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A LABORATORY APPROACH TO THE NOCTURNAL DIMENSION OF PARANORMAL EXPERIENCE: REPORT OF A CONFIRMATORY STUDY USING THE REM MONITORING TECHNIQUE

By Montague Ullman and Stanley Krippner

The Basic Experiments in Parapsychology, pp 74-87. Compiled and Edited by K. Ramakrishna Rao. McFarland & Company, Inc., Publishers. Jefferson, North Carolina, and London, 1984. -- Reprinted with permission. *Biological Psychiatry*, 1969,1, 259-270.

Chapter 6:

According to some estimates (L. E. Rhine, 1962b), 65 percent of spontaneous psychic experiences occur in dreams. A number of psychoanalysts have reported what appear to be paranormal dreams in the therapeutic setting (Devereux, 1953). Therefore, it is only natural to consider the dream state as psi-conducive. According to Van de Castle (1977) the earliest experimental effort to paranormally influence a dream was reported by Waserman in 1819.

With the advent of dream-monitoring techniques made possible by the discovery of such physiological correlates of the dream state as rapid eye movements (REMs), the opportunity has come about to study ESP dreams in laboratory settings. Montague Ullman and associates were quick to avail themselves of it. The full account of a decade-long study of ESP and dreams at the Maimonides Medical Center in Brooklyn, N.Y., is to be found in the book by Ullman, Krippner, and Vaughan (1973). The paper that is reprinted here is one of the several publications from the Maimonides group. A number of other studies followed (Ullman, Krippner & Feldstein, 1966; Krippner, 1969; Ullman & Krippner, 1970; Honorton, Krippner & Ullman, 1971; Krippner et al., 1971; Krippner, Honorton & Ullman, 1973; Krippner, Honorton & Ullman, 1972).

Among the attempts to replicate the Maimonides dream studies is one carried out by Belvedere and Foulkes (1971) at the University of Wyoming, which did not give significant ESP results. A comprehensive review of ESP and dreams is to be found in a chapter by Robert Van de Castle (1977) in Wolman's Handbook of Parapsychology. Van de Castle's review, as he states it, "offers very encouraging evidence that telepathic incorporation of stimuli into dreams can be demonstrated under good experimental conditions" (p. 494).

At the time of this research, Dr. Montague Ullman was Director, Department of Psychiatry, Maimonides Medical Center, Brooklyn, N.Y. Dr. Stanley Krippner now is a professor at Saybrook Institute in San Francisco, California.

INTRODUCTION

Parapsychological research, almost without exception, has emphasized techniques applicable to daytime experimentation. The physiological measures now available to monitor dreaming have paved the way for a nocturnal approach to the paranormal in which most of the features of the naturally occurring paranormal event can be included as intrinsic features of the experiment itself. Utilizing the Rapid Eye Movement technique, it becomes possible to program a relationship between an agent looking at a target picture and a sleeping subject who is attempting to incorporate the known target into the series of dreams he is having that night. This technique lends itself to the independent judging of the degree of correspondence between dream protocol and target, as well as to the use of statistical techniques to reflect a quantifiable result.

A nocturnal approach of this kind emphasizes the congruence between certain attributes of dreaming and the conditions that characterize the anecdotal accounts of paranormal events. Dreaming is a naturally recurring state characterized by a radical transformation in consciousness, resembling in many ways the dissociated states frequently noted at the time of occurrence of paranormal events. Dreaming also highlights currently significant motivational needs, another important point of congruence with the spontaneous paranormal event.

Critical surveys of the research in telepathy have been made by Soal and Bateman (1954), Murphy (1961), and Rao (1966). A summary of parapsychological research involving personality factors has been presented by Schmeidler and McConnell (1958). The relationships between parapsychology and biology were discussed in a 1955 symposium sponsored by the Ciba Foundation (Wolstenholme and Millar, 1956). Although the reality of paranormal experience is of broad general interest, the focus of psychiatrists has centered about the existence of the so-called telepathic dream, i.e., a dream involving the transfer of information from one person to another, other than through known sensory channels. Associations between parapsychology and psychoanalysis were explored in an anthology which included six papers by Freud (Devereux, 1953).

