

ANOMALY

Journal of the Association for the Scientific Study of Anomalous Phenomena

Number 34

May 2004

ANOMALY is published twice a year. It is free to members. Single copies can be bought by non-members at £2.50 (including postage and packing - see last page for address details). PLEASE NOTE that the names of witnesses and places have been changed in line with ASSAP's Code of Conduct. The views expressed by individual authors are their own. ASSAP has no corporate views.

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ISSN 0969-7713

Editorial Team: Maurice Townsend and Valerie Hope. Production: Hugh Pincott.
Front Cover Illustration: Wendy Milner. Printed by March Press.

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Firewalking

by Michael Lewis

The lack of burns from firewalking is often dismissed by scientists as being due to the short time bare feet are in contact with hot coals. Heat needs a certain minimum length of time to transfer before it can do any damage. You can demonstrate this effect by running a cold water tap until it is chilly, then putting your hand under and noticing how the water seems to grow colder, even though it stays at the same temperature. However, intrepid former NIC Michael Lewis tried firewalking himself and does not believe the theory accords with the facts as he experienced them.

I have long been fascinated by firewalking, my interest having been aroused by the exploits of the late Harry Price, whose experiences on the Brocken mountain in eastern Germany have been well documented. Latterly there has been a revival of interest, with sponsored fire walks becoming popular.

Scientists have advanced various explanations for the phenomenon, but none are entirely convincing. The most favoured is that bare feet are insulated by a layer of sweat which the heat from the coals does not have time to dissipate during the brief contact between foot and coals. Much has been made of the fact that the temperature on the topside of glowing coal or charcoal can be shown to be far less than on the underside. Some hold that firewalkers are in an altered state of consciousness during which pain does not register.

Recently the opportunity arose to take part in a firewalk at a crop circle conference held in Devizes, Wiltshire. It was led by Peggy Dylan, who runs a personal development business in New York. She had conducted a firewalk in the ruins of the World Trade Centre for traumatized survivors of the terrorist attack. Her UK

representative, Patrick Mulhearn, who has a similar business in Scotland, also took part.

Participants were taken to Alton Barnes, where the firewalk took place on private land behind the Coronation Hall. Each participant added a willow log to form a large pyre about 1.5m square, which they then lit. Herbs gathered by Hopi Indians in North America were then thrown on the fire, by each individual, as the participants stood around the pyre in a circle.

As dusk fell the group assembled in the hall. There followed a lengthy session in which participants were urged to write down and then discuss their fears and past traumas, which the fire would then purge. All good, sound psychology! The leader then explained that, whereas the physical laws which governed this dimension meant that the fire would normally char our feet, we would attune to a higher frequency whose laws would protect our feet. Interestingly, she cited an American scientist who had been invited by Indians in South America to walk across red hot lava. He refused to walk barefoot and, once across the lava, observed that though the soles of his boots and socks had burnt off, his feet were unharmed. By this time the group, most of whom were ignorant of firewalking, were showing signs of considerable apprehension.

The group were then taken into the, by then, dark field, there being no moon that night. The glowing embers were raked out of the fire and spread over an area some 2m by 1.5m. They glowed ruby red in the darkness, then orange as the exposure to oxygen brought them to life. It was readily apparent that, whatever the answer to the phenomenon, it was not that the embers were not hot on their upper side! Walkers were told to chant 'puma' as they walked, encouraged by other participants lining the walk area also shouting 'puma'. Almost immediately, one female participant strode boldly

across, followed by others, apparently without harm. I eventually followed, noticing that many of the embers had been extinguished by so many feet. I made sure that I trod on a large glowing ember, and did experience a twinge of pain, although there was no burn mark on my sole. After a while the remains of the fire were raked over and more glowing embers spread across the path. I decided that I would walk a second time, while there were still sufficient glowing embers. I accomplished this without feeling anything. For some thirty minutes I watched as around forty people repeatedly walked through the embers, which were renewed twice in all. It was noteworthy that orange, glowing embers repeatedly stuck to walkers' feet, only falling off when the walker stepped onto the grass again, yet none showed any signs of pain. It was certainly not a case of the walkers' feet not coming into contact with the embers for long enough to burn them. Not all the participants were seasoned New Agers. One elderly man told the group that he was becoming bored with retirement. He successfully completed the walk, albeit at a rather slower pace than younger participants. Another man told me that he was only there to observe, as he needed to be on his feet at his work and could not risk getting his feet burned!

No photographs were permitted by the leader lest they intruded upon the ceremony and detracted from it. *A sure sign of paranormal phenomena, I felt!* However, after fifteen minutes, the leader felt that the atmosphere was so good that a photographic session was allowed. I did not take any photographs myself, as it was apparent that the light from the flash would eclipse the low level of light emanating from the embers. What was required was an infrared camera!

The group returned to the hall where the atmosphere was relaxed, in marked contrast to earlier in the evening. The leader remarked

that this group was an easy one for her, as usually it took a lot of effort to persuade participants to make the first steps! Neither of the leaders did the walk themselves, as it was important for each participant to make his own leap of faith, rather than simply following the leader. Comparing notes with other participants, the husband of the conference organizer confided that his experience had been similar to mine, a slight twinge the first time. Another woman said that on her fifth walk she had felt a slight twinge and decided that this was a signal to stop.

