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**Remarks:**

*Similar to the  
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VOL 1, NO 2

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# Objective Events in the Brain Correlating with Psychic Phenomena

D. H. LLOYD, M.D.\*\*

**ABSTRACT:** *A new phenomenon is reported. A pilot experiment, using well-established techniques, is described, in which images transmitted telepathically are found to evoke responses in the EEG which are similar in form, and comparable in magnitude, to those evoked by physical stimuli such as sounds.*

*Remarkably, in this experiment, although the response is demonstrably present in the cortex, the recipient, though aware of the nature of the experiment, does not consciously register the content of the message or consciously recognize when it is sent.*

\*\*Pseudonym. See Editorial.

## 1. Apologia

This paper is a report of an experiment performed in September 1970 by the author, and two other physicians who wish not to be identified. The experiment is unique being the first investigation that the author is aware of to objectively and directly suggest the capacity of the human brain to respond to psychic stimuli. It demonstrates a new phenomenon. For this paper psychic stimuli is defined as transmitted thought from one brain to another with no known means of communication. Subsequent experiments have refined the techniques in this early work, and will be published at a later date. Because of lack of controls, this early experiment is not conclusive, but has stimulated further more statistically extensive research by the present author into objective correlates of psychic phenomenon.

## 2. Method

The method and instrumentation is not simple and considerable detail will be presented to allow the reader a full understanding of the techniques applied.

(i). *Averaged evoked response (AER).* Within every living brain there is extensive and complex electrical activity, which is continuous and on-going. The process which measures this electrical activity on the scalp is electroencephalography (EEG).

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If a subject is stimulated with an acoustic tone, an evoked response may be seen in the ongoing EEG. This evoked response usually cannot be visualized in the greater amplitude of the ongoing EEG, but is normally present. The response is time-locked to the stimulus, that is, it occurs at a specific time after the onset of the stimuli. This is called the latency of the response. The evoked response is multiphasic, (see Fig. 1), and the latency of each wave has been established. (5, 6, 7, 8, 11.)

The significance of each component is still controversial, but this does not concern us in this first report.

Now, the problem is that the response is too small to be readily identified in the ongoing EEG. A well established technique to extract a time-locked signal from background noise is therefore used. (2, 4, 5, 6, 12.) The technique produces in this instance an average evoked response (AER), and is as follows.

A subject is stimulated with a tone and a time segment (say 500 milliseconds) of EEG data is gathered and stored. If this is repeated 60 times, there are 60 segments of EEG data each 500 msec. long. If these 60 segments are then algebraically added on a time point-to-point basis, one 500 msec. segment results. This segment is the algebraic electrical sum of 60 segments, and can be considered proportional to the average of the 60 segments.

If no stimulus is applied, at any point of the EEG segment the electrical activity is random in its amplitude around zero units; thus there are theoretically as many +4.5 units as there are -4.5 units, and so on. The average in the infinite (theoretical) case is zero units for each point of the 500 msec. EEG segment. In the finite case of 60 segments the theoretical average of zero for every point is not attained and there are minor voltage fluctuations around zero volts.

Now, as the cortex response to a stimuli is time locked and constant in pattern (i.e. not random), an average of 60 EEG segments each containing an evoked response will produce an average evoked response.

The time-locked response patterns will not average to zero as will the background random EEG (whose amplitude in this experiment never exceeds 50 microvolts negative or positive).

The pattern of the AER appears to be characteristic for each sensory mode. (2, 3, 5, 9.)

The acquisition and storage of EEG segments and the averaging process is performed by a computer of average transients (CAT). The presentation of the stimuli and simultaneous initiation of EEG acquisition is synchronized by a device which also signifies by means of a light flash, seen by the subject, when the process starts.

**Equipment.** The instrumentation is block-diagrammed in Fig. 7. Standard EEG electrodes placed on the vertex of the skull and mastoid process were used. The output from the CAT is to a chart recorder and reproduced in Figs. 2 to 6.

To help eliminate muscle and noise artifacts usually the voltage differential is measured between two points on the scalp; and an amplifier, called a differential amplifier, is used to increase the minute voltage differential to a usable level.

To further reduce noise, a filter is inserted to block non-meaningful myogenic artifacts (less than 3 Hz i.e. 3 cycles per second) and background atmospheric and industrial artifacts (greater than 30 Hz). This filter is thus called a bandpass filter and usually is set to pass 3 to 30 Hz, the usual EEG frequencies seen from the upper brain cortex layers on the scalp in an awake subject. (10.) A tone generator is required to synthesize a reproducible, accurate acoustic stimuli which is presented to the subject in an electromagnetically shielded and soundproof enclosure.

The ideal or classical AER from an acoustic stimuli is represented in Fig. 1. Each peak is identified and has a known latency. (5, 6, 7, 8, 11.) In the practical case not every peak is always present, but the general pattern is reproducible.

(iii) *Procedure.* The experiment was performed in 2 parts. In the first instance, three tones with a duration of 200 milliseconds and a rise-fall of 20 msec. were presented to the subject and the respective AERs were obtained. Fig. 2 represents the AER from 60 samples to a tone of 500 Hz at 60 dB hearing level (a dB, i.e. a decibel, is a measure of loudness, and 60 dB HIL is reasonably loud for a person with normal hearing). (1.)