Although clinical reports of paranormal effects in dreams have appeared in the literature over a period of several decades, there is only one report of an experimental approach to the subject (Bleksley, 1963). In this experiment, a subject attempted to awaken himself at a time indicated by a clock situated 900 miles away. This clock was reset daily at a time randomly selected. A total of 284 trials were attempted, and the results were statistically significant. The subject did better when he awakened from a dream than when he awakened without having been aware of dreaming.

Wallwork (1952) reported the first attempt to relate EEG patterns and paranormal functioning. Wallwork's methodology was repeated by Cadoret (1964) who found that significantly more ESP hits occurred when trials were accompanied by alpha activity than when accompanied by relatively fast activity. Similar findings have been reported by Tart (1963) and Motoyama (1964).

In 1962 a Dream Laboratory was established at the Maimonides Medical Center for the investigation of telepathy and dreaming. The first study to be completed which used a single

subject (S) took place in 1964 (Ullman *et al.*, 1966). This was a 7 night study with a male psychologist as S. In earlier screening trials he appeared able to incorporate into his dreams aspects of target pictures that an agent (A) or sender was looking at in another room. Three outside judges rated each of the typed transcripts of the psychologist's dream reports against each of the seven art prints which had been used as target pictures. It was hypothesized that each dream transcript would correspond more closely to the target of that night than to the targets used on other nights of the experiment. Each transcript-target combination was rated by the three judges and the mean of the three ratings was entered on a seven-by-seven matrix. When the matrix was subjected to analysis of variance technique the correct transcript-target combinations received significantly higher mean ratings than the incorrect transcript-target combinations ($p < 0.01$). The results indicated that telepathic effects, as hypothesized, had been incorporated into the dreams of S during a controlled laboratory experiment. On each of the seven nights of the experiment S's dream and associational statements demonstrated a close correspondence to the randomly selected target picture for that particular experimental session.

PROCEDURE

In 1966, the same psychologist was again available as a subject for an experimental study. The staff member who had served as A in the previous study was also available for the attempted replication. The same three outside judges (Js) offered their services to evaluate the material. An eight night series was planned by the Dream Laboratory staff.

It was again hypothesized that S's dream transcript for any given experimental night would reflect the influence of telepathic communication with A. The target selection was made by a team of four staff members who were never present on any of the experimental nights. As a result, the range of possible target pictures to be used was unknown to S, to A, or to the experimenters (Es) who monitored the equipment during each session.

The targets were postcard size prints of famous paintings. One of the staff psychologists examined over 100 art prints from New York museums and from art books, selecting 20 that combined simplicity, highly emotional content, and vivid color, the characteristics which appeared to typify successful telepathy target pictures in previous experimental sessions at the Dream Laboratory. These 20 prints were narrowed to 10 by two other staff members.

In the initial series (1964) the nightly log of A indicated that he had spontaneously dramatized or acted out some of the scenes depicted in the target picture. In order to facilitate this, as well as to more deeply involve A in the theme and mood of the target picture, a fourth staff member prepared a series of objects relating to each of the target pictures. These objects in conjunction with the picture would, it was hoped, involve A in a multisensory involvement with the target both through his physical contact with the objects selected as well as their use as props in acting out aspects of the target picture.

The staff member who selected the multisensory materials sealed each art print in an opaque envelope; this envelope was enclosed in a larger envelope which was sealed. Each envelope had a small letter in its upper right hand corner, matching a letter on an appropriate box of multisensory materials. The staff member who sealed the envelopes affixed his signature on the

flap of each envelope. The signature was covered with transparent tape so that any attempt by anyone to open the envelopes prematurely would be detected. The same staff member affixed his signature to the side of each box of multisensory materials. Again, the signature was covered with transparent tape to detect any attempt to tamper with the materials. S was not informed as to the presence of the multisensory materials. However, he knew from previous experience that the target material would be prints of famous paintings.

