orbs. As a postscript to this article a website 'The Orb Zone: Orbs Explained' is now online, presenting a more accessible 'user guide' to orbs. It can be viewed at www.theorbzone.com.

CORRESPONDENCE

To the Editor,

BEFORE WE LIMIT PARAPSYCHOLOGY

I would like to comment on Dave Wood's article. His findings are interesting but much what I would have expected. People will usually acknowledge the value of qualifications over amateur involvement in most things; possibly less so in health matters. However, I think the field is wider than the one he examines (although I appreciate the limitations of time and other resources).

He raises two issues. One is the care of people asking for help. The other is the issue of researching events and analysing them. These matters can coincide but also have their separate elements. The article also argued for parapsychologists being "properly qualified" whom he indicates as academically trained in psychology or another science. I don't disagree with that but would suggest the investigative field is much wider and there is value in not limiting it to those validated, as it were by the Parapsychological Association.

OTHER 'CARERS'

It seemed to me that in his comparison, Dave missed out the two groups that, in my experience, most people resort to when involved with the paranormal, namely mediums and clergy. Counsellors and other therapists can also become involved. The clergy vary tremendously; from Evangelicals who tend to regard all spirits as demons, to Anglicans who often have a pre-ordination training in a relevant discipline as well as their own church's experience which has developed over a long period. I have observed a member of the clergy working with a young woman in the situation Dave describes, and was very impressed with his care.

Mediums vary and are not often taught formal counselling skills. However, mediums can undergo a long period of training and in the larger organizations have to perform and be assessed. Not the training Dave would advocate but they are not "a couple of weekends" and involve a sustained period of effort. Some of them are very well read in

the subject, including the scientific literature.

Mediums and clergy also have an explanation or, at least a frame of reference, but their function is mainly concerned with care of people (including dead ones?!). Their viewpoint is subjective but observation of the subjective could also be a pointer to the reality of what is going on.

I am involved in the first activity of caring for people, from time to time, in my role as a counsellor. I do not visit the site of the alleged manifestation, and it is very rare that the issue is the reason for the primary approach to therapy. There is, in practice, little specific guidance for counsellors in primary care; it being assumed that they continue the process of counselling when so confronted, unless there are clear indications of pathology.

There is a school of psychotherapy, Transpersonal Psychotherapy which does involve a conception of Humanity which goes beyond the psychical and ego based therapy of the other schools (although practitioners have their varying opinions). The work of Carl Jung and Roberto Assagioli, figure highly in their core texts. Their work seems to bring about healing for their clients, though this raises issues about how we are healed.

I recently chaired an informal group of primary care counsellors (not Transpersonal) to discuss how we should respond when clients tell of paranormal experiences. We found that when most of us were trained, any confession of hearing voices or seeing apparitions, at least on a frequent basis, was taken as evidence of pathology or that we should be looking for other evidence to confirm or deny a psychiatric state. My own and colleagues' experience of this is that most of the times clients have presented such experiences, they have not been drifting into fantasy or showing psychotic symptoms.

Psychiatrists were renowned for their intolerance of any dealing with the supernatural. They have to train as doctors before majoring in psychiatry and, according to some people, are selected for their initial training by their science A levels passes rather than their interpersonal skills; fortunately many of them develop these skills later. However, even here things are changing and the Royal College of Psychiatrists have special interest groups including one in spirituality. Some of the papers published in their newsletter on the website make very interesting reading in that attitudes in a part of the profession are

shifting to a more sympathetic appreciation of the supernatural. Their experiences are being assessed against traditional spiritual teachings and, for example, near death experiences. One could not dismiss psychiatrists as not being “linked with any professional research, articles or institutions.” As far as I am aware they do not usually visit the sites of manifestations, although some have reported personal investigations, e.g. in regression therapy.

I agree with the idea of a code of conduct in general terms and return to the issue below.

TWO DISCOURSES

We have two dominant discourses in this field. One holds the “Folklore” explanation of discarnate spirits and other entities. The other, which we might call the “Sceptic” version for the purposes of this article, assumes that we can’t make definite pronouncements as we don’t have scientific verification. A tentative hypothesis of this view (though sometimes it is more emphatic!) is that the various phenomena are the result of illusion or delusion, poorly understood or even as yet unexplained products of the material world as investigated by ‘conventional’ science.

I think Dave is right to raise the question as to whether non-academically verified investigators, “amateurs”, can make advances in the field of understanding. The answer is not unequivocal, they have done so in other areas e.g. Gregor Mendel, although his method was scientific. I expect readers can think of other examples.

I feel there is a danger that we can claim too much knowledge and dismiss other experiences too easily. Physicists have enormously advanced our understanding of the world but to make their models of the universe work, have had to invent concepts of dark matter and dark energy which is supposed to comprise 95% of the universe! One can see parallels.

STEREOTYPES?

An incident occurred to me two days after reading the Anomaly article. I was speaking to a friend who is also a Spiritualist medium. He was saying that he was called out to a couple who were experiencing

poltergeist phenomena, which were also independently observed. This friend really believes that he talks to spirits of the dead. He is convinced his beliefs arise from his experiences, not that he sees things in the light of what his church teaches him. After using his 'powers of attunement' he came to the opinion that the effects were a product of a discord between the couple. He explained things as he saw it and said, "talk to each other and I'll see you next week." When he came back, they had come to an agreement and the effects had ceased.

The thought which arose for me was whether a member of the Parapsychological Association would ever be able to say "Mr and Mrs Jones, on the basis of the evidence here, I think you are being haunted by the spirit of the former owner of the house."?

The "mission statement position" is that one should be open minded. Certainly in the past, I get the impression from what I have read, that he would have been told he had stepped outside scientific boundaries and become a 'believer'. I don't know but can a member of the PA 'believe', without compromising his standing among his colleagues?

DR. C.F. OR MR. C.F.?

Part of the fear of bringing paranormal experiences to therapy is the fear of being thought mad, which is a fear caused by the condemnatory attitude held by high status thinkers until recently. This might be one factor in the responses to question 8. "*I feel a parapsychologist would be better able to resolve my situation.*" If clients are concerned by a 'haunting', who would they rather have to help them, Dr. Chris French or Colin Fry?

I am sure Dr. French is a well qualified and compassionate man and if these events happened to me I would be pleased to host him. He might find a physical cause-such as a mundane explanation which Colin Fry might overlook.

On the other hand, I think most clients would prefer Colin Fry because of his caring manner and because he could offer some explanation. Now this could be just the comfort of a good story but being able to place what happens to one in a context, is reassuring, even if others might decide that the event was only a misinterpretation of one's sensory input. It restores a degree of control to the client.

This is where the two issues come together and helps to explain Dave's findings. Clients want reassurance or explanation or both in order to make sense of their experience. These are the issues I have seen clients really struggle with. Reality is something to be faced and the more we know what is going on, the better. It is all too easy to say people believe things to feel better. It is not always the case and not all of reality is measurable.

Dave Wood is a co-founder of Paranormal Site Investigators. Going onto their website I was interested to note that they are willing to signpost clients to mediums if that is the solution they are looking for. I think this is to be applauded.

