

Rorschach Audio: Ghost Voices and Perceptual Creativity

Joe Banks

*Sometimes we see a cloud that's dragonish;
A vapour sometime like a bear or lion,
A tower'd citadel, a pendant rock,
A forked mountain, or blue promontory
With trees upon't, that nod unto the world,
And mock our eyes with air.*

—Shakespeare, *Antony and Cleopatra*

*It is the story of the signaller who misheard the urgent message
“Send reinforcements, am going to advance” as “Send three
and four pence, am going to a dance.”*

—E.H. Gombrich, “Some Axioms, Musings and Hints on Hearing”

The title of this article is taken from a text written for the sleeve notes of a compact disc called *The Ghost Orchid*, subtitled *An Introduction to Electronic Voice Phenomena* [1]. For those who may be unaware, Electronic Voice Phenomena (EVP) are a class of allegedly mysterious vocal recordings, and while several explanations have been offered to explain their origin, the overwhelming majority of EVP researchers believe that their recordings constitute physical evidence of contact with the afterlife. In other words, most EVP researchers believe that it is possible, using various radio and electrical engineering techniques, to record the voices of ghosts.

Edison and Marconi both believed that radio technology might enable contact with the afterlife—an idea that fit well within the context of Victorian enthusiasm for various forms of Spiritualism. However, the EVP movement proper began in 1957, when Friedrich Jürgenson, an artist who had previously painted portraits of Pope Pius XII, found human voices intruding on recordings he had made of his own voice and then, in 1959, of birdsong. Convinced that these recordings represented communications from alien life-forms and, for instance, his deceased mother, Jürgenson temporarily abandoned his artistic career to concentrate on these experiments and publicize his findings. In 1960, he started recording similar voices with radio equipment, and published the books *Rösterna Från Rymden* in 1964, *Sprechfunk mit Verstorbenen* in 1967, and *Radio och Mikrofonkontakt med de Döda* in 1968. From 1968 onwards, Jürgenson cemented an increasingly close relationship with the Vatican, making a number of documentary films about religious themes and executing portrait commissions for Pope Paul VI [2]. Jürgenson's publications, and particularly the idea that he had amassed evidence proving the existence of an afterlife, attracted considerable attention. Konstantin Raudive carried on the cause of EVP research, allegedly making tens of thousands of recordings. With the

publication of his book *Breakthrough* in 1971 [3], Raudive became the leading light in an international circle of EVP enthusiasts. Today the movement that Jürgenson and Raudive effectively founded has evolved into a widespread activity of such complexity that it would be foolhardy for any author to attempt a truly comprehensive survey. The purpose of this article is not to attempt that daunting task but to address the major, salient issues that recur throughout EVP research and that in fact underpin the entire belief system.

This article argues that EVP represents a classic example of a supposedly “strange” phenomenon for which there is the proverbial “perfectly rational explanation” and, perhaps somewhat counterintuitively, also suggest that a critical discussion of EVP can yet be a rewarding and valuable exercise. This is because despite my initial skepticism and belief that exposing the central fallacy involved in EVP is little more than a statement of the obvious, I now believe that it can also be shown that EVP recordings evidence psychological phenomena that are inherently interesting and important. Similarly, studying how this evidence has been turned into a complex, often entrenched belief system is of genuine anthropological interest, not least because the process entails the use of electronic technology to help construct, rationalize and validate a fundamentally anti-scientific belief system.

The material presented will also be used to support a secondary hypothesis—that an understanding of the processes involved in EVP may also contribute to theories of art criticism, both in general terms and with particular reference to music and sound art. It has to be said that the ideas on which these hypotheses are based are not innovative, that they are already embedded in mainstream critical theory and that they trace direct descent from an individual generally recognized as the most important figure in the history of Western art. What is most surprising about these ideas is not their existence, but the extent to which they, like sound art in general, have previously been ignored. Many of the relevant psychological theories are not merely familiar to, but were in fact pioneered by, art historians and critics (several of whom have

ABSTRACT

The author considers research into allegedly supernatural “Electronic Voice Phenomena” (EVP) in light of both anecdotal reports and formal experimental studies of related aspects of human auditory perception. He offers the primary hypothesis that an understanding of the relevant aspects of psychoacoustics provides a complete explanation for most EVP recordings, and a secondary hypothesis that an informed understanding of these processes is as relevant to the emergent field of sound art as studies of optical illusions have been to the study of visual art.

Joe Banks (sound artist), 9 Cranfield House, 97 Southampton Row, London WC1B 4HH, U.K. E-mail: <joe2banks@yahoo.co.uk>

been major contributors to *Leonardo*). However, it still seems to be the case that ideas that were developed primarily to explain certain aspects of visual perception and enhance the appreciation of visual art also have great relevance to issues of acoustic perception—and that this aspect of their interpretation seems to have received relatively scant attention. While a body of anecdotal and experimental evidence does exist connecting visual art theories to ideas about acoustic perception, to the best of my knowledge this material is dispersed and has neither been grouped together previously nor applied to practical issues such as assessing EVP and sound art.