S slept in the Dream Laboratory on nonconsecutive nights. As soon as S was in bed, A entered an office and selected a single digit from a table of random numbers. At this point he was given a key by one of the Es; taking the key he went to an attached case, unlocked it, and counted down through the stack of target envelopes until he reached the number of the randomly selected digit. If the random number was larger than the number of targets remaining, S went through the pool a second time until an envelope was located, the order of which matched the randomly chosen number.

Once the target had been selected the appropriate box of multisensory materials was located. A and an E examined both the target envelope and the box to see if the transparent tape had been broken or if the signatures showed evidence of tampering. Still under the observation of an E, A placed the remaining targets back into the attaché case and locked it, taking the target materials to his room.

The A's room contained a table, a bed, a loudspeaker, and a buzzer. S's dream report could be heard by A on the loudspeaker; this procedure served to maintain A's interest in the experiment and his continued orientation to the sleeping S. There was no microphone in A's room, making it impossible for any vocal cues to be transmitted from A to S or from A to Es.

Upon arriving in the agent's room, A opened the two envelopes and the box of multisensory materials. He spent the remainder of the night in this room which was 98 feet distant from S's sleep room, and which was separated from the sleep room by three doors and two hallways. (A's room was adjoined by a washroom which A was permitted to use.)

During the night Es monitored S's sleep in order to detect emergent Stage I REM periods. At the onset of each REM period, E signalled A by means of a one-way buzzer to awaken and to concentrate on the target. At the end of each REM period, E awakened S by means of a two-way intercom, and elicited a verbal report. These reports, as well as S's associations to them, were tape recorded and subsequently transcribed. Specifically, S was asked:

Please tell me what has been going through your mind. (Pause) Is there anything else?
(Pause) Was there any color? (Pause) Thank you. Please go back to sleep.

Following S's final awakening, toward the end of each experimental session, an E conducted a post-sleep interview with S in order to obtain additional associational material. At this time S was also asked to make a guess as to what he thought the target for that night might have been. Specifically, S was asked:

How do you feel? (Pause) How many dreams do you think you had? (Pause) Do you remember your first dream report? (Pause) Can you elaborate on it? (Pause) What feeling or mood accompanied the dream? (Pause) What thoughts or memories does the dream bring to mind? (Pause) Do you remember your second dream report, etc.? Were there any elements in your night's dream which did not seem to make much sense in terms of your personal life? (Pause) Which ones? (Pause) Please make a guess as to what you think the target may have been. (Pause) Thank you. I'll be right in to take off the electrodes.

After the post-sleep interview was concluded, a secretarial assistant mailed the tape to a transcriber who typed a transcript of the night's verbal reports and interview. S was dismissed until the following experimental session. A resealed the envelopes and the box containing the multisensory material, affixing his signature to each seal and covering it with transparent tape. The used materials were filed away until the conclusion of the entire experimental series.

After the transcripts for all eight experimental nights had been collected and transcribed, three outside Js (who had not been present for any of the experimental sessions) rated each of the eight target materials against each of the eight transcripts. The Js worked blind and independently, using slides of the target and the multisensory material.

The 64 possible target-transcript combinations were submitted to each J in a different random order. Eight combinations were judged at a time; following the completion of each set of eight, J mailed the ratings to the Dream Laboratory and started another set. The materials were submitted to the Js by mail and sent back by, mail reducing J-E contact, and thus eliminating contamination in the form of E bias effects. The following statement was sent to each J:

The task that confronts you may be thought of in terms of an individual's dream experience in connection with some stimulating event which has found its way into the dream production. It is taken as axiomatic in psychoanalytic literature that some of what a person experiences during the waking state finds its way into his dreams, more or less transformed. It is also known that stimuli that are experienced by a dreamer while in the sleeping state may be incorporated into his dreams.

