Fundacao Bial

Final Report

13 September 2002

Experimental Enhancement of Receptive Psi by Transcerebral Application of Complex Magnetic Fields

Submitted by

Dr. M. A. Persinger
Behavioral Neuroscience Laboratory
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Executive Summary

Experimental Enhancement of Receptive Psi by Transcerebral Application of Complex Magnetic Fields

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10 September, 2002

The purpose of our project was to discern if a device, developed by Stan Koren and Michael Persinger, could modify brain activity and enhance receptive psi phenomenon. The basic rational for this approach is that experimental reproduction and simulation of a natural phenomenon is the most power procedure for studying and controlling it.

We have called the device the "Octopus" because of the eight solenoids from which the fields are sequentially generated, produces brief magnetic fields around the brains of participants. The acceleration rates of the produced fields can be programmed between a few msec to several 100s of msec. The most effective rates are in the order of 20 msec. This interval, either as a phase-shift or frequency-shift, has been associated with alterations in consciousness.

Our immediate goals were to: 1) isolate the specific parameters that would facilitate the greatest accuracy of receptive psi, 2) determine the duration of exposure required to produce the optimal effects, 3) measure the electroencephalographic activity before, during, and after receptive psi to discern which areas of the brain might be involved, and 4) discern if the temporal lobe profiles of participants was correlated with their responsiveness to the treatment. We obtained information for each of these goals.

We initially modelled our experimental design from the results obtained with the special subject Ingo Swann (Persinger, Roll, Tiller, Koren, and Cook, 2002). As shown in the attached reprint, Mr. Swann's accuracy for detecting objects and photographs unknown to him was evident by blind ratings. These accuracies were significantly correlated with the amount of complex 7 Hz activity over the occipital region of his brain. A MRI (magnetic resonance imaging) indicated unusual signals within the white matter of his right hemisphere within the parietooccipital region. His experiences appeared to have been enhanced after he was exposed to the "Octopus", the device we have employed to alter consciousness.

To discern if the "average" person could display these behaviours, we exposed one person to a series of circumcerebral magnetic fields while another person sat in another room and was given a randomly selected post card. The person was asked to reminisce about what the person (who was receiving the magnetic fields) might think about if she or he saw the postcard and to <u>remember</u> all of the experiences the two may have shared in this or a similar situation. As noted in Persinger, Cook, and Tiller (2002, attached), there was enhancement of images of the possible memories of others by the person receiving the specific magnetic field stimulation that involved temporal configurations in the order of 20 msec. The congruence between the narratives of the response person who was exposed to this specific magnetic field pattern and the written comments of the stimulus person who was given the postcard was sufficient to be paired accurately by blind raters.

We had suspected that the neural process involved with receptive psi was related to the neuroelectrical processes associated with the experience of memory. We had also shown that spontaneous receptive psi experiences were more likely to occur when the global geomagnetic activity was quiet. Metaphorically, these observations suggested that all human beings are immersed in a process, perhaps strongly correlated with forces generated by the earth itself. When there are perturbations in this process the probability of this "connectiveness" decreased significantly. This was confirmed in the Persinger (2002) publication "Ambient geomagnetic activity and the experiences of 'memories': interactions with gender and implications for receptive psi".

To insure that the effects we found initially were replicable, pairs of experimenters not familiar with the hypothesis were trained to test pairs of response persons and stimulus persons. The same paradigm was employed. The response person was exposed to the circumcerebral magnetic fields while the stimulus person was shown one of five randomly selected photographs. As noted in the Booth, Charette, and Persinger (2002) study, the results were replicated. In addition, we found as we had in the previous (Persinger, Cook, and Tiller, 2002) major study that ambient geomagnetic activity at the time of the experiences mediated a powerful effect upon the act of selecting the target picture when it was given to the response person after the experiment was completed.

To discern that measurable phenomena were occurring during activation of the Octopus, Richards, Koren and Persinger (2002) exposed volunteers to the six patterns, which included the one most associated with accurate receptive psi, generated by the circumcerebral magnetic fields. During the exposure the subjects brain activity within various traditional frequencies bands and within the 1 Hz frequency bands between 4 Hz and 9 Hz were monitored by computer. We found that, as predicted by both theory and empirical measurement, the patterns associated with derivatives of 20 msec generated the greatest increase in power within the brains of the participants. The fact that "rebound" effects within the power bands of the brain waves occurred after the removal of the fields suggests that our observations were related to the presence of the fields. Very specific changes occurred within the 5 Hz to 5.9 Hz band. This band is precisely the one predicted to "sequester" or "nest" the 20 msec rates of change associated with consciousness.

However the major question is: "Can the activation of the magnetic fields around the brain of one person be associated with a change in power within the brain of another at a distance?" We assumed two brains could be viewed as Tesla coils. If there is a stimulation of one, then a representation occurs in the other. By employing the more sophisticated computer and software supplied by funding from the BIAL grant, we found clear evidence that the when the fields associated with 20 msec rates of change were applied to the brain of the stimulus persons specific increases in power occurred within the 5.0 to 5.9 Hz band in the brains of the response persons who were sitting in another room. These results are contained in the paper "Enhanced power within a specific band of theta activity in one person while another receives circumcerebral pulsed magnetic fields: a mechanism for cognitive influence at a distance" by Persinger, Koren, and Tsang. It has been submitted for publication.

To evaluate the nature of the stimulus area and what properties of this area may be important for its detection during receptive psi by the percipient, we analyzed the data collected during one of Mr. Swann's visits to our laboratory. As noted in the attached paper by Koren and Persinger, entitled "Possible disruption of remote viewing by complex weak magnetic fields around the stimulus site and the possibility of accessing real phase space: a pilot study", we found that emersion of the stimulus pictures in complex fields generated by WINDOWS software compared to DOS software seriously depressed the accuracy of the receptive psi. Technical analysis of the structure of the fields within which the stimulus was immersed showed that the WINDOWS software generated patterns that were like fractals. Each sequence was unique and different. A theory to explain this effect was developed.

Addition work by Linda St-Pierre and I explored the relationship between the subjects' temporal lobe sensitivity, as measured by questionnaire, and their responsiveness to the complex magnetic fields. As shown in previous studies, there was a moderate strength correlation (rho=0.70) between responsiveness to the fields as defined by both the numbers of experiences and the numbers of sensed presences during the presentation of specific patterns of the fields. In addition, Ms. St-Pierre exposed the same subjects to six field configurations for 5 min each. Each configuration only differed by the interstimulus interval, that ranged between 2 and 40 msec. The optimal numbers of sensed presences, which we suspect is the primary phenomenological indicator for receptive psi experiences, occurred along a gradient with a peak between 10 msec and 20 msec.

We also found, although these results must be replicated, that the subjects who were exposed to the Octopus (the circumcerebral magnetic fields) for a different experiment showed the greatest numbers of accurate experiences when their stimulus people were exposed to randomly selected photographs. Whether or not there is a cumulative or "learning" effect associated with our procedure must still be evaluated.