PROFESSIONAL ISSUES

I shall now turn to the question of professionalism and accountability which Dave compared to that of doctors and lawyers. There are some comparisons but they are not as exact as was implied. Any profession has two inter-related parts; the content of the knowledge and the process of working with and extending that knowledge.

The process in parapsychology is that of science and much of the knowledge we have was derived from earlier endeavours in that field; the so-called Newtonian-Cartesian approach. The difficulty with parapsychology is that the phenomena to be studied is transitory, it is difficult to isolate and exclude variables, and difficult to repeat. Other explanations can be offered and are difficult to substantiate or disprove.

The content of agreed knowledge in our field can be contrasted with say, biology. The corpus of knowledge of things measured, classified and understood is huge. Although there is still much to be discovered, biologists don't have to say "what is a liver for?" In parapsychology we have a pile of data but don't have a consensus whether, for example, hauntings are sometimes caused by the remaining consciousness of people who once inhabited physical bodies or are "all in the mind". It is a young science and, perhaps, in a similar position to astronomy a century or so ago?

Counselling is becoming increasingly professionalized and, to use a horrible word, academicized. In today's world, an arguably necessary

process, but here are disadvantages as well. I come across trainers who bemoan that some of their best students, in terms of empathy, presence and ability to sit with pain and confusion-just can't write good essays. Equally, there are students who probably will not be good therapists but display all the academic prowess which trainers need to be able to show their authenticating bodies who are looking for 'standards'. In parapsychology a cerebral process is needed for data processing and concept analysis but those who are good at these skills might not be good at dealing with distressed people, whatever code of ethics they have signed up to.

Professionalism can also lead to hierarchies, not necessarily bad in themselves, but they can inhibit creativity and fresh thinking. Psychoanalysis gives many sorry instances of this. Professionalism also implies a career structure and that can lessen the incentive to challenge orthodox thinking. Thomas Khun, who wrote about the structure of scientific revolutions, gives us some cogent examples of authorities resisting new thinking.

Dave also writes about "the standing of the profession". Parapsychology is still struggling to find academic acceptance and so is very concerned with what one may call its public image. It would seem to me that could be a pressure to emphasise their scientific credentials and play down the credentials of others to order to raise their standing. Sociological and psychological factors apply even to academic bodies. I have no quarrel with Dave's opinion about the importance of scientific method or the shortcomings of some groups, both methodologically and ethically, but I don't think the case for "properly qualified" parapsychologists is supported by asserting the need to look after vulnerable clients.

Rupert Sheldrake has recently been in the news for his experiments in telepathy. His findings were disputed in a radio conversation by Professor Atkins of Lincoln College, Oxford who when asked if he had read Sheldrake's paper, replied that he didn't need to. To him Sheldrake's work is just not valid science. I think this indicates that seniority in a profession doesn't mean that human failings are eliminated. In this case I feel it is a misuse of academic authority although I understand why Professor Atkins would not see it as such.

Parapsychologists' main expertise is research and their function is to try to explain and to integrate their findings into other fields of

knowledge in terms acceptable to the dominant scientific paradigm. When investigation groups emphasise their scientific methodology, it is mainly about the meticulous observation and recording of data, usually of alleged “haunted sites”.

Technology is useful for investigating “hauntings” but work with mediums or in regression studies calls for a different approach. Science goes beyond meticulous observation and measurement and involves the process of forming hypotheses which, we hope, can be tested by experiment. This is not always possible as, for example, the Einstein, Podolsky, Rosen paradox in quantum physics, first suggested in the 1930s, but not successfully tested until 1982.

Evidence which increases our understanding may come from advances in areas not usually linked with parapsychology. Dave rightly indicates and underlines the importance of a multi-disciplinary approach. The Scientific and Medical Network (SMN) are operating in the field of “the spiritual”. They have some very distinguished members who examine a wider field than the apparition/poltergeist area that is the main activity of paranormal groups. The SMN looks at such things as quantum theory, regression and so on; some of which is also investigated by the professional parapsychologists Dave refers to.

CONCLUSIONS

Organizations which are engaged in this area should be encouraged to produce a code of ethics for all investigating groups. They would not be enforceable as the independent and voluntary groups could not be disciplined, but it might be possible to raise public expectations so groups that cannot show a certificate of training or something similar will not have credibility. This has happened in counselling with the establishment of the British Association for Counselling and Psychotherapy.

I would like to see research about how the public compare parapsychologists with mediums, clergy-and perhaps even counsellors. Many of these are, at least, equally as good in dealing with people as parapsychologists.

If the Sceptic version of events is ‘true’ then Fry is giving comfort based on a, sincerely believed, fantasy.

If the Folklore version is ‘right’, then we could say that in reality he

“knows more”. We can’t exclude this possibility because he is not academically verified.

We “know” so little that, by paying attention to these “others” who are involved in the field, we may together come to a better understanding of what we investigate. There needs to be openness to other ways of thinking and a resolve not to let anxieties about the perceptions of people like Dr. Atkins inhibit our explorations.

IAN STEVENSON

To the Editor,

ON THE CASE OF EVP

INTRODUCTION

Firstly I do not profess myself to be a scientist. I am however a professional with 25 years experience in information technology. My specialist skills are digital network management, fault finding and diagnostics. I have also spent many years as a radio enthusiast and have hand built my own radio receivers / transceivers and test equipment.

My primary interest is Electronic Voice Phenomena (EVP) but I could have said my primary interest in the *paranormal* is EVP. I actually believe that everything is plain normal and is as to be expected. The fact that we don’t understand something doesn’t make it paranormal for me as I believe the nature of everything to be perfectly normal.

The following consists of a number of theories of mine that might explain certain aspects of the Electronic Voice Phenomenon. Although still very much theory my research to date in unison with my colleagues in Passa gives some clear indications that in part I might be correct!

AUDIO DEVICES AND EVP

This following simple theory explains how unaccountable voices might register on audio recording equipment. In the case of audio

recording equipment. In the case of audio recording devices, an analogue signal in the form of energy (an electrical disturbance) containing intelligible information (the actual sound) induces an electrical current representation into the coil of the audio device's microphone thereby skipping the microphone diaphragm stage that would have collected the normal compression waves of sound. From this point the sound is registered normally through the electronics of the audio device and stored on its media for playback.

This would explain why sometimes very loud sounds are recorded but are unheard by those present at the time.

Speculation is it would also be possible for the audio to register inversely (backwards) depending on the polarisation / phase of the source energy. This would explain those EVP enthusiasts who say they had to play recordings backwards or slow down / speed up in order to hear the alleged EVP.

THE HUMAN EAR

Now let us familiarise ourselves with the workings of the human ear. The human ear consists of three basic parts each serving a specific purpose. The outer ear serves to collect and channel sound to the middle ear. The middle ear serves to transform the energy of a sound wave into the internal vibrations of the bone structure of the middle ear and ultimately transforms these vibrations into a compression wave in the inner ear.

The inner ear serves to transform the energy of the compression wave within the inner ear fluid into nerve cells, which release electrical impulses that pass along the auditory nerve towards the brain.

CAN HUMANS HEAR EVP AS A DIRECT STIMULUS OF THE BRAIN?

Our ears are thus natural transducers but do we need them for input that arrives at the brain in an already transformed state?