You are to consider that the target represents an event that has occurred while the subject was just going to sleep, or has occurred while the subject was in the sleeping state. You must further assume that the event has in fact influenced the dream either in a direct way or through some process of transformation. The task then becomes one of working from the dream back to the event that affected the dream. It is possible that one target was used on any given night, that more than one target was used on any given night, or that no target was used on any given night. Therefore, each of your judgments should be completely independent of any other judgment.

You are to familiarize yourself with each target. Remember that the title of the target picture, the artist, the date, etc. are considered to be part of the target. You are also to familiarize yourself with each transcript as the time comes for you to evaluate target-transcript correspondences.

The actual steps are:

1. Locate the target and the transcript which match the numeral and the letter on the first group of judging forms. Fill in the blanks titled "subject," "judge," and "date." You will notice that three sheets are stapled together in each group.
2. Using the front page of the first group of judging forms, read the dreams on the transcript and color in the space that represents, in your judgment, the correspondence with the target material. This judging is done on the basis of the *dreams alone*.
3. Using the middle page of the first group of judging forms, read the post-sleep interview and color in the space that represents, in your judgment, the correspondence with the target material. This is done on the basis of the *entire transcript*.
4. Using the back page of the first group of judging forms, re-read the summary and color in the space that represents, in your judgment, the correspondence with the target material. This judging is done on the basis of the *summary alone*.
5. Proceed to the secondary group of judging forms and repeat the process. When you have finished a set of eight forms return them, by mail, to the Dream Laboratory.

A number of special precautions were taken in this study to insure that no possible sensory cues bearing on the target could in any way reach S. The two rooms used to house S and A were at opposite sides of the building and were 98 feet apart.

A remained in the room for the entire night, with the exception of visits to the adjoining washroom. S remained in the sleep room for the entire night. Communication from A to S or from A to the Es was impossible, due to the one-way communication system.

The range of target material was known only to the four staff members who had prepared it. None of these staff members came into contact with S until the end of the experimental series.

Judging was undertaken by three Js, none of whom came in contact with S or A until the end of the experimental series. All of the judging forms were sent through the mail. This aspect of the procedure was handled by a secretarial assistant who had not been present during any of the experimental sessions.

The cited precautions taken during the experimental procedure reflect improvements made over the first study done with S. For the first study, the target pool was selected by A and E. Due to a limited staff there was only one E. Therefore, A emerged from his room at one point during the night to monitor S's dreams while E rested. Even so, A never spoke to S on the intercom; the awakening procedure was always handled by E. For the first study S became ill on the eighth experimental night and was hospitalized for 3 months. For the second study all eight nights were completed.

Results from the first study were subjected to an analysis of variance technique suggested by Scheffé (1959). For the second study with S, a more conservative technique was utilized, consisting of a Latin-square analysis of variance. For the latter procedure the three judges received different randomizations of the 64 possible transcript-target combinations. They worked on sets of eight combinations at a time, mailing each set back to the Dream Laboratory upon its completion.

RESULTS

Statistical analysis consisted of a Latin-square analysis of variance technique. This procedure was employed to compare the ratings of the eight critical pairs (e.g., the actual target-transcript combinations for each experimental night) with the 56 noncritical pairs. Means of the three Js' ratings were entered in the matrix.

The experimental hypothesis had been made on the basis of correspondences between the targets and the entire transcript for each night. On this basis, an F of 6.43 was obtained which is significant at $p < 0.001$ with 7 and 21 degrees of freedom.^[1] Therefore, the telepathy hypothesis was confirmed and the results of the previous study were replicated.

A common criticism of the previous study centered around the allegation that dreams are so ambiguous that just about any picture would correspond in some way to a dream transcript. This argument can be countered by pointing out that the Js worked blind and that they matched each of the eight targets against each of the eight transcripts.

