

# Temperature in Haunting Experiences: A Basic Primer for Paranormal Enthusiasts

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## Introduction

Among the various kinds of subjective perceptual experiences that one may report having in a reputedly haunted house, one of the most common may be sensing a noticeable change (typically a drop) in the ambient background temperature within the space of a room (Coghlan, 1998 – 1999; Osis, 1982; Roll & Persinger, 2001; Roll et al., 1996; Turner, 1970). These apparent “cold spots” may occur spontaneously and only be a fleeting feeling, or they may be persistent over time, seeming to be a characteristic part of the haunted locale and perhaps adding to its mystique.

In a related manner, some sightings of apparitions or ghosts have been accompanied by sudden feelings of cold. In his classic book *Apparitions*, psychical researcher G. N. M. Tyrrell (1953/1961) had noticed a fair degree of consistency across the reports of witnesses who had such feelings, with some stating that it was like, “...a jug of cold water poured on the nape of my neck,” or “...as if the blood was like ice in my veins,” or “...a cold, shivering feeling came over me” (p. 73). Other witnesses gave statements suggesting that the cold sensation had emanated from the apparition itself: “As the figure passed we distinctly felt a cold air,” or “Her kiss was like a waft of cold air upon my cheek” (p. 73).

A good illustrative example within the annals of psychical research of how cold sensations play into apparitional and haunting phenomena can be found in the “Morton Ghost” case, documented and reported by 19-year-old medical student Rosina C. Despard (Morton, 1892).<sup>1</sup> From about 1882 to 1889, the Despard family repeatedly saw the apparition of a woman dressed in a widow’s outfit that would wander through their house in a specific, repetitive pattern.<sup>2</sup> Some of the family also occasionally heard footsteps, and on one such occasion, the footsteps seemed to be pacing up and down the second-floor landing. This drew the attention of Rosina’s three sisters and two family maids, who emerged from their rooms with lit candles in their hands to see who was causing the ruckus. As the unseen footsteps passed them, they reported feeling “‘a cold wind,’ though their candles were not blown out” (p. 320). This suggests that the wind may have been a subjective feeling, and not a physical breeze. On another occasion, when Rosina’s sister Edith, her mother, and a maid heard footsteps pass close by them on the landing, they suddenly felt an “icy shiver” (p. 325). Edith herself had an encounter with the spectral widow on another night, while she was singing in the drawing room. She stopped in the middle of her song when she suddenly “...felt a cold, icy shiver, and I saw the figure bend over me, as if to turn over the pages of my song” (p. 325).

Are all such cold sensations during apparitional and haunting phenomena purely in the mind of the witnesses (as the candle example in the Morton case suggests), or do some have an actual physical basis in the environment? To find out, some parapsychologists have taken temperature measurements during field investigations of haunted locations to see if they differ much from control locations where no ghosts or haunt phenomena have been reported. In a

similar fashion, many amateur paranormal enthusiasts have taken readings with thermometers as part of their attempts to search for spirits in ostensibly haunted locations (Coghlan, 1998 – 1999).

To help guide them along in their efforts, we are providing at Public Parapsychology (<http://www.publicparapsychology.org>) another basic primer – another “crash course,” if you will – for paranormal enthusiasts that may be useful in conducting their haunt investigations. We give a brief overview of what parapsychologists have learned so far about temperature in relation to haunting experiences, and provide some useful tips on how to properly collect and interpret temperature readings during field investigations. This primer can be used along with our previous one on magnetic fields (Williams, Ventola, & Wilson, 2007), which it is meant to supplement.