The brain is able to interpret the auditory nerve's electrical impulses as sound and speech. So pure speculation is that energy waves (waves with comparable frequency / amplitude) containing anomalous (intelligible) content might get interpreted directly by the brain on contact in the same way. The brain would make sense of the anomalous

input from the unknown source because it contains intelligible sound vibrations similar in its stimulation to that of normal speech and sound.

Basically it may be possible to hear the sound in your head as a direct stimulation instead of via your ears. You would be totally unaware of this as it would still feel just the same as hearing it with your own ears.

If the above were possible then it could explain a multitude of alleged psychic experiences as being a more down to earth physical effect.

IS STATIC ELECTRICITY A BY-PRODUCT OF THE SOURCE OF EVP?

A friend and I had a very interesting telephone conversation! Basically it was to do with electricity of the static type. The problem my friend suggested was that energy of this type is stationary (i.e. denoted by the prefix, static). So his question was how can this type of energy convey intelligible analogue information? You might ask why he asked this question in the first place! The answer to this question is derived from our PASSA ongoing investigative research into EVP. It was found that spontaneous unexplainable localised build ups of electricity (non-mains related electricity) was detected in correlation to that of EVP recorded on our audio equipment.

Our research to date indicates that when there is an unexplainable occurrence of this type of energy then strange stuff happens. Anyway, all of a sudden I had an interesting thought that we both thought worthy of further discussion.

The idea is one of displacement, in that the localised static energy is displacing other matter. The suggestion that followed was perhaps that it might be this displaced matter that is conveying our elusive intelligible analogue EVP signal.

Then strangely whilst writing some notes I had the following revelation. I could argue that this displaced matter might just as easily be responsible for the build up of the unexplainable static electricity. For example when two dissimilar materials are rubbed together that are insulators a static charge due to potential difference can be achieved. So in my mind I could now see the static electricity as a by-product from an unknown energy of analogue vibration that is capable of

conveying intelligible information from an unknown source. This energy vibration could strip loose electrons from surrounding atoms resulting in localised static build up due to the imbalance of charges.

Note: dry air is a very good insulator so I would guess that high moisture content in the air might just as easily diminish our tell-tale static electrical signature.

HOW CAN THIS HELP US?

So how might the above help us? Well, in reasonably dry air conditions we might be able to use a meter capable of registering static electricity to determine the presence of other phenomena.

Have you ever had that experience of static electricity making your body tingle and the hairs stand up on the back of your neck whilst on an investigation? Well it's an actual physical experience and the electrical stimulus (i.e. static electricity in the air) can be verified using an appropriate measuring device.

Note: A localised drop in Relative Humidity (%RH) is another tell-tale signature which is sure to correlate with the above. The ambient temperature might be quite warm but a localised drop in humidity, which amounts to less water content, will make you feel cold. The air needs to be dry for you to experience the static electricity in the first place and by measuring spontaneous changes in either of these variables you might determine an indication of the presence of other phenomena.

Our team have found on occasions that EVP correlates with such episodes of activity.

Have you ever been on an investigation and felt you have come away with nothing but on scrutinising your media found that you have captured unaccountable voices (EVP)? Well, unfortunately the moisture in the air has simply robbed you of your physical experience. However the driving force that created it was still there and has still imprinted itself on your media. The static electric signature of the other phenomena has merely rapidly dissipated due to the moisture content

in the air. You might still get some static buzz with high air moisture content but if so it will feel very flat and be of short duration.

RESULTS TAKEN FROM ACTUAL INVESTIGATIVE FIELD RESEARCH

Ok, now let me supply some factual information derived from actual field research that relates specifically to EVP.

My experience of simple EMF only devices is that they fail to register any indication of genuine anomalous activity. However, Trifield meters that can measure static electricity in the air and digital meters that can measure %RH may be of considerable use.

I have noticed the following having participated in many investigations. It is possible to physically experience a localised chilling in the air and often the presence of airborne static electricity in the location of activity. This experience is non psychic as it is a physical feeling of being cold and airborne static electricity similar to that felt from the static generated from a television CRT (Cathode Ray Tube).

The chilling sensation can be measured and is due to a measurable drop in %RH that doesn't necessarily register as a decrease in temperature. The airborne static electricity can be confirmed effectively with a Trifield meter, set up to alarm on any increase when sufficiently squelched to discard accidental triggering.

The following is an example taken from a recent investigation, a work in progress still to be published because of the amount of data collected:

I set up CCTV surveillance of an area that I had personally identified as being an active area from previous experience derived from long-term studies of the premises. I placed a Natural EM Trifield meter MKI, which was set to electric and heavily squelched to avoid any accidental alarm trigger, on a chair known to have been active from previous recordings. This meter was so well squelched that even our walk by tests failed to trigger this most sensitive of devices. Keeping our distance we took the usual environmental readings and then sat quietly. Nothing happened for the most part of the session but whilst randomly questioning the whole atmosphere suddenly changed. This can only be described as a WOW sensation felt by all those present.

Unfortunately the WOW quickly dissipated and we were aware that it might have been a name mentioned that had triggered this amazing

yet brief event. Anyway, we were soon able to regain some attention as a remarkable and unexplainable sort of signalling dialogue began to occur. We asked some questions and the energy responded by triggering tone responses on the Trifield meter. If the answer was yes we got a very convincing tone response.

I had suggested that we could make it easy for the energy present to trigger our meter, by adjusting the meter alarm trigger sensitivity. This was deemed unnecessary because the meter immediately alarmed exuberantly, which was suggestive enough to us that the energy present had no problems communicating using the current meter setting.

Note: There was no physical contact by any of the team members with this Trifield meter during the session and all present were seated well away from the device. There was also no tell tale pattern in these tone responses that would indicate any artificial interference.

The CCTV recording (video and audio) plus my personal audio record clearly indicates interactive responses to our questioning. We also have EVP recordings that correspond to unexplainable tone bursts. Prior to a tone burst from the meter all those present could feel an increase of static electricity in the air. This was not a psychic experience, this was physical.

I have a theory based on my observations whilst investigating at a number of locations. On one occasion I noted that it is possible for a number of people in the same area (in this case the bar in this location) recording audio to hear an unmistakable loud noise (on this occasion a very loud whistle) and for the sound to surprisingly not register on any of the recording equipment. It was also noted that this same whistle at the exact same time registered very loudly on two audio recording devices in the cellar below the bar but was not heard by anyone in the cellar.

The time reference of the whistle was verified because our audio recorder recorded a two-way radio message from the bar team asking if we had heard the loud whistle. Our cellar team's reply was that they hadn't heard any whistle. However our cellar audio recordings from two audio recorders had on playback captured the sound of a very loud whistle a few moments prior to the bar team's radio query which was also captured on the recordings. Oddly four out of eight people in the

cellar heard a much quieter whistle in the cellar but this was only registered on a single audio recording device.

In theory I concluded that the whistle was not being communicated in a conventional manner via the compression waves of sound and that it might be due to a localised build up of energy providing direct stimuli to humans and audio recording devices on contact.

On another occasion because the location of the audio recording devices was known and an EVP event registered on a number of devices we noted evidence of a Doppler type effect. Each audio device had recorded the same EVP but slightly out of phase to each other manifesting as a slowing down or speeding up of the same audio recording on the different devices.