A further check on this allegation was made. A fourth J was given copies of the eight transcripts of the second study as well as the seven targets used for the first study, the eight targets used for the second study, and a target used for a pilot session with S. Before the fourth J attempted the 128 ratings, eight transcript-target combinations were randomly assigned using the eight "control" targets. Upon completion of the judging procedure, ratings for the "correct" and the "control" transcript-target combination were placed in separate analysis of variance matrices and inspected, utilizing the Scheffé technique (1959). The "correct" transcript-target combinations received higher ratings from the fourth judge than did all other combinations on the matrix ($F = 8.11$, $p < 0.01$, 8 and 64 df). The "control" combinations did not produce statistically significant data ($F = -0.71$, 8 and 64 df). Therefore, the allegation that significant results can be obtained from chance target-transcript combinations was not demonstrated.

Examples of Correspondences Between Dream and Target

Several of the targets are described below, as well as the accompanying multisensory materials. Excerpts from the dream reports and postsleep interviews are presented, with especially striking transcript-target correspondences *italicized*. It should be remembered that Js worked from the entire dream transcript, not just the excerpts presented here.

Experimental Night 2

For the second experimental night, Hiroshige's "Downpour at Shono" was randomly selected. It portrays a Japanese man with an umbrella trying to escape a driving rain. The directions in the box of multisensory materials read "Take a shower." A small Oriental umbrella was included in the box.

First Dream Report: No apparent correspondences.

Second Dream Report: "It's as though I was doing some drawing, or some drawing was being done. This was very hazy ... I had the feeling as though it were in a *down position*, like a low table. *Down* on the floor. Seems that's what I meant by '*down*'."

Third Dream Report: "... Something about *an Oriental man* who was ill..."

Fourth Dream Report: "The part I remember-it sort of faded away but *it had to do with fountains - a big fountain*. It would be like one you see in Italy. *A fountain*. Two images and a *water spray* that would shoot up. No color."

Fifth Dream Report: "... *I was in this indoor-outdoor place*. *I assumed it was outdoors yet at one part of the dream it was indoors* ... And there was an air conditioner in it too ..."

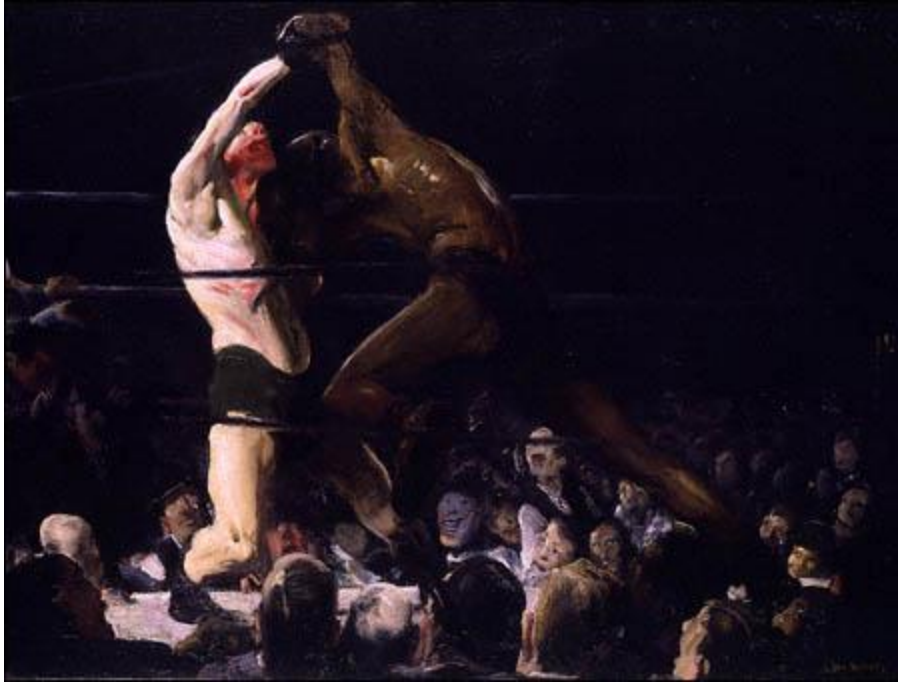
Sixth Dream Report: No apparent correspondences.