What can parapsychologists learn from this? There was little or no attempt to induce an ASC in participants and what ritual there was seemed to complement the strong psychological theme. I have little doubt that if a scientist with no preconceptions were excluded from all but the walk itself, he would come to no harm. There was no doubt in my mind that this was a genuine phenomenon. The heat and fumes from the remains of the willow logs caused me considerable discomfort when I was standing close to them. And yet, several participants in another firewalk in the same area, which was organized by a management consultancy for trainee managers, were recently hospitalized with severe burns to their feet. What is going on here? Clearly something outside current scientific parameters. All I can say is that this seems to be another indicator that what we perceive as reality is an illusion, as atomic physicists have been suggesting is the case for some time now.

I would be interested to hear the views of others who have taken part in firewalks, particularly charity events involving the use of charcoal which do not involve the walker in treading on glowing coals.

Finally, a warning! DON'T TRY THIS AT HOME, FOLKS!!

The Nature of Ghosts

by Dr Paul Lee

Ghosts continue to be the subject that fascinates more ASSAP members than any other. Paul Lee, who started off as a research scientist in the field of nuclear physics but today is a software and systems engineer for a large multinational company, considers their true nature.

Despite many thousands of reports of apparitions since the beginning of history, the evidence for the paranormal remains very sketchy. It is not too hard to see why this is, and why sceptics remain to be convinced: the main reason is a lack of tangible, tabulated evidence. Ghosts stories are almost purely anecdotal and seem to be very personal experiences. They also mostly seem to focus on trivial, mundane events, which is remarkable when we are often told that ghosts are imprints of violent behaviour, committed in the past, that somehow becomes recorded on the environment. We can only presume that many such people have died from the mundane. For instance, how many times have you read a ghost story where a figure is seen in the middle of the night, walks across the room to the window and vanishes?

We all seem to love a good ghost story, but they are a source of frustration. Very little time has been spent trying to understand the nature of ghosts, why we see them and what they are? In an era of dwindling science grants and the lack of objective enthusiasm by scientists (particularly in the field of spontaneous cases in parapsychology), sadly this is one status quo that will be

maintained. The burden of providing proof lies with the amateur and his trusty range of secondhand or custom-built equipment.

Tantalising pieces of experimental evidence and observations have given us a few clues, but, to quote one drama serial, 'a ghost is a mass of data waiting for a correct interpretation'. It is fair to mention another quote (which I hope I report reasonably accurately): 'In the world of parapsychology, we not only await an Einstein, but an Aristotle.' An excellent comment indeed on the crude state of knowledge that we have for understanding the nature of ghosts. For the sake of discussion, let us assume that you do believe in ghosts, either through faith, religious or otherwise, or as a result of actually seeing one. You do not need convincing. Now, do ghosts occur 'all in the mind' as many critics have cruelly suggested, or do they occur in the environment? Hopefully, in the discussion that follows, you will be intrigued, as I am, and will want to learn more about these elusive apparitions.

Those who dismiss ghosts as being a figment of the mind have one compelling piece of evidence on their side: the seeming lack of interplay between apparitions and their environment. On the whole, they do not move things around or communicate with witnesses, although there are, of course, exceptions to this. One could easily create a theory that accounts for the movement of objects by psychokinetic abilities on the part of the observer (poltergeist phenomena), but this is hardly satisfactory since, to quote Fortean researchers Janet and Colin Bord's excellent maxim, it attempts to explain one mystery by invoking another. Furthermore, ghosts rarely appear on film or videotape though, again, there are exceptions. Even with infra-red imaging equipment the chances of successfully recording a ghost on film or tape are remote. But there are particularly interesting cases where a group of many people are involved and only a few see the apparition, the others excitedly

asking 'what do you see?'. One may attempt to use 'mass hysteria' or 'mass hallucination' as one possible explanation, but it is intriguing how selective the effect is, especially when some people, unprompted by others, all see the same thing. Also, sometimes video/film equipment does record something. I should also point out here that sometimes cameras have picked up images even when humans did not see anything, and at others times the reverse situation is true. The most widely touted theory regarding ghosts is known as the 'stone tape' theory, made popular by the excellent BBC TV drama production shown in 1972, written by Nigel Kneale (the creator of 'Quatermass' in the 1950s). In this dramatisation, a group of scientists realise that the image and sounds of the ghost are stored materially in the fabric of an old room and that people sensitive to the recording can play it back in their heads (a fascinating idea since it presupposes that everyone's reaction to the 'ghost' is different) 'like eyesight or hayfever'. The production is also noteworthy for predicting the digital revolution many years early.

The 'stone tape' theory relies on no 'external' ghost, everything is perceived in the mind, and nothing can be recorded or analysed on their equipment. Such a 'ghost' would follow a predetermined course of action, walking the same path as in life, although how the recording comes to be imprinted on stone is an interesting theoretical question!

This explanation does have many parallels with 'real' ghost stories: the apparition that walks through walls where doors used to be, climbs up steps that no longer exist, etc. The most spectacular cases of this are at the Treasurer's House in York (where a worker in the basement saw a legion of Roman soldiers, whose legs were cut off at the ankles, apparently following an earlier ground level), Westminster Abbey (where a priest is seen walking several

centimetres above the ground, marking the settling of the ground since he 'died') and Bell Lane in Enfield, London (where a phantom stagecoach allegedly rushes along, 2m above the ground).