Anyway, I am fairly convinced that it is possible for a representation of sound to be heard but not recorded, recorded but not heard or a strange mixture of both.

WORTH A MENTION!

Ultrasonic measuring devices from our team's experience have been known to give false room measurements during periods of activity. The meters have displayed much shorter distance readings than the prior correct reading. There have been no physical obstructions present to cause such a false reading.

A theory might be that airborne static (the speculated by-product of an anomaly) might be deflecting the emitted ultrasound causing a premature Doppler shift that is thus received and registered by this measuring device. If this is proven then we may have found that these devices can be used as a crude type of proximity detector for certain types of anomalous phenomena.

THE WAY FORWARD

For starters if you have read this far I am grateful but even more so if you have read my ideas with an open mind and were to check some of my team's findings with your own research.

My theories are still in their infancy and will continue to evolve as new media and instrumental pointers guide us hopefully closer to the truth. Funding permitting I would like to gain access to a single 3 axis

fluxgate magnetometer as used in the MADS project. The idea is to time base our audio spectrum analysis system, which is laptop based, with the data acquired from the magnetometer. The purpose is to research the possibility of unaccountable EVP voice correlation with any magnetic deviations.

If such a deviation were to correspond with an EVP event but prove nominal with normal voices then this would be a significant step forward in understanding the nature of EVP.

STEFAN LOBUCZEK
(Founder member of PASSA)

A LIFE LESS ORBINARY? Accounts of Experimentation into the Natural Causes of ‘Orbs’

by Dave Wood

ABSTRACT

Previous research into ‘orb phenomena’ has been either theory-based or conducted without a rigorous scientific methodology; the aim of this study was to provide scientific evidence as to whether orbs are, or are not, caused by non-paranormal factors. Paranormal theories and two rational theories – the ‘orb zone’ and ‘blooming’ – were presented. The paper presents the results of five experiments that examine whether orb capture is associated with 1) increased depth of field, 2) camera flash operation, 3) the distance between the flash and the lens, 4) the use of digital cameras and 5) the megapixel count of a camera. Each experiment was conducted in a conditions-matched experimental (haunted) and control (non-haunted) environment. The Chi-Square statistical test was applied to the results ($>.05$) and found that orb capture was not dependent on whether the location was ‘haunted’; that increased depth of field, flash distance, flash use and use of digital cameras did contribute towards orb capture. However it was established that the effective count of megapixels made no difference to orb capture. The need for future research and explanation was highlighted, in particular the need for a dedicated website to present the evidence and theories in an accessible way, understandable by all.

INTRODUCTION

It is ten years since the USA’s International Ghost Hunters Society (2002) claims to have coined the term ‘orb’; in the UK these anomalies were termed ‘lightballs’ (Parascience, 2007). Now known ubiquitously as orbs, these anomalies are typically white (though colours can vary), typically pale (though can be bright), typically spherical (though can be other shapes) and typically caught on compact digital camera. There are uncommon instances of orbs seen by the naked eye, by 35mm camera, by SLR (single lens reflex) camera and, arguably less frequently, on video camera.

Various descriptions of ‘anomalous lights’ have been linked to experience of ghosts, UFOs, religious experiences etc., over time, and

are too voluminous to reference here. The focus of this research has been 'orbs' caught on stills camera; research into 'naked eye' experiences are beyond the scope of the present study, however the linking of eye witnessed orbs with photographed orbs shall be touched upon.

Orbs appear to be associated with 'haunting cases' where orb photos seem to be exclusively caught in allegedly haunted locations, at night and in the dark, by paranormal investigators.

Accounts like those of the IGHS and Parascience claim that the anomalies were not a subject of wide interest before the twenty-first century; there is little evidence to counter this claim. Orbs, however, were photographed prior to their widespread notice, and very occasionally identified in a paranormal context. One reliable source is *Photographs of the Unknown* (1980) which shows four orb photos, the earliest from 1907; the authors does, however, describe them as an unusual but natural phenomena.

Orbs appeared to breach the (interested) public consciousness in 2002 when LivingTV's show 'Most Haunted' first aired. Lee (2007) asserts that, at the time, Most Haunted claimed there was 'no scientific explanation' for orbs. In the following years orbs appeared to capture the imagination of paranormal investigators and the public alike. Whilst any survey of paranormal investigators in 2007 would probably reveal that the majority largely discount orbs as 'evidence', the subject still seems to cause some excitement amongst the public. The author has been contacted in several cases where clients label their house as haunted where the trigger of the belief was the capture of orbs on camera.

Whilst many researchers believe orbs have a normal explanation, no scientific research appears to have taken place to justify this opinion, beyond a (non-paranormal related) explanatory note on the website of camera manufacturer Fuji (2007). Views held about the orb phenomenon appear to be many and varied, but several distinct categories can be observed.

DIFFERING VIEWS ON THE ORB PHENOMENA

Categories of researcher belief in orbs appear to fall into the rationalist, minority belief and rejection of rationalism.

The rationalist view contends that all orbs are naturally explicable as airborne particles or similar. This wholesale rejection takes place in spite of no scientific evidence and often a poor or incomplete understanding of the rational theory (respective examples – Juliano, 2007, The Society for Paranormal Investigation, 2007). Such theorists can hold onto their beliefs despite any ostensible evidence provided to the contrary and often rely on well-intentioned but wholly unscientific experiments to justify their viewpoints (for example *Midnite Walkers*, 2007).

The minority-belief theorists assert that ‘most’ orb photographs are non-paranormal, but that small percentages of them are paranormal. Often the theory goes that the ‘standard’ white, spherical and pale orbs are normal but orb photos that occur with less frequency are paranormal; these latter orbs tend to be defined by observable differences to the norm. Examples include moving orbs, of a different colour (Wilson, 2004), multiple orbs (IGHS, 2002), non-transparent orbs (Taylor, 2003) or orbs that are not perfectly round (Eaton, 2004). In some cases theorists assign the label ‘paranormal’ to orbs if they feel the variables associated with orb rationalism (e.g. use of flash or 35mm camera) are not present (Kimura, 2006).

Rejection-of-rationalism theorists argue that all orbs are paranormal events. Such theorists seem to be fewer in number at the time of writing. Reasons presented for these beliefs include: the belief in orbs as part of a paranormal cycle (Ghosts, 2007); an instinctive disbelief in the credibility of any natural explanation (Paranormal Ghost Society, 2007; Melrose, 2007); orbs providing support following tragedies (Sipos, 2006); the conviction that orbs have been captured where ghosts have been ‘identified’ (Whitedove, 2006) and the capturing of orb photographs following the sighting of a naked-eye orb.

When considering the arguments presented supporting orbs-as-paranormal phenomena, one flaw emerges; specifically that few have presented an argument for the causes of orbs. Some such theories have been developed, however.

PARANORMAL ORB THEORIES

Previously presented evidence suggests that there was no starting theory connecting orbs with the paranormal. The origins of the

connection were sudden; resulting from photographs of orbs being taken frequently in allegedly haunted locations. This also coincided with the proliferation of digital cameras.