It should be admitted that this secondary hypothesis only became apparent after I noticed a fairly serious mistake in the text of the *Ghost Orchid* sleeve notes, a mistake that I return to below.

My first exposure to examples of EVP was as a teenager, when I heard a flexidisc of voices recorded by Raudive, published in 1982 by *The Unexplained* magazine [4]. The style of these recordings is typical of EVP—a narrator introduces “contacts” that manifest as brief bursts of distorted voice accompanied by very high levels of radio interference and what appears to be machine noise picked up from the recording apparatus by a microphone. The examples are repeated several times, and the ambience of the recordings is menacing. My initial reaction to hearing this material was one of sheer disbelief, since, in addition to being instinctively skeptical about any claims to the existence of the supernatural, I saw that outright forgery of such material would be absolute child’s play. The most primitive tape-recording and overdubbing techniques could easily produce phenomena of this nature—not least because the more basic the technology used, and the lower the signal-to-noise ratio, the more the finished product would resonate with an aura of menacing low-fidelity mystique, which could even help impart a subjective impression of authenticity to such material. Put simply, if the voices recorded had been of a quality comparable to conventional studio recordings of speech, then nobody would have believed such rubbish for a minute—the fog of noise that degrades these signals still seduces some people into suspending disbelief. It seemed amazing that, in assuming shared faith in the alleged origin of these recordings, the disc’s publishers had the confidence to expect

such a degree of gullibility on behalf of their audience. I will be perfectly frank in saying that the way in which this material was interpreted would be funny were it not so tragic. However, I will explain why I now believe that some EVP researchers, although misguided, may have genuine belief in their work, and that many of the signals they have recorded are not consciously faked, but are instead commonplace material phenomena whose origin and nature they have misunderstood.

The hypothesis that EVP could be described as authentic phenomena, and that explanations exist to account for how they arise, is drawn from a number of sources. The neurologist Oliver Sacks discusses the subject of acoustic projection in his book *Seeing Voices* [5], quoting descriptions of the so-called “eye music” and “phantasmal voices” from the poet David Wright’s autobiographical work *Deafness*. Having lost his sense of hearing in childhood, after having learned to speak, Wright found himself able to experience reconstructed sound-images projected by his mind into his perceived environment as an extension of visual cues. Lip-reading triggered actual voices inside Wright’s mind, despite the fact that no environmental information was being provided by his ears. The projecting effect was so strong that Wright even reported hearing ghost-sounds conjured by the motion of trees in wind. Wright explained,

my deafness was made more difficult to perceive because from the very first my eyes had unconsciously begun to translate motion into sound. My mother spent most of the day beside me and I understood everything she said. Why not? Without knowing it I had been reading her mouth all my life. When she spoke I seemed to hear her voice. It was an illusion which persisted even after I knew it was an illusion. My father, my cousin, everyone I had known retained phantasmal voices. That these sounds were imaginary, the projections of habit and memory, did not come home to me until I had left the hospital. One day I was talking with my cousin and he, in a moment of inspiration, covered his mouth with his hand as he spoke. Silence! [6]

Wright’s experiences are extreme versions of a capacity for projection that not only manifests in all senses in most people, able-bodied or otherwise, but that also underpins the whole process of perception. Sacks describes similar examples involving anosmia (loss or impairment of the sense of smell), blindness and the “ghost” or “phantom” limbs experienced by some amputees—the lat-

ter being the subject of fascinating research by Vilayanur Ramachandran, director of the Center for Brain and Cognition at the University of California, San Diego [7].

David Wright’s faculties may sound extraordinary, but Celia Woolf, a speech and language therapist at the Department of Phonetics and Linguistics at University College, London, has described experiments suggesting that lip-reading is an important part of normal speech perception:

The McGurk effect refers to the results of a study in which subjects were asked to watch video recordings of a face saying monosyllables, and report what they had heard. It was found that subjects’ perceptions were strongly influenced by the visual information provided by the face. So when the video was dubbed (the face says “ga” but the voice says “ba”) listeners reported hearing the syllable “da” which is acoustically midway between “ga” and “ba” [8,9].

The effect then is that when the eyes are closed the sound heard is different from when they are open [10].

Among the wartime experiences related in his autobiographical novel *The Periodic Table*, Primo Levi recalled a laboratory test apparatus called a heterodyne, which, under certain conditions, functioned as a radio receiver. He described an “intricate universe of mysterious messages, morse tickings, modulated hisses, deformed, mangled human voices which pronounced sentences in incomprehensible languages or in code . . . messages of death . . . the radio-phonetic Babel of war” [11].