Of relevance here is a passage that appeared last year in the *New York Times* on-line magazine. It recounted how audio experts were trying to uncover the erased 18½-minute segment from one of President Nixon's Watergate tapes. Using digital technology and a knowledge of the original media, it may be possible to at least partially restore some of the excised material. Very interesting, but what has this to do with ghosts? The following quote may explain the matter:

'One of the more peculiar theories about sound was developed hypothetically some 30 years ago. A technician named Richard Woodbridge III coined the phrase "acoustic archaeology" in the August 1969 issue of *Proceedings of the IEEE* (the Institute of Electronic and Electrical Engineers). Woodbridge theorised that there were many occasions when sound might innocently get scooped out of the air and preserved. For example, when an ancient potter typically held a flat stick against a rotating pot, he was accidentally (and crudely) recording into the clay the sounds around him. Woodbridge wrote about experiments he performed pulling basic noises off a pot. Another experiment involved setting up a canvas and then talking while making different brush strokes. "This is to record the finding of a spoken word in an oil portrait," Woodbridge wrote. The word was "blue" and was located in a blue paint stroke - as if the artist was talking to himself or to the subject. Parenthetically, the search was long and tedious. The principle, however, was established.'

This may have an overlap with ghosts. A possible example of such a possible pseudo-tape recording occurred in 1982, when the

landlord at the Prince of Wales inn at Kenfig in Mid-Glamorgan (Wales) complained of the sound of organ music and voices. When he had retired for the night after closing time one night, John Marke, an electrical engineer and Allan Jenkins, an industrial chemist, connected electrodes to the wall of the pub. They fed 20,000 volts across the electrodes and locked tape recorders in the room for four hours. Reports in books later described voices (speaking in old Welsh), organ music and a clock ticking (though there was no clock in the room at the time). It was mentioned a few years back that the stones in the wall may contain similar substances to those found in modern tape. However, one unanswered question remains: would the sounds have occurred in the room anyway even if the scientists had not pumped 20,000 volts into the wall? In short, had a control experiment been performed?

This 'stone tape' evidence suffered a blow in later years when I learned from Dr. Melvyn Willin (who has a doctorate in parapsychology and music) that technicians at the now defunct BBC Radiophonic Workshop described the Prince of Wales pub sounds as being akin to distortion and feedback, perhaps caused by the nearby presence of a very large transformer required to create the hefty voltages required. Certainly, having heard extracts from the tape, the sounds resemble flatulent elephants rather than clocks ticking! John Marke said, shortly after the 1982 recordings, that BBC *Newsnight* and TV crews from Japan and Canada had filmed the experiments under controlled conditions with 'surprising results' (although it is not clear what he means by this). Furthermore, Marke elucidated that he had performed experiments of a similar nature at the Jolly Sailor pub in Porthcawl. If anyone knows the outcome of this experiment, please let me know.

Another major problem for the 'stone tape' theory is: just where are the data required for playback stored? This poses no problem for

buildings, where the fabric remains more or less *in situ*, but what about the reports of phantoms on battlefields, or brand new housing estates? The ground must have been worked thousands of times, hedges and trees uprooted and planted, so where is the 'ghost' information stored? Mike White, an ASSAP member, suggested that it might actually be recorded in deep-lying strata, beneath the surface. Of course, this might tie in nicely with Paul Devereux's hypothesis of 'earthlights' being the product of tectonic plate stresses. And David Taylor, Parasearch chairman, has made the connection between recent earth tremors in the Dudley area and its population of ghosts. One satellite TV show (*'Ghost Hunters - Spectres of the Severn'*) even made the connection between the ghosts in Gloucestershire (eg. the Ancient Ram Inn) being linked to its series of local fault lines. This programme has suggested the possible link between high rates of spectral appearances and geological fault lines. The evidence was intriguing, but faulty, since no control of non-fault areas was performed. The idea is that somehow the stresses in the Earth cause bursts of electro-magnetism, and this affects eyewitness perceptions. An acquaintance has also suggested this link, but has suggested that the natural conductivity of the surrounding ground may also play a part in somehow causing phantoms some distance away from an earth tremor or fault line. If this phantom fault line connection is proven, then the mechanism will still be a mystery: is it simply due to the natural effect of electricity and magnetism on the brain, or some unknown force?

The 'stone tape' theory does not explain those instances where ghosts communicate with the observer (sometimes being able to understand a foreign language), but one could always explain this as due to telepathy which, conveniently, does not seem to be a quantifiable subject under current understanding of physical laws! Also a mystery are those cases that seem to incorporate a 'sentient'

ghost, and in this category one could include poltergeists, which love to put on a good show for the observers, but only once recording media (video, tape recorders, etc.) have been turned off or directed elsewhere.

One seemingly obligatory feature of paranormal manifestation seems to be a sudden drop in temperature, or a very localised zone of cold air, the so-called 'cold spot'. Again, this is sometimes real and is measurable on a thermometer, and at other times it seems to be only a perceived effect. One idea is that the ghost is somehow extracting energy from the air. Alternatively, the 'cold spot' may not be real and may simply be an artefact of the way the human body reacts to such things, such as shivering uncontrollably when in a state of shock, for instance. Incidentally, a story I vaguely recall from a few years back refers to the fact that one ghost would shift locations to another room if an ioniser was left activated in its original haunted location. More recently, a mention in a Ghost Club circular referred to a build-up of static electricity during a vigil. A friend once related how, during an otherwise uneventful vigil, a digital multimeter (used by, for example, car mechanics and electricians to measure electrical conductivity, voltage etc.) registered a massive surge just before a crash was heard to emanate from an empty room. Alas, I cannot recall which electrical property (voltage, current or resistance) showed the 'spike'. How all these environmental effects affect, or are affected by, ghosts is an open area for research.

More recently, and very excitingly, a new avenue of research comes from Vic Tandy at Coventry University. He has found that infra-sound (at around 19Hz) causes the human eye to vibrate almost imperceptibly, causing a feeling of 'being watched' as it causes a distortion in the peripheral vision. You wouldn't feel the vibration (it is so subtle), but it would cause unease, not just in the

eye but in the stomach, too (19Hz being close to the natural frequency of the human body, as reinforced by research from NASA). Vic discovered this effect when he traced feelings of dread to a faulty desk fan in his lab. Once this fan was repaired, the feeling vanished. He has also discovered one other case of this infra-sound being the cause of spooky feelings, in an old catacomb. He has also noted the conditions when such 'feelings' may occur. The media naturally tried to conclude that this low frequency sonic wave was the cause of all ghost stories, a claim very easy to dispute.