The rationalist explanation states that conditions for prolific orb capture are similar to those of typical investigations of the paranormal; specifically, taking photos in old houses, in the dark with cheap digital cameras. Since these conditions matched 'ghost hunts' more frequently than other spheres of life, the orbs were linked with paranormal events. It should be noted, however, that this researcher has observed that orb photos do occur regularly in 'everyday situations'. As such knowledge was transferred from researcher to researcher the theory was backed up, by way of superstition, as orb 'evidence' appeared consistent with the assertion of paranormal connection.

Whilst most belief in orbs as paranormal phenomena seems to rest with unsubstantiated paranormal or religious belief or a rejection of the rational theory, various theories have developed to attempt to explain the phenomena.

One such theory states that orbs are balls of energy being passed from natural, living or man-made sources to 'spirits' to aid their manifestation (Juliano, 2007). This theory would appear to be a justification for the phenomena by integrating with existing 'ghost theory'; this theory, however, would appear to have no scientific justification, either empirical or theoretical.

Another, somewhat related, theory states that orbs are balls of energy "existing in the semi infrared range of light" (Juliano, 2007; MPRS, 2007) and are captured by digital cameras, as these cameras are capable of capturing light in that spectrum. Again this would appear to be a case of forcing the paranormal evidence into a related scientific theory. Similarly there is no evidence presented to substantiate this theory, despite the relative ease with which evidence could be gathered.

RATIONAL ORB THEORIES

Two primary rational theories of orbs can be found. First the connection between orbs and digital camera megapixel ratings and secondly the explanation of orbs as out of focus dust – the 'Orb Zone' theory.

The theory relating to effective megapixel rates relates to the technical function of 'blooming' (Hannemyr, 2007), "the overflow of charge from [one] pixel to another, caused by extreme lighting conditions such as a bright white light next to dark edge" (UKParanormal, 2007). This theory has been rationally dismissed as a 'rectangular' rather than spherical aberration that effects a small number of pixels only; an effect too small to produce orbs of the size that are captured (Townsend, 2007). Empirical observation by paranormal researchers, however, seems to add weight to the theory that higher megapixel rate cameras do capture fewer orbs compared to their lower quality counterparts (Wood, 2005).

A number of theorists in recent years have made compelling cases for orbs as out of focus dust (Townsend, 2006; Van Walree, 2007; Wood, 2006). This is a complicated theory that will be handled as briefly as possible.

The starting point of the theory is the generally recognised fact that orbs are common using digital cameras, but uncommon when using 35mm cameras (Wood, 2005). One of the key differences between digital and 35mm cameras is the 'plate' onto which the photographed image is projected. 35mm cameras use reels of film, photos are projected onto physical film. Digital cameras use CCD (charged couple device) chips as a digital replacement; CCD chips vary in size but are almost always much smaller than the old style film (with the exception of some Digital SLRs). To maintain the image resolution, the lens of digital cameras was required to be far sharper; thus resulting in an increased depth of field (DOF). When a camera focuses on a subject, the subject is the only point that is entirely in focus. However in front of, and behind, the subject other objects are gradually less in focus. This whole field of focus is known as the depth of field.

As the DOF of digital cameras were greater, the nearest point where an object could be in focus was brought close to the camera. Thus, the point just before this area of focus – where objects are seen as out of focus – was brought closer to the camera itself. The area just before this nearest point of being 'out of focus' is an area where nothing can be seen or, technically, the area where objects are so 'out of focus' as to be so big they appear invisible. What is actually seen where an object is out of focus is the 'blowing up' of the object into small circles; out of focus objects can also be semi-transparent (try placing a finger close to

your eyes, you can see through it). These small diffuse circles are made up of ‘circles of confusion’ – the smallest area that can be seen as sharp (typically 0.05mm).

In summary, the resulting area in front of a camera can be split up into three ‘fields’. In the nearest field nothing is visible, in the middle field objects appear out of focus and in the far field objects are in focus. Each of these fields is further defined by what the camera can physically view. Therefore the only field in which dust can be seen is the middle – out of focus, and therefore much larger – field. This is because in the near field it is not visible, and in the far field it is too small to see. The reason the dust is represented as circular is because the previously mentioned ‘circles of confusion’ define it. The circular aperture of the camera in turn defines the circles of confusion. This helps to explain orbs of different shapes, particular orbs of a triangular and hexagonal shape; some makes of camera design the aperture in a geometric, non-spherical, shape.

Various factors, beyond the type of camera, contribute to the size of the DOF. The first is the distance of the subject. If the subject is further away a sharper focus is required, which in turn increases the depth of field. The other two are technical features of the camera – focal length and aperture used. These help to explain why some cameras capture more orbs than others, and why photos of distant objects capture more orbs.

A further factor that makes this out of focus dust visible, as orbs, is the amount of light needed to be illuminated. A high intensity of light is needed for these orbs to be visible. The common source of light is a flash. The amount of light immediately in front of the camera is intense, but in line with Newton’s Inverse Square Law the further something is from the flash the intensity is much lower. Therefore compact cameras capture orbs more frequently as the flash is closer to the lens. SLR cameras – with the flash mounted further away – capture orbs less frequently. Similarly, when no flash is used orb capture is possible but only where there is an intense light source (sometimes daylight) within the area of the camera.

To return to 35mm cameras, there is nothing about 35mm camera technology that precludes orb capture. However, because the depth of field is much smaller it is very rarely close enough to the camera to allow orb capture. The result is that orbs captured using 35mm are

your eyes, you can see through it). These small diffuse circles are made up of ‘circles of confusion’ – the smallest area that can be seen as sharp (typically 0.05mm).

In summary, the resulting area in front of a camera can be split up into three ‘fields’. In the nearest field nothing is visible, in the middle field objects appear out of focus and in the far field objects are in focus. Each of these fields is further defined by what the camera can physically view. Therefore the only field in which dust can be seen is the middle – out of focus, and therefore much larger – field. This is because in the near field it is not visible, and in the far field it is too small to see. The reason the dust is represented as circular is because the previously mentioned ‘circles captured using 35mm are infrequent infrequent, but entirely possible.

To summarise, the combined circumstances needed to capture orbs are shown below. This very small area has been termed the ‘orb zone’. The ‘orb zone’ has to satisfy the following characteristics:

1. Within the field of view of the camera – what it can ‘see’ within its environment;
2. An area with sufficient light intensity to illuminate particles – usually the flash of a compact camera, but other light conditions (including daylight) can occasionally provide enough intensity;
3. Behind the camera’s point of nearest focus – any particles beyond this will appear ‘in focus’ and thus too small to be discernable;

In front of the camera’s point of visibility – anything behind this will be too out-of-focus to be visible.

These characteristics and the resulting ‘orb zone’ are shown in figure 1, overleaf.

AIMS OF THE PRESENT STUDY

This study aims to address the needs of the research community, in terms of scientific evidence of the origins of orbs. The primary aim of the study, thus, is to test the rational explanations of orbs to assess whether they are significant contributors to the existence of orbs. This has been achieved by planning a procedure to test five hypotheses:

1. It is hypothesised that the label of ‘haunted’ or ‘not haunted’ will make no significant difference to the number of orbs photos captured;
2. It is hypothesised that increasing the depth of field should

increase the number of orbs;

3. It is hypothesised that operating a flash in low light will capture more orbs than not operating the flash;

4. It is hypothesised that increasing the distance of the flash from the lens will capture fewer orbs;

5. It is hypothesised that using a 35mm camera in the place of a digital camera will capture fewer orbs;

6. It is hypothesised that varying the effective rate of digital camera megapixel count will affect the number of orbs captured.

