TnT Paranormal Investigators LLC

Bumps in the Night!!!!

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Paranormal "U"

Sensations and Perception - Hearing

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This is a brief summary of the auditory system and how the brain perceives sounds. A paranormal investigator should have a basic understanding of the different aspects of how we hear (process sound) to better validate a personal experience or piece of audio data.

As we all remember from our High School Biology classes, the physiology of the Human ear provides us with the sense of hearing. Sound is a form of mechanical pressure where a sound wave passes thru the air and is converted to electrical impulses by the ear which sends these directly to the brain for 'processing'. The mechanics of the ear allow the encoding of pitch and intensity, but the real magic happens when the brain 'decodes' this auditory chaos of information and combines this with the other senses to define how we perceive (and in some cases mis-perceive) the world around us.

The brain processes sound in the auditory centers (Auditory cortex) but for a sound to be detectible it must be within a certain frequency range and above a certain minimum intensity and direction, all of which are defined by human physiology, but degrade with age, illness, and injury.

- **Auditory masking** is when certain sounds/tones will override (mask) other sounds partly due to interactions of vibration patterns within the ear drums but may also occur when sounds are close together but not simultaneous. A good example is a speaker being hard to understand in a crowded room.
- **Sound Discrimination** is the brain's ability to latch on to certain sounds (that aren't masked) when many other sounds are present.
- **Sound Localization** is an inherent ability provided by the brain at birth. Localization is the ability to determine the location of a sound based on the time/tone/intensity differences detected by the both ears. Although this task can be complex and complicated by echos that are always present, we do not even notice them because the brain fuses groups of sounds that arrive at the ear within 35 msec or less together as a single sound (hence echo filtering). Localization is also validated by the subjective 'distance' cues where once a sound is identified and the expected intensity is compared to the actual intensity (i.e. a distant sounding train whistle must be from a 'distant' train).

So once a sound is detected, latched onto, and localized, it is processed for 'meaning'. Speech and Music are good examples where higher level meaning must be harvested from the disorganized groups of sounds that are being fed to the brain. Perception of speech relies of many different cues, but some/many are missing (for various reasons) which leaves the brain to fill in the gaps in order to process the 'meaning'. The term matrixing (Pareidolia) can apply to both visual as well as auditory senses. Do you remember hearing about the record that played backward having some hidden message? In reality, it's just your brain trying to make sense of garbled gibberish which can at times really sound like something understandable.

When trying to identify what is being said on that faint EVP or hard to understand Ovlius the same challenges apply: There are missing auditory cues that forces the brain to 'fill the gaps' which is why multiple people may hear different things.