I am also intrigued by the cases where animals can 'sense' the presence of ghosts. Dogs often bark at the air, and cats purr as if stroked by invisible hands. One story from York related how a dog, in its attempt to pursue something, ran into a brick wall! It is known that some animals possess superior senses to humans (such as hearing and smell). Do they use these enhanced senses, or do they possess other abilities, enabling them to see ghosts?

Attempts to record ghosts on equipment have met with remarkably little success; they are camera-shy even when cornered! At a lodge in Dudley Castle, near Birmingham, the oppressive nature of the building totally vanished when each room had two people, a video camera and a tape recorder installed! Members of ASSAP tried an interesting tactic a few years back at Dover Castle. They reasoned that, since ghosts never appear where video cameras are, they would place machines in every room and station themselves in a 'nerve centre', playing Monopoly and waiting for things to happen! A good plan, but it never worked!

Considering the difficulty of seeing ghosts, why is it that people almost always see them when they never expect it? For instance, when in a relaxed or distracted frame of mind or have just woken up. On vigils, this usually happens when you are changing tapes

over or having a tea break. Of course, if a ghost had intelligence, we might say that 'it' was being mischievous. It almost reminds me of the uncertainty principle in quantum physics: observing the experiment adds energy to the system, altering it slightly, and making it impossible to observe two quantities simultaneously to a given precision (such as momentum and position). It may be similar to going on vigils: by observing, we are blocking what we set out to seek! In a similar fashion, John Spencer, the author and researcher, once related a theory that stated that ghosts seem to have a predilection for appearances when the witness is least expecting it, and hardly ever during vigils. The theory goes that the logical, rational hemisphere of the human brain may be blocking the appearance of ghosts (it should also be noted that the 'artistic vs. scientific' hemisphere theory of the brain seems to be controversial too!). With the permission of the National Trust, an attempt was made by a party at Dover Castle to switch off the logical, reasoning side of the brain by getting drunk (!) and engaging in a musical jamboree. This vigil was unsuccessful as far as seeing ghosts was concerned!

Relaxed, but conscious, people exhibit 'alpha rhythms' in their brain. These are regularly recurring electrical waves. There are 11 'peaks' per second in an alpha state, and the voltages involved are tiny (approximately 50 MILLIONTHS of a volt!). When a person is excited or startled, the alpha rhythms are replaced by low voltage (37 microvolts) irregular waves. In sleep, the waves become increasingly slow. Can ghosts be connected with these relaxed mental states? It might be worthwhile considering what happens in the brain during a ghost sighting, and ASSAP did use an electroencephalogram (EEG) to measure this during their vigil at Chislehurst caves many years back. This was used in conjunction with an experiment into a connection between the various brain rhythms and hypnosis. Interestingly, one person did experience an

epileptic episode in the caves some time prior to 1987 when this ASSAP vigil occurred. The man in question was not an epileptic, though it should be noted that everyone is likely to experience one such seizure in their lifetime. Still, the timing is interesting. But even so, an EEG is limited by what it can do: it records only a small sample of electrical activity from the surface, not the interior of the brain.

Perhaps the inclusion of equipment changes the nature of the environment, perturbing it in such a way as to prevent spontaneous cases occurring. A lot has been written about the effect that ghosts have on equipment. In Borley Church, a tape was ripped from the spools of an audio tape recorder. In the Enfield poltergeist case, three flashguns rapidly drained of power, tape machines jammed, tapes were either wholly or partially wiped and a metal part inside one machine was bent. In Rosenheim in Bavaria, a poltergeist somehow created very localised voltage and current surges (which didn't trip the fuses) and even caused investigators to speculate about invisible forces causing direct pressure on the crystal in a microphone, springs inside a telephone and the pen of an instrument that recorded voltage fluctuations on a paper chart. But has anyone ever considered the effects that the introduction of equipment has on the appearance of ghosts? Maybe the electrical and magnetic fields reduce the probability of a presence. In the Australian Humpty Doo case, the poltergeist would only put on a show once the TV camera's batteries had run out of power and any witnesses had left the building. An interesting coincidence, or just malice on the part of the poltergeist? Returning to the argument that the barrage of electrical equipment we take on vigils perturbs the electromagnetic atmosphere so much that we actually inhibit the very phenomena we are seeking: perhaps it should be ensured that our equipment is shielded to avoid releasing such pollution into the environment? Or, what would happen if we could create a machine

where the periodic waves of the alpha rhythms were duplicated, but the voltages were increased many fold? Would we be feeding the ghost? Would one appear?

At a recent Society for Psychical Research (SPR) talk, council member Tony Cornell mentioned that his infra-red triggered monitoring system (called 'SPIDER', or Spontaneous Psychophysical Incident Data Electronic Recorder) had been used for 10 years and had not produced one single, verifiably paranormal event on tape. It has only apparently triggered once in hundreds of deployments, and this was only after 53 days 'in the field'! This could imply that humans need to be present for manifestations to occur.

A friend has pointed out the apparent correlation, noted by Michael Persinger, between changes in the Earth's magnetosphere (magnetic field) and occurrences of spontaneous psychic events. This is rather akin to the cases of spontaneous human combustion, which were noted (controversially) many years ago to follow the same peaks. It was also said that ESP and precognition were more likely to occur on days of high geomagnetic activity while ghost and poltergeist activity was more likely during low geomagnetic activity.

