SOME FINDINGS RELATING TO THE ELECTRONIC VOICE PHENOMENON

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Born in Skye, Scotland, MacRae studied electronics in London, for a time under Sir Geoffrey Housfield, FRS, joint Nobel laureate. Working at Palo Alto, he designed communications systems for NASA - one design being used as recently as the first Space Shuttle. He currently lectures in Scotland on Information Technology, and is a director of a small electronics company. His studies of "paranormal" voices on tapes represent a scientific approach to one of most controversial phenomena of our time. - Ed.

Introduction

This paper relates some recent findings in EVP by the author, and suggests that the Electronic Voice Phenomenon (or paranormal voices) is a **psi** phenomenon which - with current equipment - can be produced frequently and predictably by anyone trained in its use. Because of the availability of results it has been possible to come to some preliminary conclusions, and these are the subject of this paper.

EVP - the electronic voice phenomenon - first came to my attention in 1979, and having read about it, I decided to try some experiments - but without any noticeable success. In 1982 I got in touch with some of the few remaining EVP investigators left in the UK.

The "field" seemed to proceed in the most unscientific manner, nothing was ever measured, although the words "research" and "expert" were bandied around like tokens in a game of "let's play scientists." Instead of measurement, judgment by recourse to reputation was the rule, indeed "reputation" was the name of the game, it seems. There was a sort of subjective scale for rating the "quality" of

utterances, although it is doubtful if it was actually quality in the Hi-Fi senses of bandwidth, and absence of distortion, that was being assessed - instead there was a vague idea of signal/noise ration involved.

One of my first suggestions was to try to assess the probability of recording an utterance in a given time period, from which one could then derive a measure for the quantity of "communication" being produced, by which various systems - then being adjudicated, sometimes quite viciously, by reference to reputation - could be objectively evaluated. I suggested also that simply establishing that there was a correlation between a stimulus (a question from the experimenter) and a presumed response, was sufficient evidence - if replicable - of a phenomenon. But all this fell on deaf ears.

I virtually abandoned the whole thing, but one factor kept nagging me. I had observed that almost all EVP utterances had a duration of between 0.7 and 2.2 seconds, with a pronounced probability peak around 1.75 secs.

Now this was against nature. If the phenomenon was purely a random event, a chance recording of bits of telephone conversations, radio plays, or the like - then the spread of durations for the utterances should show this randomness. There is no good reason why an utterance should lie in this slot around 1.75 secs. Various time constants were considered - but none of them could provide a plausible explanation for all circumstances.

It seemed to be a definite phenomenon, extending even to longer statements, which might consist of one 1.75 sec. segment, then a pause, finally another 1.75 sec. segment. When all looked black, I clung to this one little bit of objective truth, ignored by the "experts."

In early 1983 I started producing my own EVP, using a piece of equipment designed for another purpose. The "quality" was very poor, but results were being obtained predictably. At first I could not believe it and felt sure it was CB breakthrough, or ship-to-shore radio, or somesuch. But these were gradually eliminated. The first voice recorded used a characteristic phrase of my late father - a factor suspicious enough to make me very careful of my own

judgment, in case desire for a result should lead to unjustifiable approximations.

Following my own rule, which I had tried to convey to the EVP field, I ignored what was said and simply counted the number of voice-like utterances per unit time. Initially this was running at 0.05 utterances per minute (U/M). Within a few weeks it had improved by a factor of 10, to about 0.5 U/M. By March of 1983 it peaked around 2 U/M, and with that the next surprising development occurred. This was a direct response. One afternoon I was about to explain who I was, and began with the rhetorical question, "who am I. . ." The immediate response was "voice radio operator." In succeeding experiments other direct responses were obtained, on one occasion I found I was the responder!

Voice: "This is the voice of Cass Evitt"
Me: "Say again"
Voice: "This is Sugar Roll's voice"
Me: "Who?"
Voice: "Sugar Roll's - voice"
(Later)
"What is that"
Me: "It is a - (thinking desperately for a suitable term) - a 'Voice-Radio'."
(Later)
"How can I communicate to you better?"
Voice: "Just talk."

This was also the most prolonged sequence obtained. By this time my own research was brought to a halt. A growing demand for units, and an extensive trials program to prove that I was not the **only** person able to use the equipment, meant that all my units were out in the field, and anyway I did not have sufficient time to conduct research - hazards of the one-man, underfunded research efforts. Nevertheless the following preliminary findings are offered.

1. A General Phenomenon.

The results obtained by others, in other locations, at other times, using the equipment, are at least as good as, and sometimes better than, my own.

2. Results not due to Radio Broadcasts:

2.1. Utterances generally fall into the 1-2 seconds time slot - an improbable event.

2.2. A large percentage of utterances contain names - unlikely if these were random snatches of radio plays and the like.

2.3. A significant percentage of utterances contain one's own name.

2.4. The number of responses is in some way proportional to the number of stimuli (questions, requests from the experimenter).

2.5. Different experimenters at different times and places pick up, on occasion, identical phrases.

2.6. Some utterances use a non-standard form of English - a sort of "slick-talk," or slang, that creeps in now and then.

2.7. In some utterances, unnaturally prolonged vowel sounds occur - with a greater frequency than might be expected if radio plays were their source.