Providing evidence that orbs can be naturally effected should provide evidence for those who dismiss orbs as natural. Similarly those who dismiss natural explanations entirely may be educated by the study. Whilst minority theorists – who believe most orbs are natural, but a few are not – may be provided with evidence of the natural

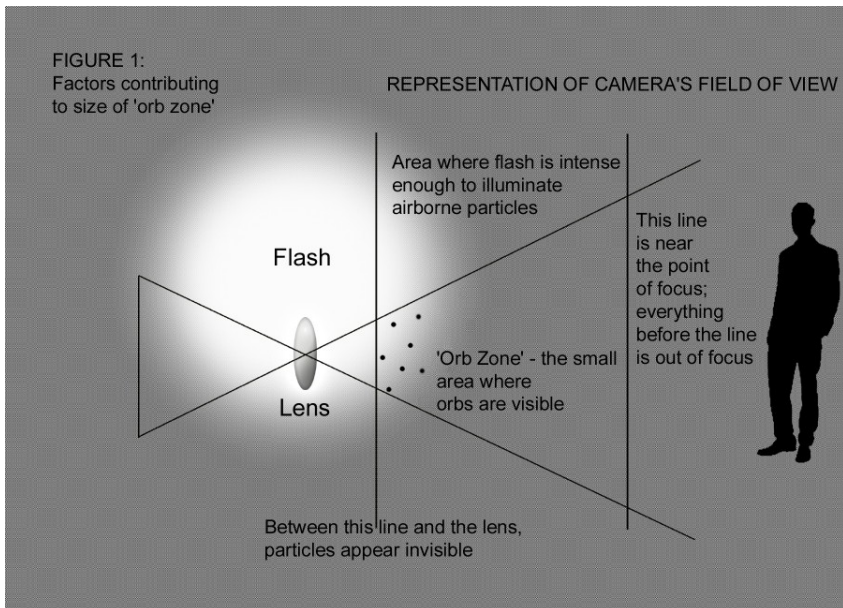


Fig.1—These circumstances needed to capture orbs and the resulting 'orb zone'.

explanations of orbs, the current methodology will not address the 'exceptions' directly.

The discussion will note a bank of possible exceptions for further study and explanation. These exceptions are all adequately explained within the 'orb zone' theory, so it may be that these explanations for exceptions are sufficient for researchers.

METHOD

PARTICIPANTS

Five research assistants were used in the first round of five experiments. Each assistant was assigned to an experiment to make consistent any effects associated with the individual. The same two participants were used in subsequent rounds and each was assigned to an experiment. Three disinterested members of the public who had no knowledge of the orb phenomena, or the experiment or its conditions, were selected to judge which photos contained 'orbs' and which did not. Each judge was presented with a typical photograph of an orb on which to base his or her judgements.

MATERIALS

In each condition cameras were placed on a telescopic tripod and tape was used to mark the resting and 'shooting' locations of assistants.

The following types of cameras were used in each experiment:

- First experiment – Panasonic DMC-FZ10-K and Samsung Digimax 401.
- Second experiment – Kodak Easyshare DX6440.
- Third experiment – Samsung Digimax 502.
- Fourth experiment – Samsung Digimax 401.
- Fifth experiment – Samsung Digimax 401 and Kodak Colour disposable 35mm cameras.

A brief and debrief sheet was provided for all assistants and participants.

LOCATION

Location was a key consideration for the study. A controlled field environment was selected to aid ecological validity; the environment had to be controlled but had to be as similar as possible to field

conditions. A haunted building was selected that was known to be associated with orb photos that have been theorised to be both paranormal and non-paranormal by past researchers. A location with high instances of orb photos was deemed important in order to generate enough data to be analysed.

The events manager of the location, herself a paranormal researcher, was asked to select two rooms. One room with an ongoing history of paranormal phenomena was chosen for the experimental conditions. One room with no known history of paranormal activity was selected for the control conditions. As the location was able to provide several such rooms two were selected that were as similar as possible to one another. It was ensured the rooms had the correct amount of space to host identical experiments and that the structure of the rooms and the level of dust – defined by the same flooring material – was similar.

DESIGN AND PROCEDURE

In each location assistants were positioned at a line a set distance from a tripod. The tripod was of a set height, which was a set distance from the subject. The subject was a wall in the first round of experiments. The camera manual was used in each experiment to ensure the subject distance was sufficient for maximum flash activation, therefore holding this variable constant. The experimenter timed each assistant to move the same distance to the tripod and take a photograph of the subject in the same direction. Movements by individuals were held constant in all conditions so the level of dust flow was kept as constant as possible. The same assistant was used for each experiment so any potentially compounding variables related to individual assistants – such as method of movement or levels of breathing – were kept constant. A sample of this procedure using two assistants is shown in figure 2, opposite.

After each of the assistants had taken one photograph the process was repeated. Twenty repetitions comprised each phase for each of the five experiments; there were four phases overall.

Twenty photos per person per phase, over four phases, were deemed appropriate. Whilst a greater numbers of trials would have allowed more validity in the results, this number was deemed valid

especially in the light of fatigue and other human factors associated with conducting experiments for a longer period of time.

The first phase took place in the experimental condition (i.e. the 'haunted' location). The first experiment varied the distance of the lens from the flash, so an SLR camera was used. The second experiment varied the use of flash, which was activated or not. The third experiment varied the effective megapixel count, which was set at maximum. The fourth experiment varied the depth of field, and the 'normal' zoom mode was selected. The fifth experiment varied the type of camera used, and a 35mm camera was selected.

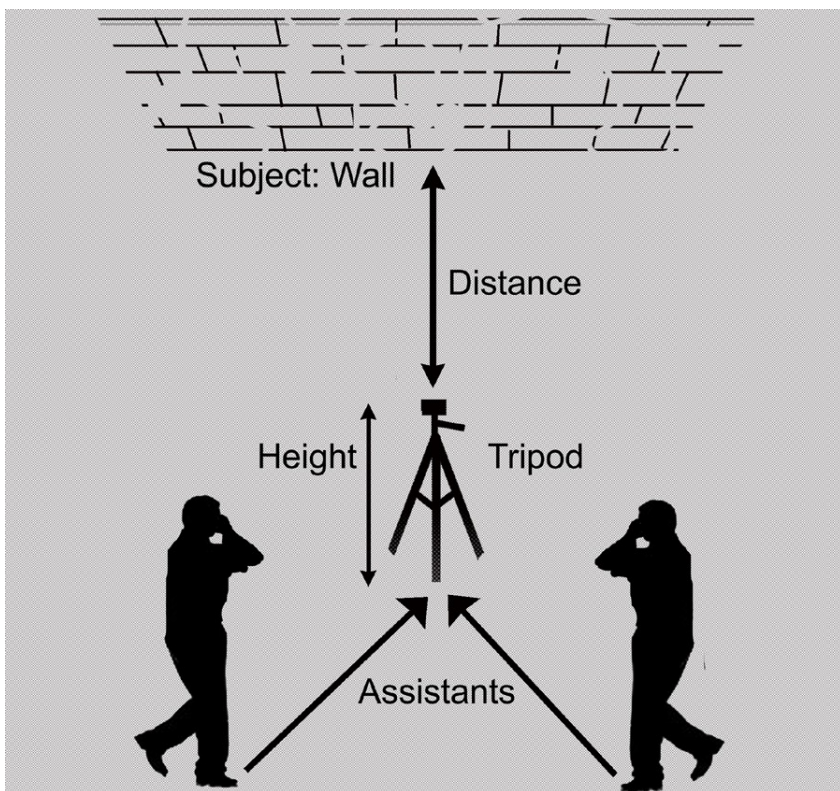


Fig.2—Procedure with two assistants.

especially in the light of fatigue and other human factors associated with conducting experiments for a longer period of time.