Some tantalising experimental evidence does exist that suggests that the stimulation of the brain by an external magnetic field can rekindle old, dormant memories and 'create' new hallucinations ('temporal lobe epilepsy' - TLE): this may explain the many cases of alien abduction prevalent throughout the world. Andrew Green recounted a tale at a recent lecture that people with TLE might be more prone to paranormal phenomena. There might also be an element of chaos and 'non-reproducibility of results' involved here. If the reports are anything to go by, phantoms should appear all over the place. Clearly this is not the case. Perhaps they require

certain environmental conditions to be (even approximately) met before they appear.

The effects of strong magnetic fields on the brain, causing transient TLE, have been noted above. This can produce hallucinations and was trumpeted as an 'explanation' for ghosts. But the actual fields required are so large it is highly doubtful that they could be produced naturally on the Earth. It may be that high fields are produced in the vicinity of fault lines when earthlights appear; after all, if these lights are anything like ball lightning, they may require strong fields to cohere the energised particles together. The 'Hutchison effect' is a more recent attempt to mimic poltergeist activity using electrical and magnetic fields. The equipment, when activated, caused items to levitate and various items to move seemingly by themselves. Fires would spontaneously erupt, too. The effect of these fields on the human body is quite damaging, and there is talk of electricity being stored by the body, then released catastrophically. However, if the 'Hutchison effect' is a good start to unravelling the mystery of the paranormal, it doesn't seek to explain how such strong electrical or magnetic fields can be generated in the environment. It also hasn't received much in the way of credibility from the scientific community because it is extremely difficult to reproduce. But, if magnetic fields are a partial answer to this conundrum, then a good, cheap piece of equipment that may be of use during vigils is the magnetic compass; any deviation from North caused by a field would be observable. You don't have to have a big equipment budget to perform science!

A very recent and, in this reviewer's opinion, particularly irksome modern introduction to ghost-hunting is 'orbs'. I am not convinced that orbs represent definite signs of paranormal activity. I am convinced by experiments done by ASSAP and the Ghost Club that most sightings can be explained by dust, fireflies, lens flare caused

by reflections, etc. After all, when you go into a 'haunted house', you are probably disturbing a lot of dust and muck, which is picked up by cameras. One professional cameraman said that there was a whole glut of explanations which could explain orbs: poor lens coating, the presence of an air gap between lenses in the camera, poorly darkened internal surfaces and 'specular reflection'. He provided technical details which explain why successive shots on a digital camera may show just one bright orb, and then the next picture might show hundreds of fainter ones. His theory was that the cheaper cameras, with poorer lens coating etc, more easily detected orbs due to the poor construction. Parasearch researcher Andrew Homer writes, 'Incidentally, from recent researches it appears that different makes of digital camera have their own orb "signature". One particular make even seems to reproduce "face" type images. Orbs are recognised as a problem by digital camera manufacturers but rarely mentioned in the advertising blurb - no surprise there then!' He also says that the depth of field associated with cameras, plus the presence of infra-red illumination, makes anything close to the lens appear to be coloured white and in sharp, or near-sharp focus (things like dust or insects).

This brings me to another topic: the use of digital cameras. Yes, they are handy and convenient, but the images are too easy to manipulate. Digital cameras certainly can pick up what the human eye sees and more besides (ie. slightly into the infra-red portion of the electromagnetic spectrum). One tale I would like to recount occurred at a recent vigil in Beaulieu Abbey. One digital camcorder, on super night-vision mode (with one new image being recorded every second or so), showed streaks of light. These were like mobile orbs, with a comet trail, and most of them were moving horizontally, from right to left, although a handful did move diagonally from top right to bottom left. A correspondent on the *Fortean Times* message board suggested that this might be due to the

optics or overexposure of mundane things. I should add here that I was observing the scene through my hand-held image intensifier. I saw no orbs at all. This makes me think that the fault lies in the software in the camera, since it and my intensifier should see more or less the same thing.

One team, on the Ghosts-UK website, is attempting to prove that orbs are definitely paranormal by positioning four cameras in a square configuration, each camera pointing at one directly opposite. The theory is that if an orb appears in two cameras that are looking at each other, but not the others, then this would prove that orbs are two-dimensional, and hence must be paranormal, as sparkles caused by water etc. would 'apparently' cause three-dimensional spherical orbs!

So, while I believe that most orbs are bunkum, there are a few that defy explanation so far. It is also highly suspicious that orbs and digital photography's introduction happened at the same time.

A topic that I would like to mention, that requires further research, points to sociological aspects of ghost sightings. It was raised by museum curator Jeremy Harte at last year's excellent Parasearch ghost conference: why are 'out of time' ghosts a recent occurrence?

To qualify this, ghost reports go back to (at least) Roman times. However, for instance, there are no reports of Elizabethans seeing Roman ghosts and no reports of Tudors seeing Bronze Age phantoms. It wasn't until quite recently (early 20th century?) that we started getting reports of Roman ghosts and other periods of history. Why? Were our predecessors so ignorant that they thought that anyone dressed 'oddly' wasn't worth a second glance? Or is it because our schooling these days is so advanced that everyone knows what a Roman, Tudor, Elizabethan or Georgian person looks

like? My personal theory about this is similar to a 'key and lock' mechanism. It requires some psychological conditioning, (knowledge from history or folklore etc.) before a person can see the ghost. If a person is not familiar with how Romans looked, then they may see nothing, or perhaps the balls or light or mists that we sometimes see during vigils. This is somewhat reminiscent of the time when 17th and 18th century explorers would encounter natives of distant lands. When the native saw the explorers' boats, some of them unconsciously blanked them from their vision, rendering them invisible, because they had never seen any before and didn't know 'what to make of them'. Jeremy also expands on this research by noting that perhaps ghosts have shaped our culture more than we suspect. An analysis of ghost sightings in Devon revealed that a huge 54% appeared on parish boundaries. Is this because boundaries have been formed around the sightings?