In the second part the tone generator was turned off. A sender watched the flashing light on the synchronization device. When this light flashed on, it indicated that a tone was presented to the subject (if the tone generator was on) and that at that moment the CAT was gathering an EEG segment. In the second part when the light flashed the sender created a mental image and attempted to psychically communicate this image to the receiver, that is, to transmit his thought image. In essence the mental image and attempted thought transference represented a stimulus, and substituted for the acoustic tone. The image used was a "cup of coffee". Fig. 5 and Fig. 6 represent the response obtained from this second part of the experiment. Each figure represents the AER from 60 samples.

For the sender, an attempt was made as soon as the light flashed to visualize a cup of coffee and to send that image to the receiver. This technique requires considerable practice. In each case whether the stimulus was a tone or a thought, the period between stimuli was 1 second.

Each EEG segment was 500 msec. following a stimulus, and for each test 60 segments were obtained. An observer was always present. The receiver knew that telepathy would be attempted, but did not know the content, nor the period of repetition.

### 3. Results

The results of five tests are seen in Fig. 2 to Fig. 6. Observing the responses from acoustic stimuli, it can be appreciated that the early part

Figure 1: Ideal AER

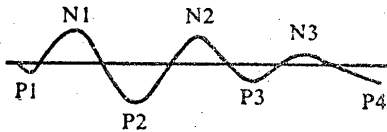


Figure 2: AER, tone 500 Hz, 60dB

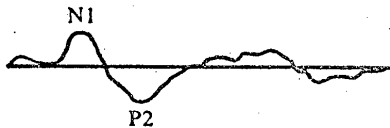


Figure 3: AER, tone 500 Hz, 60dB

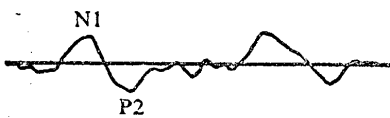


Figure 4: AER, tone 2000 Hz, 60dB

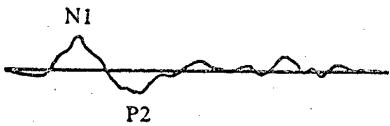


Figure 5: AER, psychic stimulation

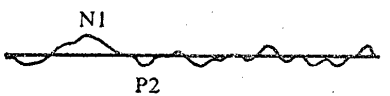
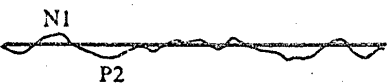


Figure 6: AER, psychic stimulation



Scale: vertical 4 mm. = 50 microvolts,  
horizontal 1 mm. = 10 millisecond

SOUND-PROOF AND ELECTROMAGNETICALLY SHIELDED ROOM

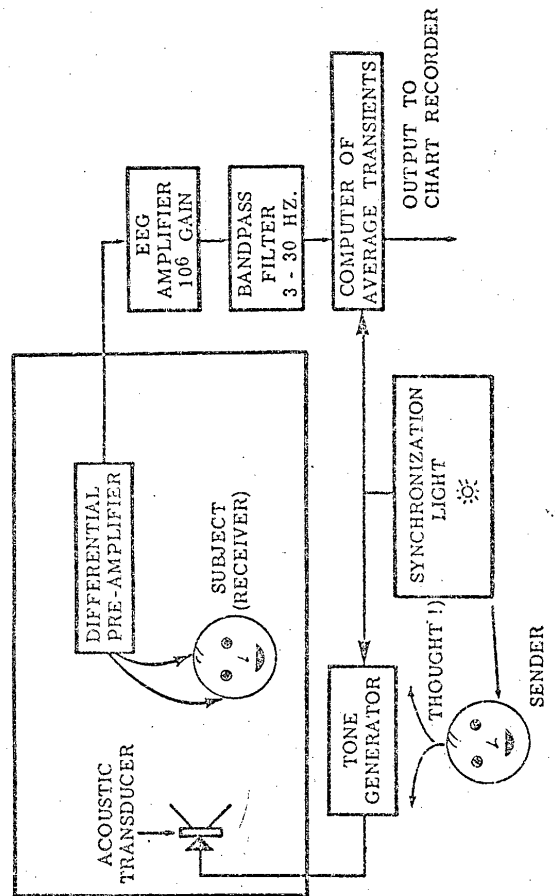


Figure 7

of each AER is similar. All three have an initial high amplitude negative peak with a latency of approximately 120 msec. followed by a positive peak of 200 msec. latency. This would correspond to N1 and P2 respectively on the ideal AER in Fig. 1.

The response obtained when the stimulus consisted of thought patterns is similar to those obtained using an acoustic stimulus. The amplitude is lower but a N1 and P2 with the expected latency are present.

#### 4. Discussion

The results of this experiment would suggest that the brain cortex of the receiver responds to acoustic stimuli and to what is believed to be transmitted thought in a similar manner. It does not imply that the same areas of brain tissue are used in each process. For example, the electrodes as used here were over the auditory cortex centers, but would have detected responses from the more posterior visual cortex if light flashes had been used as stimuli. (2, 7.) This is because, although each mode of sensory response is generated in a unique cortex area, the electrical response spreads over the cortex to involve other association areas. Each known sensory mode has a fairly unique pattern, but in this experiment no attempt was made to correlate the psychic response to known patterns.

The difficulty not dealt with in this experiment is assessing if the obtained response is a psychokinetic phenomenon. It could be suggested that the sender's thoughts may be influencing the equipment directly to produce the patterns, an equally important conclusion.

#### 5. Summary

This report describes in outline how an established technique devised for a different purpose can and has been newly applied to investigate the brain's response to a telepathic message. Although the results as presented from this experiment are not conclusive, if further research does establish the validity of the application, then the AER to psychic stimuli will be the first truly objective primary correlate of psychic phenomenon, and will suggest the human brain does indeed respond to psychic phenomenon.

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New Horizons Research Foundation

1 February, 1968