Experimental Dream Telepathy-Clairvoyance and Geomagnetic Activity

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Introduction

Several studies involving putative spontaneous telepathic-clairvoyant (T-C) experiences concerning death or crisis to family members or to friends have suggested a geomagnetic contribution to these phenomena. There is some evidence (e.g., Schaut & Persinger, 1985) that spontaneous T-C experiences have occurred when the geomagnetic activity was lower (i.e., calmer) than the days before or afterwards and lower than means of the monthly values. We decided to study whether this pattern was evident in experimental T-C experiences as well.

The experiments in T-C dreams grew out of Montague Ullman's (1969) observations, in his psychiatric practice, of ostensible anomalous communication appearing in the context of some dreams reported by his clients. Ullman decided to inquire whether this phenomenon would appear in dreams that were experimentally monitored under controlled conditions that would seem to exclude alternative interpretations. Ullman was joined in this project by Stanley Krippner, now professor of psychology at Saybrook Institute, San Francisco, and Charles Honorton, now director of the Psychophysical Research Laboratories, Princeton, New Jersey. The experiments were carried out in the Dream Laboratory of Maimonides Medical Center

Brooklyn, where Ullman served as director of the Community Mental Health Center.

The typical procedure followed at Maimonides was for the percipient (or subject) to arrive at the laboratory in time to meet the agent -- a person who would spend much of the night focusing upon the contents of an art print. The percipient's task was to dream about this art print even though it would be selected once the percipient was isolated from the agent. The percipient would also meet the two experimenters who would explain the procedures. (On a few occasions, the art print was selected randomly, was not removed from the sealed envelope, and no agent was used. The percipient was simply instructed to attempt dreaming about the art print.)

After electrodes were attached to the percipient's head for the monitoring of brain waves and eye movements, the percipient would have no further contact with the agent until the following morning. An experimenter threw dice that, in combination with a random number table, provided a number that corresponded to one on a sealed envelope containing an art print. The envelope was opened once the agent reached his or her private room in a distant part of the building. This art print became the target on which the agent focused during the course of the night (Ullman & Krippner, 1978).

The experimenters took turns monitoring the percipient's sleep. Toward the end of each period of rapid eye movement (REM), the percipient was awakened by an experimenter via intercom and described any dream content that could be recalled. These comments were tape recorded as was a morning interview in which the percipient associated to his or her dream recall. The interview was conducted double blind; neither the percipient nor the

experimenters knew the identity of the target nor the pool of art prints from which the target had been randomly selected.

The target for a given night and the dreams for the night often contained a number of striking similarities, suggesting that an anomaly (so-called "telepathy" or "clairvoyance") occurred. For example, on 23 May 1966 the target was a print of a zebra painted by an unknown Indian artist. The percipient dreamed about a "horse show," a "horse race," and a "striped tie." But it could have been the case that any transcript of a night's dreams might have contained passages of striking similarity to any picture to which they might have been compared (Child, 1985).

To evaluate the chance hypothesis, the Maimonides team obtained judgments of similarity between the dream content and each of the other potential targets in the pool from which the actual target had been randomly selected. Typically, three judges were used who worked blind and independently from each other with materials that had been mailed to them. They had no information about which picture had been randomly selected as the target. Any extrachance difference between targets and non-targets in their similarity to dream content was considered an apparent anomaly. Typically, the target pools used by the judges were duplicates that had never been handled by the agents.

Although percipients sometimes evaluated their own dreams against the target pool (before they discovered the identity of the actual target), and although some experiments required the judges to rate target/dream similarities on a 100-point scale, the only form in which data are available for all sessions is a count of judges' hits and misses. If the actual target had been ranked in the upper half of the target pool (e.g., #1, #2, #3 in a

pool of six) for similarity to the dreams and post-sleep interview, the outcome was considered a hit. If the actual target had been ranked in the lower half of the pool (e.g., #4, #5, #6 in a pool of six), the outcome was considered a miss. The median score of the three judges was selected to determine hits and misses.