The last point I wish to refer to is periodic phantoms: the ghosts that re-enact some event on a regular, periodic basis. Royal phantoms (say) that appear on the anniversary of their execution in the middle ages are bizarre. With the 10-day shift in dates when Britain changed from the Julian to the Gregorian calendar in the mid-18th century, not to mention the various leap days added to the years by now, such sightings should be days or even weeks away from their expected appearances - but they aren't! Nature itself does not operate on a weeks, months, years system, this a purely human invention for the convenience of keeping appointments etc. Surely this must mean some form of human (perhaps psychological) trigger for such periodic events to take place? I have a theory about the seeming fondness of ghosts for keeping to such appointments. Humans, it must be noted, have a predilection towards observing anniversaries and tend to congregate then, making sightings of ghosts that would have occurred anyway, more likely.

An interesting tale appears in the book *'Ghostwatching'*. A family were regularly disturbed just before midnight by the sounds of footsteps on the stairs, even though there was no one there. ASSAP were called and various sensors were placed in locations around the flat, an infra-red sensor being placed on the staircase. Nothing was seen or heard, but the next day, upon reviewing the output of the sensors, it seemed that at about five minutes to eleven the sensors on the stairs were activated and continued to relay data for several minutes. What is interesting in this case is that a few days before, there had been a change from British Summer Time to Greenwich Mean Time. As the authors note: 'The implication was that the sensor had triggered at close to midnight, but midnight British Summer Time. The ghost had "ignored" the change-over to Greenwich Mean Time'. With regard to re-enactment, Chris Huff refers to two famous historical battles: Edge Hill, fought in 1642, and Flodden field in 1513. Both are famous for their visual and audio 'playbacks'. Indeed, in the years after Edge Hill, King Charles was so concerned about the tales of fighting at Edge Hill that he sent along a team of investigators, who duly noted the phantom battle (if anyone can provide documented evidence for this sighting, please let me know as I am sceptical of such anniversary ghosts). Edge Hill, it seems, no longer appears (the last recorded case was in the mid-19th century), but Flodden is quite active. Sounds of a battle have often been heard and drivers using the A697 have reported soldiers crossing their path. 'The difference', as Chris writes, 'is that a power line runs very close to the battle field at Flodden, and this may have prolonged the haunting'. Chris also points out the effect on a haunting caused by the renovation, rebuilding or remodelling of a building and that this can cause sporadic, spontaneous outbursts. Why this latter effect occurs is, like most of parapsychology, unknown.

To summarise then, it is clear from the meagre collection of experimental data that a great deal of work needs to be done to quantify and qualify the nature of ghosts.

MADS

by Dr Jason Braithwaite

ASSAP recently bought two laptops to form part of the new MADS system for measuring magnetic fields in reputedly haunted locations. This article is extracted from the original proposal for the system. It outlines why the equipment is necessary and what it will do.

There is now considerable evidence that magnetic (and electromagnetic) fields (MFs) can, under certain circumstances, induce strange and somewhat exceptional human experiences in controlled laboratory conditions. Many of these experiences mimic those reported spontaneously in more natural everyday settings by 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 perhaps some aspect of these MFs could be present at locations that seem to produce multiple instances of these experiences spontaneously. Based on this evidence, many researchers are now searching for the spontaneously occurring, natural, environmental equivalent of these artificially induced experiences. Indeed, it still remains to be demonstrated whether these fields are actually available naturally at such locations and that they are indeed causally related to reports of strange experiences. To summarize, the MF / brain account, as it has become known, remains to be systematically field-tested in a serious and scientific manner.

The essence of the MF / brain account is a simple one: that the experience of apparitions could represent an instance where an observer has been exposed to potentially brain-stimulating, complex MFs that may, for whatever reason, occur naturally in the field. The

account is attractive as it provides a testable framework for the occurrence of such spontaneous experiences in the field. For instance, one way to field-test the MF / 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. These measurements should then be compared with appropriate baseline locations (where nothing unusual has been reported) for an indication of natural variance. Perhaps there are constant differences in background MF characteristics between test sites and baseline locations. Perhaps any important field characteristics are more transient in nature. If this is the case, then it would be important to analyse fields that occurred prior to, during, and after an individual reports their strange experience. Such a setting could demonstrate (in principle) the MF signature that may induce, or be associated with, the nature of the experience spontaneously occurring in the field. This framework is directed purely at environmental variances at locations; however, with the appropriate technology, we could also address the usefulness of using portable EEG brain signal measuring equipment as well. Here, we may be able to demonstrate changes in the internal brain signals that are associated with the external changing MFs. If it ever happened, it would indeed represent a hugely important contribution to contemporary apparitional research. The potential methodological frameworks are legion, but all depend on an appropriate system for measuring MFs in a valid and accurate manner.