### **Temperature: The Parapsychological Perspective**

A glance at the research literature suggests that parapsychologists have gotten a mixed bag of results when taking temperature measurements during field investigations of haunted sites. An initial effort to collect detailed measurements was made in mid-1968 by the Doncaster Group for Psychical Study as part of an investigation of a haunted house in the mining village of Askern, South Yorkshire, England (Turner, 1970). Residents and visitors of the home had reported hearing metallic clicks and other unusual sounds, seeing spectral human figures, and feeling sensations of cold in the living room and bedroom of the home. The cold feelings would even sometimes occur in the living room while it was being warmed by an active fireplace. To objectively explore the cold feelings, the Doncaster Group had set up an array of thermometers in the living room and bedroom, which were monitored during seven separate overnight surveillance sessions. While some of the cold sensations felt by the group were not accompanied by thermal changes and may have been purely subjective, others had produced patterns of potential interest. Cold sensations had occurred at around the same time (between 12:30 and 1:00 A.M.) on 4 of 6 surveillance nights<sup>3</sup>, with 3 of the 4 occurring in the bedroom (p. 341). When the cold sensations did actually coincide with a marked change in the thermometer readings, the change was a drop of about 9 to 10 degrees Fahrenheit (p. 352). Some of the thermal changes also coincided with the reported clicking sounds, which the Doncaster Group suspected may have resulted from thermal contraction of the metal building materials in the home (i.e., they may have been the sounds of the house settling with temperature shifts, and may not have been anomalous).

Measures of temperature and humidity were also taken during an extensive field study of an allegedly haunted Illinois home by researchers Devin Terhune, Annalisa Ventola, and James Houran (2007). Apparitions, object movements, and sensed presences were experienced by the residents and a visitor of the home, and the residents’ dog was noted to display unusual behaviors at times. When digital temperature and humidity readings collected in the allegedly haunted home were compared to the readings taken in a control home located next-door where no haunt phenomena had been reported, the haunted home was found to be significantly cooler and moister than the control home. However, the three areas within the haunted home where the haunt phenomena were most active did not differ much from four other areas that were less active.

Not all field investigations have found that the background temperature of haunted sites is associated with anomalous experiences, however. In the early part of 2001, researchers from the University of Hertfordshire in England and the University of Edinburgh in Scotland had conducted a field investigation, led by psychologist Richard Wiseman, of the reputedly haunted South Bridge Vaults in Edinburgh. The vaults consist of a series of chambers connected by corridors that were built in the late 18th century to house the poor during the construction of the

South Bridge. Poor living conditions and overcrowding had turned the vault area into a disease-ridden slum, and it was abandoned in the 19th century. It was opened again to the public in 1996 for tours, and several tourists and guides have reported seeing apparitions, hearing footsteps, and sensing an unseen presence in the vaults since that time. To explore the reported haunt reports, the researchers monitored several physical variables, including air temperature. Although nearly half of the people (44%) visiting the vaults during the study had reported a haunt-related experience (some of which included sensing a change in temperature), the temperature level and the speed of the air inside the vaults were not significantly related to the amount of experiences people had. Instead, they were more related to the height and amount of lighting in the vaults (Wiseman et al., 2003), suggesting that haunt experiences can have more than one cause.

To explore the role that temperature might play in ghost experiences, Dean Radin and Jannine Rebman (1996) had monitored the temperature (among other physical variables) inside a custom-built psychomanteum in their laboratory. A psychomanteum is a dark chamber modeled after an ancient Greek oracle that is used as way to artificially induce apparitional experiences through the ages-old technique of scrying (i.e., gazing into a reflective surface; in this case, a mirror). As volunteers sat inside the psychomanteum chamber and attempted to have an apparitional experience, Radin and Rebman monitored certain aspects of their physiology (e.g., their heartrate, skin resistance, and blood-pulse volume) to see if these might be associated with changes in the environment during an apparitional experience. The results of the study indicated that shifts in the volunteers' physiology were most often associated with changes in air temperature inside the psychomanteum, although not all of these may have been related to experiences of apparitions. While preparing for the psychomanteum session, three people (the experimenter, the session facilitator, and the volunteer) were all in the chamber at the same time, which may have brought about an increase in air temperature due to their body heat. The temperature would have begun to drop soon after the volunteer was left alone in the chamber, and this could have coincided with shifts in the volunteers' physiology as they begun to relax. Thus, some of the temperature changes seen in this study might have had a natural cause. A closer study of psychomanteum temperature changes in relation to apparitional experiences is currently being conducted by researchers at Liverpool Hope University in England (Parsons & O'Keeffe, 2006).