The first phase took place in the experimental condition (i.e. the 'haunted' location). The first experiment varied the distance of the lens from the flash, so an SLR camera was used. The second experiment varied the use of flash, which was activated or not. The third experiment varied the effective megapixel count, which was set at maximum. The fourth experiment varied the depth of field, and the 'normal' zoom mode was selected. The fifth experiment varied the type of camera used, and a 35mm camera was selected.

The second phase took place in the control condition and replicated exactly the above phase (i.e. the 'non-haunted' location).

The third phase took place in the experimental condition (i.e. in the 'haunted' location). The first experiment used a compact camera in place of the SLR, where the flash was closer to the lens. The second experiment activated the flash of the same camera used in the first two phases. The third experiment varied the effective megapixel count to approximately one sixth of the count during the first two conditions; the rate was set internally using the same camera. The fourth experiment used the same camera as the first two phases but activated the zoom function to increase the depth of field. The fifth experiment used a compact digital camera in place of the 35mm camera.

The fourth phase took place in the control condition and replicated exactly the above experiment (i.e. the 'non-haunted' location).

The experiments and phases are represented in Table 1:

	Experiment 1	Experiment 2	Experiment 3	Experiment 4	Experiment 5
Phase 1 - experimental/ haunted' location	SLR vs	Compact flash	Low vs high	Normal vs	35mm vs
	Compact	vs non-flash	megapixel	enhanced DOF	compact
Phase 2 - control/ non-haunted' location	SLR vs	Compact flash	Low vs high	Normal vs	35mm vs
	Compact	vs non-flash	megapixel	enhanced DOF	compact
Phase 3 - experimental/ haunted' location	SLR vs	Compact flash	Low vs high	Normal vs	35mm vs
	Compact	vs non-flash	megapixel	enhanced DOF	compact
Phase 4 - control/ non-haunted' location	SLR vs	Compact flash	Low vs high	Normal vs	35mm vs
	Compact	vs non-flash	megapixel	enhanced DOF	compact

DESIGN AND PROCEDURE OF REPEAT EXPERIMENTS

Following the experimental procedures each photographic unit was examined to ensure that all camera variables were held constant during the experiment. The EXIF information for each image was examined to ensure variables – which are controlled automatically in most compact cameras – such as shutter speed, lens aperture, focal length, F-number, exposure time and ISO rating were constant throughout the experiment. Where variables were identified from the EXIF data after the experiment the experiments were considered flawed and compounded, therefore repeat experiments were needed, where the compounding variables had been identified and eliminated.

Flaws were identified in the third and fourth experiments (see discussion). These two experiments were repeated in the same location using the same set up and circumstances as the first procedure. The exception was the use of a subject at varying distances from the camera, to alter the depth of field.

It was deemed acceptable to repeat the two experiments in isolation, as there were no plans to compare each experiment to any of the other four.

Flaws were found in the repetitions of the two experiments. A final experiment was conducted in exactly the same way as above, except that in the third experiment the ISO rating was on forced 'hold' and in the fourth experiment no subject was used, but the micro focus setting was used to reduce the depth of field.

RESULTS

All photographs were presented to independent judges in a random order. Photos were deemed a 'hit' – that is, to contain at least one orb – if two or three of the judges had flagged up the photo as such.

Each experiment was subjected to the Chi-Square inferential statistical web test (Georgetown Linguistics, 2007). Summary results follow in Table 2. These relate to the final results following repeats.

Test	Chi-Square	>p	Significant?	Orbs (a)	Orbs (b)
Experimental (a) vs control overall (b)	1.51	.05	No—supports hypothesis	75 of 160	86 of 160
SLR camera (a) vs compact (b) overall	15.25	.001	Yes – supports hypothesis	0 of 40	13 of 40
SLR camera (a) vs compact (b) - experimental locations	8.49	.01	Yes – supports hypothesis	0 of 20	7 of 20
SLR camera (a) versus compact (b) - control locations	7.06	.01	Yes – supports hypothesis	0 of 20	6 of 20
Compact flash (a) vs compact non-flash (b) overall	4.21	.05	Yes – supports hypothesis	4 of 20	0 of 20
Compact flash (a) vs compact non-flash (b) - experimental locations	4.44	.05	Yes – supports hypothesis	4 of 20	0 of 20
Compact flash (a) vs compact non-flash (b) control locations	-	-	No—does not support hypothesis	0 of 20	0 of 20
Low megapixel (a) vs. High megapixel (b) camera - overall	2.88	-	No—does not support hypothesis	39 of 40	35 of 40

Low megapixel (a) vs. High megapixel (b) - experimental locations	3.24	-	No – does not support hypothesis	20 of 20	17 of 20
Low megapixel (a) vs. High megapixel (b) - control locations	0.36	-	No – does not support hypothesis	19 of 20	18 of 20
Normal (a) vs. enhanced (b) depth of field - overall	11.42	.001	Yes – supports hypothesis	30 of 40	40 of 40
Normal (a) vs. enhanced (b) depth of field - experimental locations	7.06	.01	Yes – supports hypothesis	14 of 20	20 of 20
Normal (a) vs. enhanced (b) depth of field - control locations	4.44	.05	Yes – supports hypothesis	16 of 20	20 of 20
35mm (a) vs. compact (b) camera - overall	7.44	0.1	Yes – supports hypothesis	2 of 40	11 of 40
35mm (a) vs. compact camera (b) - experimental locations	3.14	0.5	No – does not support hypothesis	1 of 20	5 of 20
35mm (a) vs. compact camera (b) - control locations	4.33	0.5	Yes – supports hypothesis	1 of 20	6 of 20

Note: Degrees of freedom in each test = 1

Table 2 shows that, overall, there was no significant differences in the number of orbs captured between experimental and control locations; in other words there was no difference between haunted and non-haunted locations.

It is shown that, overall and in experiment and non-experimental locations, there is a significant link between greater number of orb photos and the reduced distance of the flash from the lens ($\chi^2 = 15.25$, $df = 1$, $p = 0.001$) and an enhanced depth of field ($\chi^2 = 11.42$, $df = 1$, $p = 0.001$). These findings were consistent with their hypotheses.