It is perhaps not surprising that studies of this confused miasma of impulses also provide useful clues to unraveling the enigma of EVP. Olive Renier and Vladimir Rubinstein wrote in their book *Assigned to Listen* that “the mechanism of projection plays a major part in hearing” [12]. *Assigned to Listen* describes the “ether war” fought by BBC foreign-language radio monitors, who scanned the Second World War’s “remorseless sea of noises” for the broken voices, coded messages, news, propaganda, disinformation and entertainment broadcasts that fought for bandwidth with the incessant vagaries of ionospheric propagation and the turbulence of electrical and magnetic storms. BBC radio monitors recorded often-weak impulses onto primitive Ediphone wax-cylinder “transcribers” (magnetic tape recorders were not introduced until the end of World War II), degrading the quality of discernible intelligence to the point at which the prob-

lems encountered converged with issues familiar to photo-reconnaissance analysts and restorers of antique paintings. The necessity of analyzing voice recordings over and over to detect faint traces of intelligence in a dense fog of noise is virtually identical to some EVP research techniques, but not surprisingly, *Assigned to Listen* makes no mention of any monitor ever ascribing any signal to ghosts.

While stressing that “this crucial fact of Gestalt psychology is not easy to explain in words,” *Assigned to Listen* discusses ambiguities of acoustic perception in some detail.

Projection is the mechanism by which we read familiar shapes into clouds, or melodies into the monotonous rattle of a train. In a similar way we can read speech into a medley of noises. Leonardo da Vinci advised young painters to practice their imagination by looking at cracked walls and reading fantastic scenes into strange patches [13].

Similarly, Celia Woolf describes an experiment indicating that “some listeners perceive time varying sinusoidal tones as speech, with some listeners even reporting the sentence they had ‘heard’” [14]. *Assigned to Listen* asserts that

perception is there so that we should know when to stop projecting . . . a configuration of sounds evokes some vague association of words and we start projecting them into the medley. Then we shall either find that there are other sounds which stand in the way of this projection or we shall be happy until we pass to larger contexts. . . . if then the sense does not fit we must . . . start introducing some auxiliary hypothesis to save our projection from being confuted by the remaining signposts of sound [15].

An important lesson of the monitors’ listening experience was that monitors should not be too dogmatic about “saving” a troublesome interpretation. They should instead recognize the long-term importance of admitting failure when necessary and discarding incorrect hypotheses, even if much effort had been invested in their formation. If a monitor thought he or she had finally made sense of an utterance swathed in noise, only to find its apparent meaning contradicted by the sounds that followed, they were not to try and force a square peg into a round hole out of sheer frustration. They should instead have relaxed, staying true to the axiom that tiny bursts of information are inherently easier to misinterpret than large ones, and trusted that their inability to interpret a larger sense indicated that the initial hypothesis had been wrong. They should then have formu-

lated a new hypothesis and tested it until it was either discarded or proven—“the whole comes before the part.” “Rather than pressing the data of sound into our pet projection, we must discard the projection and start again” [16].

Similarly, audiologists sometimes advise those who begin to experience conversational problems owing to partial deafness not to concentrate too hard on hearing individual words, but instead to relax and interpret the overall flow rather than the component detail of conversational speech. Evidently con-

centrating too hard on the minutiae of unclear sentences can effectively make deafness worse, with psychological stress factors exacerbating what were originally only physical problems. These experiences tend to support the contention of Michael Handel, a historian of military intelligence and deception, that “another piece of advice . . . based on psychological tests, is not to put too much confidence in conclusions drawn from a very small body of consistent data . . . because conclusions drawn from very small samples are highly unreliable”

Fig. 1. Image from the flyer advertising the “Rorschach Audio” lecture, Royal Society of British Sculptors, London, 29 May 2000. (© Joe Banks) Electronic Voice Phenomena (EVP) recordings can be thought of as “Rorschach Audio”—the aural equivalent of Rorschach inkblot tests. Responses to EVP recordings reveal something of the role that emotional factors can play in shaping perceptions.



[17]. *Assigned to Listen* states that “six or ten syllables may answer to all sorts of projections, but thirty or forty are less likely to trick you” [18]—typical EVP recordings often involve no more than three or four. Handel’s advice concurs with the basic principles of statistics and experimental science. Handel also quotes Richards Heuer that

as a general rule, we are more often on the side of being too wedded to our established views and thus too quick to reject information that does not fit these views, than on the side of being too quick to reverse our beliefs. Thus, most of us would do well to be more open to evidence and ideas which are at variance with our preconceptions [19].