Post-Sleep Interview: "There was a young man. He seemed to be an invalid or something, and he was on a bed. And I just don't remember any more ... I just had the two images this time, one with *the fountain* like the ones in Italy, *the elaborate fountains*, and a giant eye of a needle ... *The fountain makes me think of pictures and scenes I've seen of Rome*. In fact, a short time ago I was looking at a book. The book is called '*Fountains in Italy*', I think. They have so many fountains ... I remember talking about fountains being renewing of life ... I was walking on the street. It seemed it was raining a little bit and we got to a particular point, and the street was blocked, so we had to walk into the street and around ... Of course, it was raining, and it was night and it had a sort of heavy feeling ..."

Guess for the Night: "... In terms of just standing out, I would say *the fountain* and the needle ... Those particularly seem to sort of stand out as being unusual ... *For some reason I'm going to say that it had something to do with ... fountains or something ... Fountain. Maybe water...*"

Experimental Night 4

"Both Members of this Club"^[2] by Bellows was the fourth target selected. It portrays two boxers in a savage fight; a crowd watches with glee. A leather boxing glove was the multisensory item which accompanied this painting.



First Dream Report: "... There were a lot of people ... There was a lot of activity going on. Conversation between the people ... There were some strange characteristics about them in the way they were dressed ..."

Second Dream Report: No apparent correspondence.

Third Dream Report: "... I was watching some cars parked on the beach being *pounded* in. *One of them was pounded in and hit another car and completely broke it to pieces.* And then I was in the car with my mother and father ... *and the ocean began to pound in and knock the car back ... and the wave pounded and hit the car.* And I thought it was really going to hit the other car hard ..."

Fourth Dream Report: "... The only thing I can remember is cleaning a shoe. Cleaning a shoe with some sort of solution ... and there was the process of going over the entire shoe, cleaning it with this, and then putting an oil on it and polishing it ... And there was a tiger coming out of a drain ... *It was just a black leather shoe.* The process was cleaning a dirty shoe. Just a man's shoe ... Just a lace shoe ..."

Fifth Dream Report: "... Well, I was thinking about Viet Nam. Different aspects of it. *The pros and cons* ... Being in Viet Nam and reasons for being there and *arguments* of why we should be there and some of the *arguments* of why we shouldn't."

Post-Sleep Interview: "... There were a number of people and the people themselves are not clear ... Something about their attitudes I can't recapture. It would be more ... *competition* ... *That would give me a feeling perhaps of maybe competition in some way* ... It began with the observation of a tremendous storm ... Ships were being *pounded* and driven into the beach ... These huge waves would *pound* these ships ashore ... The water would *pound* in a great distance ... *It picked up a car and slammed into another car* and just completely it fell apart. Like if you'd

drop a watch, it would go shattering in all directions ... The waves were *pounding* us in and we were being pushed toward another car ... It was quite an interesting dream and I enjoyed it. *Maybe I enjoyed the violence in the dream ... The violence in the dream-was exciting ... The mood was one of awe and grandeur ... The cleaning of the shoe was a process of going over a black shoe, a man's shoe ..., and the whole dream consisted of cleaning the shoe. Now I think this was the dream where I had the other impression about the tiger ... Where in the devil did the tiger come from?"*

Guess for the Night: "... I think I was betraying a great deal of violence, destructiveness, aggressiveness ... Something to do within nature because the tiger is ... an independent, powerful creature to be respected. In terms of the target ... something that is depicting power. At the moment, I have the feeling of nature in its broadest sense. You might say the raw aspects of nature more than the more refined aspects of a human being..."