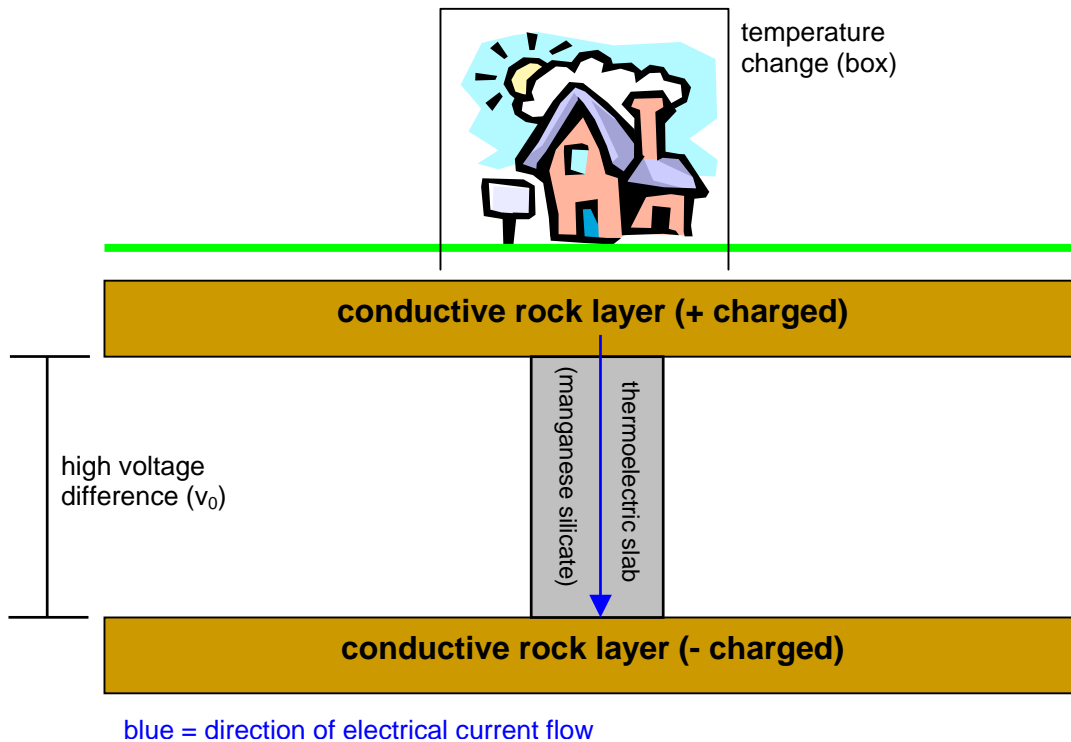
The results of these parapsychological studies suggest that temperature changes may play a part in some, but probably not all, haunting experiences. Some of these changes may be purely subjective, but others may have a physical basis that is measurable using thermometers and other kinds of thermal sensors.

### **The Peltier Effect: A Natural Source for “Cold Spots?”**

If some “cold spots” found in haunt sites are indeed physical occurrences, then could there be a way to explain their origin? Canadian neuroscientist Michael Persinger (1974, pp. 179 – 183) thinks that there may indeed a way, one that has its basis in the natural geophysical processes of the Earth. It's called the Peltier effect, and it's rather easy to demonstrate in a physics lab.

Here's a basic overview of how it works (see Figure 1): Below ground, there are several layers of mineral and rock that are composed of silicates, which are capable of conducting electricity.<sup>4</sup> Some silicates, such as manganese silicate, are thermoelectric materials that can change temperature when an electrical current is passed through them. Under the right conditions, high voltage electric fields can build up in underground rock layers, either from seismic activity near fault zones<sup>5</sup>, or from electrical activity during thunderstorms (Persinger, 1974, 1985). If

enough electrical charge builds up between two rock separate layers of opposite polarity, an electrical current can begin to flow between them. If a slab of thermoelectric material happens to lie in between these two rock layers, the current going through the slab will induce a thermal change, which in most cases would be a decrease. Homes that have been built above these rock layers would then experience a notable drop in temperature as one gets closer in proximity to the layers (this means that they would probably be felt most often in basements or low ground floors). In addition, since the flow of the electrical current between the rock layers would produce a magnetic field<sup>6</sup>, it might be possible to observe a change in magnetic field strength (as measured by a magnetometer; see our previous primer – Williams, Ventola, & Wilson, 2007) in conjunction with a sudden drop in the surrounding temperature at a haunt site.