In a 1996 *Scientific American* article [20], Shawn Carlson described an experiment designed by Diana Deutsch, a professor at the University of California, San Diego. Deutsch’s experiment demonstrates how acoustic projections can be explored in controlled conditions [21]. Deutsch recorded the sound of a person speaking two neutral words and created a sequence in which the voice samples are reproduced in alternating stereo channels. Played back over stereo loudspeakers at “dizzying” speeds, fast enough that the sounds remain recognizable voices while scrambling semantic content, the sequence produces what Carlson described as “a pattern that sounds like language, but [in which] the words are not quite recognisable.” Carlson continues,

within a few seconds of listening to this strange cacophony, my brain started imposing a shifting order over the chaos as I began hearing distinct words and phrases. First came “blank, blank, blank.” Then “time, time, time.” Then “no time,” “long pine” and “any time.” I was then astonished to hear a man’s voice spilling out of the right speaker only. In a distinct Australian accent it said “take me, take me, take me” [22].

The ink-blot test invented by Swiss psychiatrist Hermann Rorschach springs to mind (Fig. 1), and it is interesting to note that the single Rorschach test described by Henry Gleitman induced projections not only of “a head blowing smoke,” but also of a “ghost” and an “angel” [23]—the last two themes strongly resembling the emotional agenda that underpins many examples of EVP. In my own experience, it proved necessary to listen to Deutsch’s recording many times before words began to emerge with crystal clarity, but when subjectively “real”-sounding voices did start to form, the experience was striking, and the illu-

sions were sometimes very clear indeed. Deutsch’s recording resembles the voice manipulation experiments of the sound artist Saul Z’ev and M.A. Naeser and J.C. Lilly’s “Repeating Word Effect” [24].

To my amazement, I discovered that techniques identical to those devised by Deutsch are established methods for eliciting EVP, known to EVP researchers as “Speech Synthesis,” “a phenomenon which,” EVP researcher Raymond Cass claims, “at the present time completely evades physical explanation” [25].

It could be argued that EVP experimenters are in a sense psychologists who have misunderstood their own work; however, while it seems clear that many EVP researchers are inadvertently reproducing acoustic projection experiments, it cannot conversely be argued that the Deutsch illusion inadvertently reproduces EVP. The diverse and evolving meanings projected into the unvarying source material of Deutsch’s illusion even by single subjects demonstrates that this phenomenon is endogenous—that it comes from inside the subject—and subjective. Conversely, the preemptive narration characteristic of EVP demonstration recordings creates a shared illusion of entirely false exogeny, the sense that the meaning comes from outside listeners’ imaginations, and hence an illusion of objectivity. The widespread use of conventional pre-recorded audio in EVP speech synthesis firmly establishes the subjective origin of the imputed meanings. This argument could be countered by pointing to the observation of shared meanings attributed to specific EVP. However *Assigned to Listen* contends that “projections have a way of sticking to sound . . . it isn’t easy once you hear your train rattling Carmen to make it change to the Blue Danube” [26]. The process by which EVP experimenters create this illusory objectivity is a subject we will return to shortly. To be fair, some EVP researchers are aware of the phenomenon of acoustic projection [27] and use jumping lock-groove vinyl records, looped magnetic tapes, computer audio samples, static and other sources of repetitive, pseudo-random noise as raw material for inducing projections. What seems absent from their discussions of these techniques is any suggestion that projection effects might be responsible not only for EVP created in these ways, but in fact for *all* manifestations of EVP.

To place these lessons in the context of broadcast EVP, I note that signals from across the radio spectrum have a ten-

dency to drift away from their original broadcast frequencies and spontaneously demodulate onto amplifying circuits, because all audio amplifiers and gain stages in radio circuits can function as broadband Very Low Frequency (VLF) receivers. Microphone cables often function as VLF antennas, especially when unshielded and used outdoors, with the amplifiers they are attached to functioning as VLF radios. Taxi transmissions, emergency services, airband, maritime, military, short-, medium- and long-wave commercial broadcasts, TV voice channels, ham radio experiments, CB radio, bugging devices, conferencing systems, intercoms, baby intercoms/alarms and analog mobile phones share a tendency to emerge in the same VLF waveband, frequently producing stray signals. These signals are well known to PA operators, people who install in-car entertainment, and wildlife recording engineers, who employ an arsenal of electromagnetic shielding devices and techniques to eliminate this interference—Faraday cages, electrically conductive tents, paints, coaxial cables, earth-lines, grounding, etc., and the radio-frequency “chokes” or line-filters installed in PAs, car stereos and VLF natural-phenomena receivers. When stray signals are heard, they are often very garbled and therefore ideal raw material for acoustic projection. Some EVP researchers have attempted to exclude interference using metal Faraday cages, which surround their experimental apparatus, draining the external electromagnetic field into the earth. However, most EVP techniques require not the removal but the addition of extraneous noise to the basic input in order to improve the success and clarity of recordings. Radio static, deliberately mis-tuned voice transmissions (especially in languages not understood by the researchers), audio oscillators, microphone feedback and tape recordings of foreign-language courses, birdsong, fountains, hissing taps, rain, surf and wind are all used. Deliberately adding noise to improve EVP reception may seem counterintuitive, but it makes perfect sense in the light of previous observations. Investigator Raymond Cass states, amongst other wilder hypotheses, that EVP voices “may be a mutant development of some remote corner of the subconscious mind, or a transient by-product of the electromagnetic pollution which now rings our planet,” implying that these explanations are mutually exclusive [28]. My belief is that both interpretations are simultaneously true, but