Experimental Night 6

On the sixth experimental night, Beckmann's "Descent From the Cross", a painting which depicts a brown, emaciated Christ being taken down from the Cross, was selected. The box of multisensory materials included a crucifix, a picture of Christ, and a red felt pen so that the agent could color Christ's wounds to simulate red blood.



First Dream Report: No apparent correspondences.

Second Dream Report: No apparent correspondences.

Third Dream Report: No apparent correspondences.

Fourth Dream Report: "It started off with a birthday party ... then went out somewhere ... and we passed by an area where *Winston Churchill* was making a talk ... And the part I remember is my father driving ... and then we drove on home ... and there was a *lot of wine* that I tasted and I think I got a piece of cake. And that was about the end of the dream ... There were *two bottles of wine* ... *Churchill* was, as I said, *old, emaciated*. I had remembered him as a fat, chubby guy, and *here he was old and getting thinner and drawn ...*"

Fifth Dream Report: "It started out in some sort of a native community ... It got to the point ... where we were going to be put in the stewpot. I don't know what was happening. *We were going to be sacrificed*, or something, and there were political overtones. It seemed like there was a speech by *President Johnson* being played to them ... I was trying to figure out how we could change their minds ... and there was one loudspeaker there and *we decided that what we would do is pretend we were the gods* or something, by forbidding this by speaking in the loudspeaker and also ... we could use fireworks ... and use this booming voice to forbid them from doing this. And then when it came time to do it we didn't have any of this stuff ... *Red ... I think red. Another thing, I think in looking at the so-called king, chief or whatever the native was ... his skin was a very rich chocolate color* ... Just one other thing that keeps coming back but very hard to describe—the chief ... his head was very strange looking. It would almost be like you were looking at him, looking at one of *these totem pole gods*. And his eyes were very unusual and it seemed like there was some color there, *reddish-rimmed ... eyes ... They, too, were going through a whole ceremony to the gods. And the idea was to scare them by speaking through the speaker as though we were the gods forbidding them to kill us...*"

Sixth Dream Report: No apparent correspondences.

Post-Sleep Interview: "... *Churchill seemed to be emaciated. He was drying up and he was thinner than what you had remembered him as* ... I remember primarily *the wine* ... And I remember seeing *Churchill* ... The aggression was being thrown at different people; although it didn't harm them physically, it would certainly scare *the bejeezus* out of them ... It was sort of a funny dream ... It had a strange quality to it in which I was going about it as though it were possible to do something, and in the dream I didn't provide for it. I mean by that, these were ... these natives and the loudspeaker ... *To make them think the gods had spoken, which was going to save me ... this loudspeaker was there* ... but also there was the planning to use fireworks that didn't exist. As though thinking about it and planning it was in some way going to be just as influential in something happening as though it really did exist ... The last stage of the ceremony, we would be the star participants ... There was just an awareness that *they were going to kill us in some way, that it was part of their ceremony ... It began to have a very ritualistic feeling ...*"

Guess for the Night: "Well, you can say a lot of things in the dreams didn't make sense. After all, I'm not too frequently exposed to seeing *Churchill* ... I'd say the native bit was rather strange ...

I'd say that would be outside my daily experience. It seems like I was trying to assert something in the dream that really wasn't there ... *One of the things I dreamed about quite a bit was ... the ceremonial aspect. In the Churchill thing there was a ceremonial thing going on, and in the native dream there was a type of ceremony going on ... leading to whatever the ceremonial would be to sacrificing two victims. I would say the sacrifice feeling in the native dream ... would be more like the primitive trying to destroy the civilized ...* In this instance it seemed to have an element of *cannibalism* in it ... I think I can take it a little further. *I would say the native part, the primitive part, believed in this god authority. Now in terms of what was being said in the dream it believed in the god-authority, or the idea of it, but what was happening in the dream ... was not a real god.* It was the utilization of a lot of ritual. It was the use of the belief. I don't know if I'm making myself clear. In other words, *no god was speaking. It was the use of the fear of this, or the awe of god idea that was to bring about the control. Not that god spoke."*