**Figure 1.** A basic illustration of the Peltier effect. A slab of thermoelectric material is situated beneath a reputedly haunted site, positioned vertically between two electrically conductive rock layers with opposite charge. If a current begins to flow through the slab following the formation of a high voltage difference ( $v_0$ ) between the two rock layers, a thermal cooling effect would be triggered that reduces the temperature in the layers above the slab, including the low foundations of the haunt site. This effect would last until the voltage is discharged and the current between the rock layers dissipates, on the order of one to ten minutes. Based on Persinger, 1974, p. 180.

An example of the Peltier effect in action may be found in the case of the White Ranch haunting, investigated in the mid-1990s by noted parapsychologist William Roll of the University of West Georgia (Roll et al., 1996).<sup>7</sup> The case focuses around a Texas hunting lodge built in the 1950s that was renovated by a group of local cowboys. While staying overnight at the lodge, the cowboys would hear various sounds that would often wake them up at night, including what they described as heavy footsteps, loud crashes, and thunderous poundings on the wall. When rising to determine what had caused the noises, they were regularly baffled to find that nothing had fallen or moved, and that there would be no obvious sources for them. Another interesting feature of

these noises is that not everyone heard them each time; some of the cowboys stated that they would be awakened by the loudness of the sounds, but then be surprised to find that others in the lodge had slept right through the ruckus. Most relevant to our discussion, the cowboys would also report feeling sharp drops in temperature in their rooms at night; one cowboy had described it as being “as cold as ice,” causing him to shiver underneath the bedsheets.

The subsequent field investigation of the lodge by Roll and his assistant Lisa Sheehan did indeed reveal that the drops in temperature at night were coincident with notable, short-lived increases in the environmental magnetic fields occurring in the early morning hours (Lisa also reported feeling the sharp temperature drop while staying in one of the lodge rooms). The lodge itself was situated close to a fault zone, and seismic occurrences in this fault may have generated high electrical and magnetic activity. In addition to contributing to the Peltier effect, the effects of this activity on the brains of people may have produced auditory hallucinations, leading them to hear the loud noises in their mind that would not be heard by others.

In some cases, the Peltier effect may even produce the opposite effect – intense heating – when the direction of the electrical current is reversed. Such an effect may have been seen in another haunt case investigated by Roll in Indiana (Roll & Persinger, 2001, pp. 153 – 154). Aside from seeing apparitions, hearing unusual sounds, smelling foul and flowery scents, and experiencing cold spots in various areas of their home, the family in the case also occasionally reported fires that would spontaneously erupt and scorch their ceiling, which were not due to electrical sparks or other common causes. Roll noticed that the home was situated within a triangular-shaped area of high-tension power lines that may have produced strong electromagnetic fields, and that there an underground stream beneath the home that may have helped generate a high geomagnetic field. Both of these could have perhaps contributed to Peltier effects that spontaneously shifted in current direction.

### **Tips on Temperature in Haunt Areas**

We now present some useful tips for paranormal enthusiasts on taking temperature readings during field investigations of haunts. Several of these tips can be used in conjunction with those we offered in our previous primer on magnetic fields (Williams, Ventola, & Wilson, 2007).

1.) **Always take note of the area you are measuring to make sure that any notable changes in temperature that you pick up are not due to natural causes, such as air conditioners or heaters, open ventilation ducts, wall cracks, or weather changes. This will better ensure that the change you are getting is more likely to be an anomalous one, rather than a false one.** Although this tip is pretty much common sense, it is also perhaps the most important one to follow. The difficult thing about using temperature as a variable to monitor for the occurrence of haunt phenomena is that it can have so many natural and artificial sources. The closer you pay attention to your surroundings and remain aware, the better the chance you have of ruling out conventional sources. As you begin to do this, the possibility that you are getting something anomalous, and thus something more interesting, begins to go up. Be sure to note down any conventional sources that you may in your investigation log or report. Also, for outdoor haunt sites, be sure to note down the general weather conditions (e.g., cloud cover, presence of wind, etc.) throughout the period of the field investigation, and it might be a good idea to check

the local weather reports on TV or in the newspaper prior to the investigation. The more observant and careful you are, the more seriously others will consider your findings.