that the mental process responsible is really not that remote.

A typical EVP process involves prompting the imagination by asking questions of deceased “entities” out loud—in the manner of a Spiritualist séance—and recording and then repeatedly analyzing any signals that have emerged. Researchers allege the presence of polyglot speakers switching languages from one word to the next, and enthusiasts evidently scour foreign dictionaries for meanings that concur with the rhythms of recorded sequences. EVP researchers maintain that the hypothetical ghosts invent neologisms and take liberties with grammar. In other words, we are asked to accept that entities having the intellect to acquire a grasp of many languages have lost the ability to speak grammatically or confine themselves to proper words. These interpretive techniques set the widest possible parameters for the subjective attribution of meaning, thereby validating and accumulating “data” that would otherwise be disregarded as meaningless. By asking questions of the spirit world, researchers tell themselves and other listeners how to interpret sounds before any signals manifest, heavily influencing subsequent analyses. When compiling EVP demonstration recordings the convention is to reinforce this process by announcing meanings before replaying examples, rendering the material useless for objective analysis (note that similar prompts existed on the cassettes from which *The Ghost Orchid* CD was compiled, but even though most were removed at the CD mastering stage, the prompts survive in the form of track titles).

George Miller described an experiment that demonstrates the strength of this prompting effect:

David Bruce recorded a set of ordinary sentences and played them in the presence of noise so intense that the voice was just audible but not intelligible. He told his listeners that these were sentences on some general topic—sports, say—and asked them to repeat what they had heard. He then told them that they would hear more sentences on a different topic, which they were also to repeat. This was done several times. Each time the listeners repeated sentences appropriate to the topic announced in advance. When at the end of the experiment Bruce told them that they had heard the same recording every time—all he had changed was the topic they were given—most listeners were unable to believe it [29,30].

The process of prompting has interesting parallels with the misdirection

techniques employed by cardsharps, stage conjurers, pickpockets, magicians, ventriloquists and military strategists, some of which involve ingenious uses of sounds (although the most effective misdirection technique employed by conjurers is, of course, the presence of the “glamorous assistant”).

Interpreting this evidence en masse, the implication is that we are usually unmindful of the extent to which projections take place continuously, as an inherent part of normal cognitive processing, rather than as anomalous, occasional events. For instance, it is well known how difficult it is to spot errors of detail when one is familiar with the overall sense and structure of a text. Novice readers spell out individual letters before interpreting a written word, while the eyes of experienced readers glide over text in high-speed saccadic jumps. The degree of familiarity that comes from having written a particular text oneself makes it almost impossible for authors to switch off the projecting mechanism and detect small errors isolated in text of their own composition—hence the necessity for proof-reading as a profession separate to authorship. Similarly, in acoustic cognition, we actively project sense, interpreting data as conglomerate chunks of meaning according to reflexive pattern-recognition techniques that skip from point to point, ignoring some detail in favor of fuzzier, more cost-effective mental strategies. Normally projections generate interpretations that concur with the spectrum of inputs from vision, taste, touch, smell and memory. Therefore, we are only aware of the process of projection, especially its imaginary, subjective aspect, when it occasionally generates images that disagree with the broader context—errors that we perceive as perceptual illusions.

This theory traces its origin back to Hermann Helmholtz’s *Treatise on Physiological Optics* of 1866, as discussed by Richard Gregory. Helmholtz categorized perceptions as unconscious inductive inferences that, despite our heavy reliance on memory as well as direct sensation “come about with immutable certainty, lightning speed and without the slightest meditation” [31]. Gregory traces the evolution of these ideas to the discovery of the camera obscura and the concomitant realization that the images the brain perceives are not the same as the sensations received by the eyes.