2.8. Synthetic voicing occurs too frequently to be natural.

2.9. A percentage of utterances consist of relevant comment, or direct response.

2.10. Words such as "voice" and "message" occur with abnormal frequency.

3. Speech Formats generally are of a non-Glottal Type

Speech forms which have been recorded include the following:

(a) Natural voiced speech - infrequent.

(b) Synthetic voiced speech - more frequent - this breaks down into two categories,

(i) A type in which the synthetic voicing is relatively periodic, giving the "robot-like" or "Mechanical" sound of present day computer speech

(ii) A type in which the synthetic voicing is relatively random, but within frequency constraints, gives a sound much like hoarse whispering, with the random low frequency perturbations giving these utterances an unwarranted sinister aspect.

(c) Whisper speech - fairly frequent.

(d) Whistle speech - most frequent of all, this type requires skilled listening, as the modulation of the whistle (both in terms of frequency and amplitude) is fractional compared with the normal deviations.

What is significant is that apart from the relatively infrequent type (a) all the above formats are independent of the possession of vocal cords. The afficianados of the "radio play" and "CB breakthrough" schools might care to explain why almost everybody coming through on our equipment seems to have lost their vocal cords!

4. Changes in Acoustics

The following effects depend upon one factor: an echo; echoiness, reverberations, acoustic liveliness, choral effects. The factor in question is time delay.

4.1. A significant proportion of the utterances exhibit one or more of the above effects, indeed there are examples of changing acoustics - e.g. reverberation - **during** an utterance - a rather improbable event. Furthermore, normal broadcasting studio, radio room, or vehicular broadcasts are made from an acoustically "dead" environment.

5. Evidence of Intelligence

Because of the low quality of the voices, and principally because of the quite exaggerated dependence of earlier researchers on the significance of what was said, I have decided to concentrate, rather, on measurable factors. My main effort, therefore, in looking for evidence of intelligence, has been to look for evidence of communications theory being applied. In particular, communications theory (after Shannon et al.) states that the more predictable a message becomes, the greater the probability of its being correctly received. There are many ways in which this can be applied.

5.1. By sticking to a regular schedule, same place, same time each day, the U/M is found to progressively increase.

5.2. Evidence of "redundancy" being applied.

(a) Undue prolongation of vowel sounds is sometimes found (the sort of thing one does when hailing against the wind, or across a valley, which gives the listener's pattern recognition means a better chance).

(b) Repeated messages. The best example was 10 successive repetitions of one simple phrase.

5.3. The rather too regular periodicity of some synthetic voicing, suggesting - but not necessarily implying - the use of technology.

5.4. The time correlation between the initiation of a stimulus and the reception of a response.

5.5. The fact that certain questions produce not just **no** response, but such a diminution of background noise, to almost complete silence, that the change in minus dbs is itself a signal of noticeable magnitude! Such questions as "How can I improve this equipment?" produce negative "signals" of this type, implying an appreciation of the question, and thus, intelligence.

6. Evidence of Integrity

Integrity is here used in the sense of comprising a whole, as in structural integrity. The fact that different experimenters can pick up identical phrases; and that on occasion, the same names for the correspondents have been used, does tend to indicate a degree of integrity. Against that, the probability of being able to access the same correspondent repeatedly is low, but this may be due to system defects or our own ignorance of the rules involved.

7. Evidence of Purpose

7.1. This, at one level, may be thought of as the desire to communicate, and this is supported by such evidence as there is of communications theory being applied, deliberately or intuitively.

7.2. Generally, at least 90% of all utterances are comprised of messages, warnings, instructions and pronouncements - that is of directed statements uttered, apparently, with some purpose. It should be mentioned, however, that there seems to be a considerable conflict, and no single, mutual purpose is as yet evident.

8. **Other Rules**

8.1. The system itself consists of a radio frequency spectrum, the positioning of the lines being related to a measure of the dielectric constant in the vicinity of the observer, compared with line positions of a dense spectrum extending from the audio to radio frequency range.

8.2. Evidence was gradually accumulated indicating that rules of as yet unknown communications theory may exist. This would seem to be a more advanced, broadly based theory than our late 20th Century communications theory. The communications theory of Shannon et al., may, by comparison, be rather like, "A handyman's short guide to practical communications," admirable in its attention to details and instructions for using tools (mathematical), but hardly a full treatment. The rules of Shannon and others would be exemplifications of those more general laws, yet undiscovered. But one of those laws is just coming into focus, and it would seem that Sheldrake's Morphogenetic Laws would actually be **communications** laws, although he has tended to concentrate in just one area of implementation.

9. **Implications**

9.1. That EVP, as a psi phenomenon, is available for frequent and predictable observation, using the right equipment.

9.2. That "there **is** something there," as yet unrecognized by science.

9.3. That communication rules exist which, when known, may appreciably alter our world-view.

Additional Comments

After receiving Alexander MacRae's article we wrote him, asking for a circuit diagram and a detailed description of his equipment which would enable interested readers to attempt to replicate the findings. We received the diagram (Fig. 1) and an explanation of operating principles of the device (called by MacRae MK1 Alpha) which we present below. - Ed.