For the purposes of this study, the ranks were divided into four categories. A "high hit" would be a rank in the top quartile (e.g, #1 or #2 in a pool of eight; #1 in a pool of six), a "low hit" would be a rank in the second quartile (e.g., #3 or #4 in a pool of eight; #2 or #3 in a pool of six). A "high miss" would be a rank in the third quartile (e.g., #5 or #6 in a pool of eight; #4 or #5 in a pool of six); a "low miss" would be a rank in the fourth quartile (#7 or #8 in a poll of eight; #6 in a pool of six).

The first night' each subject spent at the Maimonides Laboratory was utilized and the other nights were discarded. This yielded 62 experimental T-C nights available for analysis -- 18 "high hits," 29 "low hits," 7 "high misses," and 8 "low misses." The 62 cases represent an almost total collection of subjects seen between 1962 and 1969 at Maimonides.

Procedure

It was decided to use geomagnetic activity as measured by the AA index. Northern hemisphere AA values were collected for the 3 days before, the day of, and the 3 days after the day that each subject began the dream experiment. These AA values were determined from Mayaud's (1973) data and consequent monthly updates. Mean monthly values were also listed. Subjects (cases) were coded according to gender and to the closeness of their dreams'

correspondence to the target (i.e., "high hit" or HH; "low hit" or LH; "high miss" or HM; "low miss" or LM). In other words, these four groups represented Judges' ranks of successive order from strongest "hits" to strongest "misses."

The major design involved MANOVA (multiple analyses of variance). The repeated measure was the AA values for the three days before, the day of, and the three days after the day the experiment was held (a total of 7 days). The range of the key day plus/minus 3 days was selected because geomagnetic activity within this period tends to be correlated, particularly with a given day plus/minus 1 or 2 days. Except for specific periodicities, the intercorrelations between geomagnetic activity on a day and more than three days before or afterwards are not statistically significant. The two major main factors (non-repeated) were gender (male vs. female) and group. Because the numbers of subjects within the HM and LM groups were small (N=7, 8 respectively), additional analyses were completed with these two groups combined.

The major analyses involved log base 10 transformations of the daily AA values. This was completed in order to reduce the contributions from single outlier cases (days) and to increase the homogeneity of variance between groups and between repeated measures. However, all analyses were also completed using the original AA values as square root transformations because the latter were not as extreme as the log modifications. A posteriori contrasts were completed using correlated t-tests for each group and independent t-tests (between groups on a given day) to determine the source of any factor by repeated measure interactions.

Correlated t-tests with p values set at p (.01 (to reduce the effect of multiple t probabilities) were completed for each group for the AA values of each of the 7 days during the experiment and the AA average for the month in which the experience occurred. The latter analyses were completed to determine the absolute activity of the days of the experience compared to the typical monthly values rather than restricting the analyses to the relative differences between the key day and the days before and afterwards. All analyses were completed using SPSSX software on a DEC2020 computer.

Results

MANOVA for all 62 subjects according to the three major groups (HH, LH, LM plus HM), gender, and the seven repeated measures (key days plus/minus 3 days) of geomagnetic activity (AA values) demonstrated no significant group or gender interactions. However, there was a significant (F=2.53, df=12, p=.003) interaction between groups and the geomagnetic activity over days for the log base transformed AA values (Figure 1). There was also a nearly significant daily difference (F=2.54, df=6,336, p=.03). There were neither gender by day or gender by group by day interactions. The group by day interaction was significant (p=.01) for the absolute AA values as well.

Six of the experimental days involved the testing of two subjects rather than one. To determine if this slight modification in procedure may have altered the geomagnetic contribution to the psi effect, additional analyses were completed on those days (cases) where only one subject was tested. The basic results are shown in Figure 2. There was no appreciable change in the geomagnetic temporal pattern and the significant day by group interactions were not affected.

When all four groups were analyzed in a similar design, the same basic results were noted. There were no significant main effect differences between the four groups or between genders. Again, there was a significant group by days interactions (F=2.02, df=18,324, p=.009) and a between days difference. Removing the second main (non-repeated) factor of gender and simply using the four groups did not change the effect. There were still significant repeated day effects (F=3.76, df=6,348, p=.001) and a day by group (F=22.31, df=18, p=.003) interaction. The basic results are presented in Figure 3.