An important precursor to Helmholtz’s ideas can be found in the text of the engraver William Hogarth’s book *The Analy-*

sis of Beauty, published in 1753 (which was the subject of an installation in the Noise exhibition at Kettle’s Yard, Cambridge, U.K., 2000). Hogarth wrote,

Experience teaches us that the eye may be subdued and forced into forming and disposing of objects even quite contrary to what it would naturally see them, by the prejudice of the mind from the better authority of feeling, or some other persuasive motive. But surely this extraordinary perversion of the sight would not have been suffr’d, did it not tend to great and necessary purposes, in rectifying some deficiencies which it would otherwise be subject to (tho’ we must own at the same time, that the mind itself may be so imposed upon as to make the eye see falsely as well as truly) for example, were it not for the controul over the sight, it is well known, that we should not only see things double, but upside down, as they are painted upon the retina, and as each eye has distinct sight [32].

This capacity for projection reaches its ultimate aesthetic realization in the anamorphoses of Salvador Dalí—his *Paranoiac Visage—The Postcard Transformed*, *Head of a Woman in the Form of a Battle* and the particularly eerie *Metamorphosis of Hitler’s Face into a Moonlit Landscape* and *Portrait of my Dead Brother* [33]. The similarities between these last two paintings and themes in many EVP recordings do not seem accidental, since they are all representations of personalities that typically haunt the unconscious mind. Jürgenson and Raudive believed they had recorded deceased relatives, and Raudive, also Adolf Hitler. Raymond Cass recorded what he believed to be the voice of Heinrich Himmler, and EVP recordings are littered with alleged contacts with deceased friends, relatives, important historical figures and menacing apparitions of evil personalities whose memories linger in the human imagination. Dalí was quite rightly kicked out of the Surrealist movement because of his obsession with Adolf Hitler, despite the fact that he was being true to at least one set of Surrealist imperatives—the preoccupation with the murmurings of the subconscious mind. A common aspect of EVP listening is the impression that when first encountered (often accidentally, as a result of tape-recording experiments) stray voices are interpreted as speaking directly to the person who recorded them. The great Surrealist film-maker Jean Cocteau exploited this in *Orphée*, suggesting that coded radio messages “inspired by the BBC broadcasts of the occupation” were messages from the spirit world. Orpheus asks Heurtebise, “Where could they be coming from? No other sta-

tion broadcasts them. I feel certain they are addressed to me personally” [34].

Writing in *Fortean Times* magazine, Jürgen Heinzerling described EVP as “more complex perhaps than even the contradictory abyss that is ufology” and wrote of “field research often hampered by a remarkable lack of critical judgement.” I freely admit that my opinion of EVP is deeply negatively prejudiced. However, since Heinzerling rightly argues that the scientific community’s ignorance of EVP “indirectly supports the spreading of this cult, as potential followers are confronted with convincing demonstrations that are only ‘explained’ by the quasi-religious musings of the convinced cultists” [35], what I hope to add to this debate is evidence from outside this hermetic environment, placing EVP in the context of viable explanatory material. My explanatory model posits the evolution of a positive feedback loop, in which primordial superstitions about the afterlife are sufficiently powerful to inspire the active creation of EVP. So created, EVP recordings are recycled as evidence of a factual basis on which the belief-system feeds and grows. As a form of psychological test consistent with a concept of “Rorschach Audio,” EVP recordings reveal something of the role that emotional factors can play in shaping perceptions and of the psychology of their individual “creators.” Furthermore, EVP as a belief system reveals something of the way in which people construct, authenticate and share beliefs and the way in which social groups gather around ideas. Mental health issues associated with EVP and the subject of how public ignorance of scientific psychology has been manipulated by fraudulent psychic researchers, and, with respect to related “back-masking” phenomena in rock music, also by heavy metal groups and right-wing Christian activists, are beyond the scope of this text.

The advice offered to the BBC monitors, that they should formulate, test and then either accept, refine or discard projected interpretations is similar to ideas formulated by the philosopher Karl Popper [36]. Popper propounded the usefulness not of absolute scientific truths (whose fragile, idealized perfection carries with it stylistic echoes of earlier, more primitive beliefs) but of self-refining feedback loops in which “working hypotheses” are progressively formulated, tested and either discarded or accepted according to the rules of experimental evidence.

Incidentally, Popper’s ideas seem to have been the same working principles as were embedded in the circuits of the Colossus machines designed by the mathematician Alan Turing to decipher the Enigma codes of World War II. In a recent TV dramatization of his life, the Turing character spoke of building a “machine which senses contradiction,” of how “contradiction implies the solution” and of “electricity” that “flows through the hypotheses,” in a brief but beautiful description of this interface between philosophy and electrical engineering. According to Turing’s biographer Andrew Hodges, the Enigma code-breaking process “depended on the flow of logical implications from a false hypothesis”—a concept that has interesting parallels with the recommendations described in *Assigned to Listen* [37]. Since important philosophical ideas are not necessarily either complex or obscure, and since they can be embedded in abstract automata as well as real-world engineering designs, this digression suggests that such ideas can just as easily be embedded in sound art. Lessons about scientific methodology can be, if not learned, then reverse-engineered by taking a critical interest in styles of pseudo-scientific thought. In this case, the entire EVP belief system is a macroscopic false hypothesis condensed from a larger body of microscopic false hypotheses. Scientific method itself can be regarded as depending on a flow of logical implications from the history of false hypotheses.