**2.) Be sure to take baseline temperature readings of the haunt site in order to determine how cold (or even warm) the site initially is. It can be helpful to compare readings taken from haunt areas where ghostly phenomena has been reported with readings taken from nearby areas where no phenomena has been reported (“control” areas).** This is one basic way to test whether or not haunt sites may be colder (or even warmer) than ordinary sites. Once you have a baseline established, you can compare it to other readings taken at a later time to determine whether or not a temperature change has indeed occurred over time, particularly if a haunt occurrence happens to take place. Measurements should first be recorded throughout the haunt site to determine the average background temperature of the site, as well as locate any areas where there might be sources that could naturally produce a change. If you have a floor plan of the haunt site available, you might note down the readings on it, along with the locations of ventilation ducts, air conditioners and heaters, windows, and other sources where air might leak into the site. This practice will also help in accomplishing the goal in Tip #1. Houran and Brugger (2000) have suggested that measurements at haunt areas should also be compared to those taken in a “control” area where no haunting phenomena have been reported. This can help to establish that the readings taken from haunt areas are anomalous, and not just part of the regular background atmosphere of the area. Field studies by parapsychologists have produced some results to suggest that haunt sites may be colder than control sites (e.g., Terhune et al., 2007), but more data on this is needed to further and better test this hypothesis. Paranormal enthusiasts can be a major help in doing this. Also, always be sure to note your units of measure (i.e., Celsius or Fahrenheit)<sup>8</sup>, for both accuracy and clarity.

**3.) To improve accuracy in temperature readings during the investigation, you might invest in a good digital thermometer.** While standard mercury bulb thermometers can certainly be useful in field investigations to take general background readings at haunt sites, the late parapsychologist Karlis Osis (1982) once observed that these thermometers may be too slow and crude to detect any fleeting changes in temperature that may result from haunt phenomena. Today’s digital thermometers are capable of registering such slight changes in real-time temperature with a fairly good amount of accuracy, and thus they may be a bit more reliable and resourceful. A good digital thermometer that is relatively inexpensive (and which also measures humidity) is the Model 63-1032 Indoor/Outdoor Thermometer with Hygrometer, made by Radio Shack. Non-contact infrared thermometers, such as the hand-held Raynger series made by Raytek (<http://www.raytek.com>), also allow temperature to be monitored accurately and at a slight distance; they are most useful for wide-open spaces, but also tend to be quite expensive (\$150+ range). Thermovision cameras and lenses, which visually display temperature fields in an array of false colors (Andrews, 1977), have also recently become relatively inexpensive with improving technology, and can be used for monitoring temperature changes within the space of a room. Some portable ones are made by FLIR Systems, Inc. (<http://www.goinfrared.com/cameras/>), but they may still be a bit on the pricey side for most paranormal enthusiasts (\$700+).

**4.) Consider taking magnetic field readings alongside temperature readings to see if any changes in temperature are accompanied by changes in magnetic field strength, as would be predicted by the Peltier effect.** Although the Peltier effect is a plausible mechanism

for cold spots in haunt sites, additional data are needed to further test its validity. Again, paranormal enthusiasts can be of help in accomplishing this. While collecting and noting down temperature readings, other members of your group might also collect and note down magnetic field readings in your vicinity. Since most fields produced by the Earth are DC magnetic fields, it is recommended that the Tri-Field Natural EM Meter (the one with the blue label) be used to take magnetic readings (especially since this meter registers *changes* in the local geomagnetic field, which may result from an electrical current as in the Peltier effect). However, some seismic phenomena may also sometimes produce AC electromagnetic fields, so taking readings with the Tri-Field Broadband Meter (the one with the tan label) should also be done from time-to-time. (If possible, you might have members of your group take readings from both meters while you take temperature readings, since the two meters measure different kinds of magnetic fields; one meter may detect a field change that the other is unable to.) We refer the reader to our previous primer on magnetic fields for more information about taking magnetic field readings (Williams, Ventola, & Wilson, 2007).