Many systems currently being used by researchers are totally inappropriate to test the MF / brain account in the field. For instance, some popular devices claim to measure small deviations in the magnetic and / or electric field. However, such devices often don't sample changes anywhere near fast enough to detect many of the fields that could be important. Furthermore, many simply detect

'changes' and do not quantify such changes in any detailed or useful way (increments / decrements). Furthermore, performance curves indicate that none of the cheaper commercially available meters reliably go down to the important low frequencies implicated as crucial in the laboratory studies (down to 5Hz and preferably 0Hz). These machines are simply not accurate or sensitive enough in the way which researchers need them to be. Furthermore, a single device is of little use without a baseline recording also being taken simultaneously in order to ascertain how localised such transients may be. Finally, few systems interface with any data-logging system (eg. a computer) for detailed analysis away from the field.

It seems logical, if not a necessity, to base any MF detection system on the findings from the laboratory studies themselves. These studies do provide a guide for what sort of fields we need to look be looking for, what field strengths could be important, what field frequencies, the role of DC (static) and AC (varying) magnetic fields, etc. The system outlined here is based purely on the findings from neuroscience and consultations with various experts outlining the MF characteristics known to be important for inducing hallucinations. The approach has been to look at the experimental studies and see what they have identified as being 'experience-inducing' fields, and then try to find a sensor / system that could cope with measuring these important aspects in an appropriate and interpretable manner.

The pioneer in this area is Dr Michael Persinger. Most of Dr Persinger's research has used weak, complex electromagnetic fields to induce strange experiences. The field frequencies used are typically less than 30Hz. The intensity of the fields used is generally in the range of 0.1 - 1.0 microTesla (1-10 milligauss), though as much as 5 microTesla have been used in some cases. The

amplitudes can be varied and then can be pulsed to create other complex fields. These fields interact with and stimulate the natural temporal processing patterns within localised neural systems. Other researchers have experimented with DC fields, varying the amplitudes, or using steady-state fields, and there has been success here with inducing strange experiences as well.

Using these studies as a guide, we can say that any appropriate system should be able to do the following (i) measure both AC and DC fields, as both have been implicated as being important for different types of experience, (ii) measure the magnetic field strength, and (iii) measure 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 and meaningful way. Measurements should also be made in a multi-axis (3-way) manner that would make measurements more comprehensive and informative. A fast sample rate (real-time) is absolutely crucial in order to tap into the types of highly variant fields that could be present. It is also crucial that the system can accurately cover a frequency spectrum from around DC - 100Hz (the brain generally operates at 1-50Hz and these very low-frequency fields have been implicated in brain stimulation studies). Sensors should also be interfaced to computers so that all data can be logged for further analysis away from the field. The system would also need to have some form of frequency analysis software for a detailed assessment of field frequencies and harmonics.

The MADS system is based on a design consisting of two separate high-speed, 3-axis digital fluxgate magnetometers from Applied Physics Systems, USA. The specific sensors chosen are the 540 digital fluxgate magnetometers. These are the fastest sampling, most accurate, and most sensitive magnetometers available in a reasonable price range (indeed, they are better than many sensors

considerably more expensive). These sensors are capable of measuring magnetic field changes right down to 0.5nT (the Earth's magnetic field is around 40,000 - 50,000nT, thus this is very sensitive). The 540 digital sensors are ideal for situations where high-speed magnetic measurements must be made. The sensor measures both the AC and DC fields separately. It also measures all three (x, y, z) planes simultaneously (for both AC and DC), and samples each separate plane 250 times a second (slower rates can be selected if needed). Note that here there is no need for a separate system for static DC and changing AC fields, since the 540 measures them both at the same time with the same degree of sensitivity and accuracy! This is a big advantage. The use of a digital sensor eliminates the need for any analogue to digital (A to D) conversion board (as this is done by the sensor) and complex programming. One problem with analogue systems is that once the signal has been digitised it is very difficult to program the computer to sample rapidly and accurately enough to fulfil the sensitivity requirements of the sensor. At the very least this can mean the frequency range will be reduced, and at worst researchers unaware of this problem could misinterpret results. The 540 system carries out the A to D conversion within the sensor itself. The 540s also have a gain control that can be used to detect extremely small changes in the field even in the presence of a large static field (eg. changes of 0.5nT in the presence of the Earth's own magnetic field).

These sensors will interface directly with a computer and are supplied with their own free data acquisition and display program (run on the accompanying laptops). The net result is an extremely well thought-out sensor system, as good as any we can find, at a reasonably affordable price.

Letters

From Mike Goodall

I, too, was surprised that you did not receive any letters to balance the views of Jason Braithwaite's assumptions in his articles. So here goes.

I was a founder member of ASSAP, back in the early eighties and have, throughout my life, been interested in all aspects of the paranormal. I have also always been of a very scientific mind and always looked for a logical explanation for all so-called paranormal phenomena. Until recently I had been a sceptic on all matters of Spiritualism, mediums and ghosts. Until about 5 years ago.

It was November 1999 when I saw the little advert in our local rag for the Spiritualist meeting in our local village hall. I had always been interested in things psychic, and had even had a couple of unexplained incidents happen to me. This would be the chance to find out the truth myself, from the inside. I had always been sceptical of the afterlife, having seen several of those 'Bingo' type demonstrations of mediumship on the TV over the years. (TV programmes on Living TV now show excellent examples of mediumship). You know the type of thing... 'Has anyone here lost an old lady who suffered from a heart attack' ... up go a hundred hands! It doesn't really convince anyone; certainly not a sceptic like me. This could be my chance to find out the truth. Although being sceptical, there had always been something there in the back of my mind telling me that after all there could be something in it.

It took quite a bit of courage to ring up the president, whose number was listed in the advert, to ask for some further information. I need not have worried, as I was met with a friendly, helpful voice on the other end and invited to that evening's meeting.