This argument highlights the importance of openly admitting to “honest” mistake—indeed this article echoes this point, because much of its content was inspired by just such a mistake. When compiling the material for the original *Ghost Orchid* sleeve notes, I attributed advice about psychological projection to authors Olive Renier and Vladimir Rubinstein, who were BBC monitors in WW2. The origin of this advice was a paper entitled “Some Axioms, Musings and Hints on Hearing” written by their monitoring supervisor—Ernst Gombrich. It was only on discovering this mistake that I realized the extent to which investigating this subject could also provide tools for analyzing sound art.

Psychological projection is discussed in detail in Gombrich’s classic *Art and Illusion*, in which he also mentions his acquaintance with Karl Popper in Vienna before World War II. Gombrich cites Leonardo da Vinci’s famous advice to novice painters, which is particularly interesting because of its final sentence:

You should look at certain walls stained with damp, or at stones of uneven colour. If you have to invent some backgrounds you will be able to see in these the likeness of divine landscapes, adorned with mountains, ruins, rocks, woods, plains, hills and valleys in great variety: and then again you will see there battles and strange figures in violent action, expressions of faces and clothes and an infinity of things which you will be able to reduce to their complete and proper forms. In such walls the same thing happens as in the sound of bells, in whose stroke you may find every named word you can imagine [38].

While Diana Deutsch points out that “Leonardo may have been particularly susceptible to such transformations,” because “perhaps this facility is associated with extreme creativity” [39], the phenomena Leonardo described are acoustic projections closely related to Deutsch’s own experiments and to EVP. What is most surprising is that while the influence of Leonardo’s advice with respect to figurative and abstract painting is probably inestimable, from the point of view of fine-art practice his final sentence seems to have been almost totally ignored.

The psychologist Georgy Kepes characterized perception as an active, inherently creative process [40]; and I draw this article towards its conclusion by stating my agreement with what I believe is an idea both developed and shared by Helmholtz, Gombrich, Gregory and others, that at a fundamental neurological level many of the faculties exercised in basic forms of perception, in the formulation of scientific hypotheses and in the appreciation of art have a great deal in common. There is much we can usefully learn from improving our knowledge of, and much we can usefully achieve by promoting understanding of these processes. With respect to the role that projection plays in the appreciation of art, one must acknowledge that this is sometimes taken to ridiculous extremes. Nonetheless, the process of reading “meanings” into artworks is simply an extension of processes that are hard-wired into everyone’s perceptual mechanisms. Exercising this faculty is the essence of artistic appreciation, as well as of appreciating sound art.

Finally, the style and content of this article may seem a harsh appraisal of phenomena whose creative impetus we know full well stems from an instinct that we all share—the desire to triumph over the tragedy of human mortality and to retain contact with lost friends. I then

would like to suggest that the fundamental message of any statement undermining belief in life-after-death remains, as always, the same; it is the most romantic notion that humankind has ever conceived—seize the day.

Acknowledgments

Many thanks to Knut Aufermann, Diana Deutsch, Ernst Gombrich, Caroline Grigson, Mike Harding, Chris Patten, Ed Pinsent and Celia Woolf for feedback and information, to Nic Collins, Colette Bailey at the Royal Society of British Sculptors and to Phil Hallett of the Sonic Arts Network. *Rorschach Audio* is dedicated to Geoffrey Grigson (1905–1985), poet, naturalist and ether warrior.