As a basic way to look for a possible relationship between temperature and magnetic field strength, you might consider plotting each set of readings (one for temperature, one for magnetic field) in a line graph drawn on a piece of graph paper, and then compare the two graphs to see if they show any similar patterns (such as both showing a sharp increase, or “spike,” at a certain time) with each other. Just as a picture is worth a thousand words, a basic line graph of your data can say a lot about the trends occurring over time at a haunt site.

## Conclusion

Although this primer is not meant to be comprehensive, we hope that it will be helpful for paranormal enthusiasts when it comes to measuring temperature, and that it will serve as yet another stepping stone for those who wish to take their approach to haunting investigations a step further.

## Notes

1. For reasons of anonymity, Rosina Despard had reported the case under the pseudonym “Miss R. C. Morton,” hence its name. Since the house at the center of the case was located in Cheltenham, England, it also came to known by some as the “Cheltenham Ghost” case. The details of the case were independently verified by the prominent psychical researcher Frederic W. H. Myers, who stated that, with one minor exception (an elderly man couldn’t recall one event that had happened 6 years before), he “...found no discrepancy in the independent testimonies” (Morton, 1892, p. 311). Incidentally, Rosina Despard went on to become a practicing physician in forensic medicine, which was quite an achievement for a woman in the 1880s.

2. The Morton ghost’s pattern of movement would begin on the second floor of the Despard home, usually after Rosina would hear someone at her bedroom door. Upon opening it, she would see the ghostly widow walking down the landing hallway towards the stairs. The figure would then descend to the ground floor and enter the drawing room, standing at the window on the far side for a time. Then it would exit the room and head for a passage leading to the garden, where it would regularly vanish. On rare occasions, when other people or objects were in its way, the apparition would either simply pass through them, or would make slight deviations in its path to avoid them (Morton, 1892, p. 317, 321). Attempts by Rosina to corner the apparition were unsuccessful, as it would simply disappear (p. 322). Although it initially appeared “...so solid and life-like that it was often mistaken for a real person,” according to Rosina (p. 321), the spectral widow seemed to gradually fade with time, and had completely vanished by 1889. Inquiries by the Despard family suggested that the apparition may have represented the second wife of a previous occupant of the house.

3. One surveillance session showed a steady temperature throughout the night.

4. To add a bit of chemistry for the technically minded, the element silicon in its pure solid, crystallized form is not very electrically conductive. However, when tiny amounts (as small as 0.0001%) of other elements such as arsenic or boron are mixed in, the conductivity of silicon increases greatly, making it a useful component in semiconductor devices (Masterton & Hurley, 1997, pp. 264 – 265). When combined with oxygen, silicon forms a chemical compound known as silicate ( $\text{SiO}_4$ ), which can be bonded with other metals. More than 90% of the rocks and minerals found in the Earth's crust are silicate-based materials (Hill & Kolb, 1995, pp. 313 – 322).

5. Certain mineral crystals, when subjected to intense pressure such as that generated by seismic activity, can produce a certain kind of natural electricity, known as piezoelectricity (see Persinger, 1974, Ch. 5, for more info.).

6. In physics, this would follow from Ampere's law (with Maxwell's correction), one of Maxwell's laws that relates electricity to magnetism (see Griffiths, 1999, p. 323; and Halliday, Resnick, & Walker, 1997, Ch. 30).

7. This case was profiled in a segment of the TV show "Unsolved Mysteries"; a video clip of this segment can be found on YouTube at: [http://www.youtube.com/watch?v=8xks0itnI\\_Y](http://www.youtube.com/watch?v=8xks0itnI_Y)

8. Fahrenheit is most commonly used temperature unit in the United States, and is related to Celsius by the equation  $F = (9/5)C + 32$  degrees, where C is the temperature in Celsius (Halliday, Resnick, & Walker, 1997, p. 457).

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