There are two main inputs. One is a monitor of Galvanic Skin Response or skin resistance. What happens here is that current is applied to the skin of the hand and the potential difference between the electrodes is applied to the non inverting input of an operational amplifier which has 100% DC feedback so that it is always conductive within any reasonable limits. But what we are really interested in is not so much the potential difference across the hand but **changes** in potential difference.

That operational amplifier also has an AC gain which is variable according to the setting of another control. By AC I am talking about low frequency perturbations or broad blips. That output, which consists of a standing level on which from time to time are superimposed long term blips, is taken to the voltage control oscillator (VCO) input of a phase-locked loop (PLL) and it is then capacitively coupled to the VCO input of another PLL so that the output frequency of the first PLL is proportional to the standing level and the output of the second PLL is proportional to the change in standing level. The first PLL is set at about 100 Hz which is about the Glottal frequency and the output of the second PLL is about 5 KHz range.

Those two outputs from the PLL's are then taken to two of the three inputs of a 1 of 8 Data Selector Chips. The third selector input is taken high. So what happens is, depending on the combination you select, that determines which output pin of the Data Selector Chip is connected to the input. Both output pins on that chip are taken high and the input is taken to ground so every time the input gets connected to, for instance, output 111 - then that output goes low. The pullup resistor goes directly to VCC. Now on the other output, let's call it 110, the pullup resistor goes instead to the full wave rectified version of the long term blips on the output of the operational amplifier.

Getting back to the output of the operational amplifier - that was capacitively coupled to one PLL. That capacitively coupled output is taken also to two comparators. Both comparators are biased such that their outputs are setting at ground. The output from the operational amplifier is capacitively coupled to the non-inverting input of one and the inverting input of the other. This means that when the signal is a positive going blip one comparator output of the other comparator will go high. Those two outputs then feed into the bases of two emitter followers which join together to drive a tri-color LED.

Now, the full wave rectified version of this is picked off via two diodes which are commoned together and that through a pullup resistor goes back to the output of the 1 of 8 Data Selector. So what is happening is that the two relevant outputs of the Data Selector go to emitter followers and each emitter follower goes to a socket output. Now you can plug a coil into either of those outputs and take that coil up to a radio, or simply place the unit beside a radio. Tune to, for example, 260 KHz.

If you plug the coil into the "D" output what you will get is a continuous tone indication of what is happening to the two PLL's. It is continuous because the pullup resistor at that output goes to VCC. If you plug it into the other one then you won't hear anything until a blip comes along which gets full-wave rectified and you get a positive voltage appearing on that other pullup resistor and so for a moment you will get the tones coming through. So in one case you get continuous tones - or, if you don't want those, you can get momentary tones indicating that something has changed.

In the Mark One version the blip was further fed to a 555 to turn it on momentarily and if the blip was positive then you ran the 555 at one rate and if it was negative you ran the 555 at another rate. This was done through selection diodes. So what you've got for a positive blip was, shall we say, three low frequency pulses which sounded like three raps and in the other case you got one rap. That earlier system is now dispensed with. It's really just duplicating what shows up in the LED. None of that is really the interesting part.

Remember I mentioned that the PLL's were running at different frequencies. The frequencies of the PLL are set not just by the resistors, but by the capacitor on each one. Now, you unplug from the R input and you are still monitoring Galvanic Skin Response or body capacitance, whichever you prefer, and you plug it in now and this C input is actually in series with the timing capacitor on the

first PLL. So what you now get is a frequency in the 100 KHz range which is proportional to body capacitance, if you like, and this swoops all over the place and varies a lot. The other frequency from the other PLL is fixed and because its down in the Kilo-Hertz range, it has a set of fixed harmonics at, let's say, 5 KHz Spacing all the way up into the 3 MHz range. So that's what's happening in the Alpha.

As to the exact means whereby "EVP" enters the system, research must continue. My original premise was that a variation in either permeability (μ) or permittivity (ε) - by altering the "electrical space" - could accomplish phase or frequency modulation. Interestingly, the article in the December 1983 issue of Psi Research, "The Physical Fields of Biological Systems," mentions remote monitoring of permittivity on the bases of UHF radiation. Indeed, the first phenomenon noted on the Alpha was not the EVP but pulse-rate. The USSR researchers have remotely monitored heart rate by monitoring change in skin surface charge, but have to use a Faraday cage - equipment not needed with the Alpha (as using narrow-band radio pick-up the noise power is considerably reduced).

Where Do We Go from Here?

(Concluding Editorial Remarks)

We asked Alexander MacRae to send us a sample EVP tape. We received it but were not greatly impressed: much noise, whistle and something barely audible which (with a certain degree of imagination) can be interpreted as words. However, we still believe that the field is worthy of inquiry. If, through continuing research, we do not obtain a method for recording "voices from beyond," but rather a reliable method for monitoring force fields of biological systems without using a Faraday cage, or even evidence that the process of concentration on "white noise" enhances ESP, the endeavor seems to be worthwhile.

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