I climbed the stairs to the little function room in the village hall and, upon entering, found that I already knew one of the guests there. This took a little of the fear away. It was a very pleasant meeting, with a good medium, and despite not getting a message myself, I felt that there was certainly more to find out. I attended several more meetings before being invited to join their 'open circle'. (This, for the uninitiated, is a group of interested parties - open to anyone - who learn Spiritualism and mediumship, among many other things. Open circles normally turn into 'closed circles', where only the chosen group attend, and then 'mediums' circle'; where all are considered to have mediumistic abilities). Within two years I had experiences that amazed me. I could give messages to other members, not generalizations, but specific details, only known to themselves.

The transcripts that follow are of two such experiences ...

In a closed circle meeting we were given the task of giving a reading to another partner in the circle for around 20 mins duration. We did not know in advance who our partner for the evening would be.

When it was my turn, I started with the name Keith, and described a pub setting with small square tables with cut outs on the corners, and a bar billiards game. At first he could not take the information, but then remembered that he had had a friend called Keith and that they used to meet in a club bar (not a pub, but the same surroundings). I described Keith as a small skinny man with a

roundish face, round glasses and a peaked cap. He instantly recognised the description. I then went on to describe his brother called Ted, and even told him their surname. I said that although Ted was his brother he looked nothing like him and was in fact tallish and well built. All this was accepted as true by my partner. I went on to describe the club bar and the decor. A dado rail was around a third of the way up the wall all around, and the section below was covered in vertical wood panelling. (All accepted). I then went on to describe another friend of his called Albert, who was sitting at a table drinking, and I told him that I had the impression that he was drinking far too much for his own good. Alongside him was a thin chap called John who was also accepted. My partner told me that he had one evening been to the greyhound track with Albert and friends, and that when they returned they had gone back to the club drinking. The next day he was told of the death of Albert who had apparently died of too much drink over the years. There were many more descriptions given to my partner, most of which were accepted (some couldn't be remembered in any detail) and we ascertained that the timescale pointed to the late 1950s, and not in this area.

The second message, given in our mediums' circle, was for the president of the church, and is given here...

I had been given the name Edith together with a John and an Albert; all for our Church President. He was able to take Edith as Edie, who I described as a large lady. John, who I described as a very thin, fragile man with a walking stick, was also taken. His half-brother, Albert was also taken, and I described him as a large jolly man with red cheeks, who smoked a pipe and was seen with a drink in his hand. After this I brought through a lady who I thought was their mother, but turned out to be an aunt. She was also a large lady and I identified her by her middle name, which was also taken. (Middle

names are often given where the Christian names could be confused with another family member). I described the fireplace in her living room as having a railing type of fireguard, quite high, almost covering the entire fireplace (rather unusual). This was taken by my recipient, as he remembered it well. Apparently this was to stop him falling into the fire as a child. I described the clock on the mantelpiece in detail, but this was apparently the one which was kept on a side table in the room, and was still in the family.

Then something strange happened. He asked me to describe the cellar of her house, where he often played, together with any of the contents. I visualised going down the stairs and described some sacks of coal, some beer bottle crates and a smallish table. Then I saw an item which puzzled me. It was a large copper disc standing against the wall, like the bowl of a large bed warming pan. He was amazed with this piece of evidence. It was actually the polished copper back of a large circular mirror which had a broken glass, and had been turned round and stood up against the wall. I also saw a fold-up chair, like film directors use, and he told me that he often played with this chair. Another unusual item that I saw was some material hung against the wall, which turned out to be a curtain covering a skylight in the cellar. At the end I told him the position of all these items in the cellar and all were confirmed as being in their respective places. I then told him the number of the house where all these memories had come from, No. 27. He could not remember the number but, as it was only a few miles away, he said he would investigate and let me know. A couple of days later he told me it was in fact No. 26. (Not too bad, just one out!) I was really pleased with this reading, as I had obtained some real evidence which could not have been guessed at by chance.

I wonder if you skeptics out there have any explanation of how I could have told these people all this specific information. It would appear to be too accurate to just be chance daydreaming.

The only answers I can think of for these phenomena are:

- 1) The afterlife exists and this information was given to me from the 'other side' by way of a spirit guide.
- 2) I have somehow managed to read all the past events from my partners' minds. (Bearing in mind the house number was not known to the president until he visited the scene).
- 3) I have been able to tap into the universal consciousness to retrieve the information.

Also, since learning the skills of mediumship I have received words of philosophy from the 'other side' known as 'direct writing', but I know that skeptics often view this as coming from our own subconscious. However, the contents are not the sort of things I would have ever thought of.

Jason, if you really want to find out the truth, grasp the nettle, join an open circle, with an open mind, and start to learn. You will be amazed!

From Marjorie Allworth

I found Dr Braithwaite's article (*Anomaly vol. 33*) very interesting. Life needs the Earth's magnetic field to survive the coronal mass ejections, and other particles our star, the Sun, emits. There are areas of magnetic anomaly (no pun intended, honest!) in many places on the Earth and we do not know the long term effects of these areas on livestock or people living in these areas.

1) What are the long-term effects on life, particularly animal life, in areas with magnetic anomalies?

2) Is it possible that the magnetic field of the Earth carries impressions, or some memory of events, past or present, in picture or word form? Then, as it flows back into the Earth, it may leave some kind of imprint in the rocks at depth, eg. quartz has piezoelectric properties.

3) Can the memories be triggered by a person's own presence?

4) Is it possible for the 'memory' (if it does remain) to exhibit periodicity? For example at yearly intervals. The idea that magnetic (electro- or geo-type) field measurements should be included in baseline observations is, I feel, important.

One further question: could it be possible that either electro- or geo-magnetic forces could weaken molecular bonds, causing disintegration of people and /or objects?