DISCUSSION

The methodology here described offers the possibility of the first systematic approach to the study within the laboratory setting of a phenomenon rather elusively revealing itself in occasional anecdotal accounts and even more sporadically in the context of the clinical psychotherapeutic relationship. Within the laboratory setting, one faces many of the same problems that exist *in vivo*, namely, the clustering of paranormal effects in a relatively small percentage of the population, and the general unpredictability of events of this kind. We have the additional problem of so structuring the relationship between A and S that enough of an emotional and motivational balance will be created to cause this type of information flow to occur. In our own work, we have conducted several one night screening studies in an effort at selecting, in a gross and subjective way, the gifted subject whose dreams at a manifest content level have an easily identifiable resemblance to the target picture. We selected, as a result of three such screening studies, three individuals who appeared gifted in this way. Each was then subjected to an individual series of studies carried out and evaluated along the lines described. In only one of the three were the results statistically significant, although in each instance the results were in the right direction and a number of striking correspondences did occur for each subject. The present study was an attempted confirmatory study of the earlier one done with the first successful S.

We interpret the confirmatory study as supporting evidence for an extrasensory effect linked to an altered state of consciousness and not explainable on the basis of sensory leakage. The physical and psychological dimensions of the problem have yet to be explored. With regard to the former there are numerous speculative models but none of any heuristic significance as yet. The situation is somewhat more hopeful with regard to the latter. Murphy (1961) has repeatedly pointed out the applicability to parapsychological research of certain basic axioms that hold in psychology generally, i.e., the influence of set, motivation, belief, the decline effect, etc. Our own work has begun to include the personality and motivational dimensions of the S-A interaction.

There are a great many physical and psychological variables which have to be studied in an effort to learn more about the optimal conditions for the manifestation of such paranormal

effects. Among the basic ones psychologically are the relevance of genetic relationships, kinship, or friendship as ties between S and A.

In the experimental series reported, the personal relationship between S and A was a pleasant and empathetic one. Although the two psychologists affirmed the fact that they never saw each other outside the laboratory setting, they spent time together before each experimental session. They resembled each other in a variety of ways. Of approximately the same age, both had been through psychoanalysis, both engaged in psychotherapy, and both had been successful in other professional fields before becoming psychologists. Both had traveled abroad; both wore beards. The literature on successful telepathy experiments demonstrates the importance of close interpersonal relationships (Schmeidler and McConnell, 1958).

A more specific concern was voiced by Freud (1933) when he raised the question of the possible distortion of telepathically perceived messages through unconscious elaboration as part of the dream work. Our judges have thus far been influenced mainly by manifest correspondences, or by transparently obvious symbolic correspondences.

From a physiological point of view, we have no certain knowledge that it is the dream state per se which facilitates telepathic transfer. There may well be other critical periods during the sleep cycle that may prove to be more relevant. Starting with the dreaming phase was simply an empirically based choice. Finally, the more refined experimentation possible with animals suggests the possibility of linking REM studies in animals to problems of extrasensory communication.

^[1] Judgings on the basis of dreams alone were also statistically significant ($F = 2.65$, $p < 0.05$, 7 and 21 df), as were the judgments on the basis of S's guess for the night ($F = 4.96$, $p < 0.005$, 7 and 21 df). It will be noted that the highest level of significance was reached when the entire transcript was utilized in the judging process.

^[2] Both Members of This Club, 1909. George Bellows. Oil on canvas, 45 1/4 x 63 1/8 in. The National Gallery of Art; Chester Dale Collection. Copyright © 1997 Board of Trustees, National Gallery of Art, Washington, D.C.)