References and Notes

1. Joe Banks, *The Ghost Orchid*, Ash International, PARC CD1 (1999).
2. Mike Harding and C.M. von Hausswolff, "1485.0 kHz." *Cabinet* magazine, Issue 1 (Winter 2000) pp. 56–61, citing Friedrich Jürgenson, *Rösterna Från Rymden* (Stockholm: Saxon and Linström Förlag, 1964); Friedrich Jürgenson, *Sprechfunk mit Verstorbenen* (Freiburg, Germany: Hermann Bauer Verlag, 1967); Friedrich Jürgenson, *Radio och Mikrofonkontakt med de Döda* (Uppsala, Sweden: Nybloms, 1968).
3. Konstantin Raudive, *Breakthrough* (New York: Taplinger, 1971).
4. These recordings were originally released with *Breakthrough* and are reproduced in full on *The Ghost Orchid* [1].
5. Oliver Sacks, *Seeing Voices* (London: Picador, 1991) pp. 5–6.
6. David Wright, *Deafness* (New York: Stein and Day, 1969); quoted in Sacks [5] pp. 5–6.
7. Helen Phillips, "They Do It with Mirrors," *New Scientist* (17 June 2000).
8. Celia Woolf, correspondence, 8 December 2000.
9. H. McGurk and J. MacDonald, "Hearing Lips and Seeing Voices," *Nature*, No. 264 (1997) pp. 746–748.
10. Jens Bernsen, *Lydd i Design* (Copenhagen: Delta Akustik & Vibration/Dansk Design Centre, 1999) p. 93.
11. Primo Levi, *The Periodic Table* (London: Abacus, 1986) p. 55.
12. Olive Renier and Vladimir Rubinstein, *Assigned to Listen* (BBC, 1986) pp. 75–79.
13. Renier and Rubinstein [12] p. 76.
14. Remez et al., *Science* **212**, pp. 947–950, reported in Woolf [8].
15. Renier and Rubinstein [12] p. 76.
16. Renier and Rubinstein [12].
17. Michael Handel, "Intelligence and Deception," in John Gooch and Amos Perlmutter, eds., *Military Deception and Strategic Surprise* (London: Frank Cass, 1982) p. 138.
18. Renier and Rubinstein [12].
19. Richards J. Heuer, Jr., "Strategic Deception: A Psychological Perspective," *International Studies Quarterly* **25**, No. 2, 294–327 (June 1981); quoted in Handel [17].
20. Shawn Carlson, "Dissecting the Brain with Sound," *Scientific American* (December 1996) pp. 80–83.
21. Diana Deutsch, *Musical Illusions and Paradoxes*, Philomel Records CD 001 (La Jolla, CA, 1995) tracks 5, 6. The CD can be ordered from Philomel Records Inc., PO Box 12189, La Jolla, CA 92039-2189, U.S.A.
22. Carlson [20] p. 83.
23. Henry Gleitman, "Perceptual Hypotheses," in *Psychology* (London: Norton, 1986) pp. 203–204.
24. M.A. Naeser and J.C. Lilly, "Repeating Word Effect," *Journal of Speech and Hearing Research* (1971).
25. Raymond Cass, narration transcribed from original cassettes used for compiling *The Ghost Orchid* [1].
26. Renier and Rubinstein [12].
27. Leonard Lander, "Audiomancy," in *Beyond the Dial* (Wasa: Trapezohedron Press, 2000).
28. Cass [25].
29. George Miller, *The Psychology of Communication* (London: Penguin, 1967) pp. 79–80.
30. David Bruce, "Effects of Context on the Intelligibility of Heard Speech," quoted in Colin Cherry, ed., *Information Theory* (London: Butterworths, 1956) pp. 245–252.
31. R.L. Gregory, "Perception as Hypotheses," in *The Oxford Companion to the Mind* (Oxford, U.K.: Oxford Univ. Press, 1987) pp. 608–611; see also the entry on Hermann Helmholtz, pp. 308–310.
32. William Hogarth, *The Analysis of Beauty*, Joseph Burke, ed. (Oxford, U.K.: Oxford Univ. Press, 1955) p. 119.
33. Robert Descharnes and Gilles Néret, *Dalí* (Cologne: Taschen, 1997).
34. Jean Cocteau, *Cocteau*, Carol Martin-Sperry, trans. (New York: Viking, 1972) pp. 101–191.
35. Jürgen Heinzerling, "All about EVP," *Fortean Times* No. 104 (November 1997) pp. 26–30. This article contains much specific information on EVP for which space is not available here.
36. Popper's ideas are discussed in this context in E.H. Gombrich, *Art and Illusion* (London: Phaidon, 1959) pp. 271–272.
37. Andrew Hodges, *Turing* (London: Phoenix, 1997) p. 26; for a more detailed explanation of this idea see also Andrew Hodges, *Alan Turing: The Enigma* (London: Vintage, 1992) pp. 179–183.
38. Gombrich [36].
39. Diana Deutsch, correspondence, 17 August 2000.
40. Georgy Kepes, *Language of Vision* (Chicago: Paul Theobald, 1947); quoted in Robert Wenger, "Visual Art, Archaeology and Gestalt," *Leonardo* **30**, No. 1, 35–46 (1997).

Manuscript received 31 December 2000.

Joe Banks is a sound-installation and recording artist who works under the brand name Disinformation. Disinformation projects have involved radio noise from photographic flash guns and welding equipment, electrical and solar-magnetic storms, alternating current, electromagnets, domestic appliances, industrial and information technology hardware, visual documentation of obsolete British military "sound mirrors" and studies of various aspects of aesthetics, morphology and acoustic perception. Details of his "Disinformation" sound-art project can be found at <<http://www.ashinternational.com>>.

Copyright of Leonardo Music Journal is the property of MIT Press and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.