A posteriori tests showed that the only near-significant difference between days for the four groups occurred on 3 days before the key day (-3). On this day, the geomagnetic activity was higher (F=3.40, df=58, p=.02). This finding was confirmed by Duncan's analysis (p=.05). Correlated t-tests for within group comparisons (set at p=.01) demonstrated that the nights of the experiments for Group I (HH) were quieter than day -3 (t=2.99, df=17) and -2 (t=3.04, df=17). The night of the experience (plus 1) was significantly quieter than the average of the month (t=4.55, df=17, p=.001). Both the key day (t=2.82) and the days -1 (t=2.68) and plus 2 (t=3.84) were quieter than the month.

For the second group (LH), correlated t-tests indicated that only day -3 (t=2.80) was significantly quieter than the monthly averages. There were no significant differences between the key days and the days before or afterwards. The third group (HM) demonstrated an unusual pattern. The geomagnetic activity on day -3 was higher (t=4.81) than the monthly average while the activity on days plus 1 (t=7.78) and plus 2 (t=3.71) were lower than the monthly averages. In addition, day plus 1 was significantly lower

(t=9.80) than day -3. Finally, for group four (LM), there were no significant differences between geomagnetic activity between any of the days. Combining groups three and four (df=14), no statistically significance differences were found between the geomagnetic activity on any of the days. However, activity on days plus 1 (t=3.71, df=14), plus 2 (t=22.87), and plus 3 (t=2.75) were lower than for monthly averages.

Discussion

The results of the HH group in this study are basically similar to the V-shaped pattern in geomagnetic activity that has been observed during spontaneous T-C experiences (e.g., Persinger & Schaut, 1986). However, the HM group in the Maimonides data did show a temporal pattern that was similar to that of the group that demonstrated the strongest psi effect. Because the third day before the key day demonstrated such elevated geomagnetic activity in the HM group, we suspect that the apparent V-shape is misleading and that magnetic storms had been in progress. Our hypothesis was confirmed as can be seen in Figure 4. Analyses of the geomagnetic activity for the HM group indicated that day -3 (three days before the key day) displayed significantly greater geomagnetic activity than the monthly average. This pattern is strongly reminiscent of geomagnetic storms.

On the other hand, the HH group, the one that showed the greatest psi, demonstrated a pattern where there was no pre-experience elevation in geomagnetic activity compared to monthly values. Instead, there was a sudden decrease in geomagnetic activity; this activity was significantly lower than for the month of for the days before or afterwards. This latter pattern and not the pattern displayed by the HM group is more typical of profiles than

have been found in the cases of spontaneous T-C.

The use of AA values must be viewed with some caution. Data collected at several stations is averaged to produce global and hemispheric results. Various types of monitoring devices are used, ranging from crude to sophisticated. It will come as no surprise to learn that frequently there is little or no correlation between daily geomagnetic activity monitored at the various stations, especially those 1000 kilometers or more distant. The AA values are derived from a logarithmic process that omits much of the data in order to derive averages. Nevertheless, this approach does serve the purpose of determining the existence of electromagnetic storms.

The best index for the study of anomalous behavior of laboratory subjects would be one based on readings from a magnetometer in or adjacent to the laboratory itself. Optimally, these readings should be considered in relationship to solar and lunar effects, competing electromagnetic field effects (e.g., radiation), and biological cycles of the subjects being studied.

If significant data are still obtained under these circumstances, the potential mechanisms involved can be studied. Would the absence of electrical storms on nights of telepathy-clairvoyance "hits" mean that the calm environment affects the subject's receptivity? Or do electrical storms interfere with the "transmission" of the "signal" in some way? There is no conclusive evidence that geomagnetic activity exerts detectable effects upon human behavior, although preliminary data collected by Becker (Becker & Selder, 1985) suggests a relationship between admission rates to mental hospitals and magnetic storms (pp. 243-270). Therefore, any robust

correlation between AA values and anomalous laboratory behavior would be of interest not only to parapsychologists but to many other researchers as well.

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