In the case of flash activation there was a significant link ($\chi^2 = 4.21$, $df = 1$, $p = 0.05$), overall and in the experimental location, between the flash being activated and greater orb capture. The link was not statistically significant in the control location simply because no orbs were caught in either condition.

In the case of the types of camera there was a significant link ($\chi^2 = 7.44$, $df = 1$, $p = 0.05$), overall and in the control location, between a digital camera being used and greater orb capture. Whilst the experimental condition was not significant, the results in this condition still supported the hypothesis.

Table 2 also shows that in all conditions there was no significant link between megapixel count and greater orb capture.

DISCUSSION

The most striking statistic to emerge from the results is the number of orbs captured, in the same circumstances, in the experimental (haunted) control (non-haunted). These statistics were very similar; certainly not significantly different. This would suggest that orbs have no correlation with 'haunted places', where all other circumstances are held constant (supporting Hypothesis 1).

All tests applied to depth of field and flash distance returned a significant relationship. This suggests a correlation between orbs captured and, respectively, a) the distance of the flash from the lens (supporting Hypothesis 3) and b) the enhancement of depth of field (supporting Hypothesis 4).

In the case of use of flash and type of camera two of the three tests, in each case, indicated a significant relationship (supporting Hypotheses 2 and 5, respectively). The cases where the tests failed were

adequately justified in the results section. These results would suggest that the use of flash and the use of digital cameras have a positive and significant relationship with the number of photos containing orbs.

The results of the megapixel count conditions did not support the hypothesis (Hypothesis 6). The study suggests no direct relationship between megapixel count and the number of orb photos captured.

DISCUSSION OF FLAWED AND REPEATED EXPERIMENTS

Flaws were discovered in the third and fourth experiments. In the case of the fourth experiment: whilst the results supported the hypothesis it was found that the 'zoom function' altered the 'field of view' in a compounding way, as a result of the change of the depth of field.

In the third experiment the results were consistent with the hypothesis, but it was established that the alteration of the megapixel count had also reduced the ISO rating (the film speed or sensitivity). In the case of the fourth experiment it was found that whilst the results supported the hypothesis, the use of a subject subtly changed the lighting of the room to a compounding degree.

LIMITATIONS OF THE RESEARCH

The primary limitation of the research was its relatively limited scope. The study sought to establish that certain technical factors related to cameras have significant influence on orbs. The more rational 'minority theorists' contend that whilst dust accounts for the vast majority of orbs, that certain orbs that differ in appearance from the typical description of an orb may be paranormal.

The 'orb zone' account of orbs does offer explanations for these less common orbs as technical aberrations. Being less common, such exceptional cases are more difficult to study under experimental conditions.

Further limitations of the research include the first and fifth experimental condition. Orb zone theory suggests that different makes of camera – in particularly of lens and CCD chips – produce different effects. Thus, comparing different cameras – SLR and compact, 35mm and digital – were less than ideal, but there was no viable alternative.

Another limitation concerned potentially compounding factors. Whilst all due care was taken to ensure all conditions were identical, including any factors relating to the individual, the precise quantities of dust and 'ghosts' were necessarily unknown. However these limitations detract very little from the main thrust of the research.

Further, this research relates only to orbs captured on 'stills' cameras and takes no account for orbs captured on video camera. However, the theory that seeks to explain 'stills' orbs can just as adequately explain video orbs.

Finally it should be noted that the nature of science does not provide absolute proof, however strong evidence should only be superceded by even stronger research, properly conducted.

AREAS FOR FURTHER STUDY

Whilst this study provides significant evidence that 'common' orbs are related to non-paranormal factors related to digital cameras, there is scope for further research.

In the first instance future experimental research could explore the 'proof', or theories presented, for theories suggesting that orbs are a paranormal phenomenon. This would include the possible poor probabilistic reasoning related to interaction with orbs and the infrared spectrum. Research into both these theories would not be complicated and may, therefore, be justifiable to conduct.

The second area of future research relates to so-called exceptional cases. This study provides significant evidence for the 'orb zone' theory, which in turn can offer explanations for exceptional cases. However further research into specific exceptional cases may add value to the theory.

The author will construct a website to provide explanations for exceptional cases, including:

- Orbs of different colours;
- Multiple orbs and orbs that appear to be moving;
- Orbs of different compositions and structures;
- Orbs of different shapes and sizes;
- Incomplete orbs;
- 'Fuzzy' orbs.

Further explanation is also warranted as to why orbs appear when components of the orb zone theory are not present, including:

- Orbs captured without flash or in daylight condition;
- Orbs captured using 35mm cameras;
- Orbs that appear to be hidden behind a solid object further away from the lens than the orb zone;
- Orbs caught with an SLR camera;
- Orbs caught in a 'dust free' or 'moisture free' environment, with a camera hood or with a 'clean' lens.

IMPLICATIONS OF THE RESEARCH

For those who accept the scientific method it would be reasonable to accept that the study provides strong evidence that orbs are 'caused' by normal factors relating to digital cameras and the circumstances surrounding orb capture.

This study should also lay the groundwork for an accessible, web-based explanation of every aspect of orb theory. The author has observed that numerous researchers have believed in the paranormal nature of orbs as a default position because information on the subject was either a) not available, b) inaccessible to a layperson or c) addressed the theory rather than the everyday concerns of lay investigators.

Finally, in the context of lay paranormal research this study substantiates and justifies the stance of rationalists and minority theorists as to the nature of orbs on photographs. In particular it finally justifies the stance that, unless there is a specific research objective in mind, orb photos are rarely worth the time it takes to analyse them.

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ANOMALY: GUIDANCE NOTES & HOUSE STYLE

SUBMISSION CONTENT:

Papers should be submitted in the English language and should directly relate to some area of psychical research. Authors take responsibility for any views aired, and published articles do not reflect the views of ASSAP.

TYPES OF SUBMISSION:

Please note that word limits are flexible. Letters may relate to previous articles published and can be written in a personal style. Letters should not be more than 1500 words. Book reviews should not be greater than 1500 words. Articles and research notes should not be greater than 4,000 words. We encourage authors to write such articles in an impersonal style, but this is not mandatory. Diagrams and photos should be submitted in grayscale if possible with a dpi of 300, but do seek guidance if you are unsure.

FOOTNOTES AND REFERENCES:

We prefer that footnotes are not used, however notes may be made at the end of articles with an appropriate numbering system in the text. We encourage all authors to provide references, although this is not mandatory. This means that if you make an assertion of fact, especially about previous research conducted, you cite the source article, book or web address. We prefer the Harvard system of referencing. Sentences containing references should include the author and year in parentheses, e.g. “theories suggest that orbs are not paranormal in nature (Townsend, 2006).

Where such references are included in the text an alphabetical list should be included at the end of the document, in the following style:

Henry, J. (Ed.) (2005). *Parapsychology: Research on Exceptional Experiences*. East Sussex: Routledge

Parapsychological Association (2006a) *What is the PA?*

URL http://www.parapsych.org/mission_statement.html Date accessed: 04 September 2006.

Thalbourne, M. A. (2005) ‘The Pros and Cons of Being a Parapsychologist’. *Society for Psychical Research: Paranormal Review*, 36, 21-22

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