

Final Report (1977)

ADVANCED THREAT TECHNIQUE ASSESSMENT (U)

By: HAROLD E. PUTHOFF RUSSELL TARG
RADIO PHYSICS LABORATORY

EDWIN C. MAY
CONSULTANT

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STANFORD RESEARCH INSTITUTE
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SRI Project 5309

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I OBJECTIVE

The purpose of this program is to provide a basis for assessing psychoenergetic processes as an advanced threat technology that could be developed by the USSR. This study is to determine the state of the art and evaluate the application feasibility.

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II PROGRAM DESCRIPTION AND SUMMARY

This report is the final technical report summarizing the work performed under SRI Project 5309, Advanced Threat Technique Assessment (U). The objective of this program is to provide a basis for assessing psychoenergetic processes as an advanced threat technology that could be developed by the USSR. This study is to determine the state of the art and to evaluate application feasibility.

To carry out this task, SRI concentrated on the evaluation of a particular human perceptual capability, a perceptual process called remote viewing. This phenomenon pertains to the ability of certain individuals to access and describe, by means of mental processes, information blocked from ordinary perception by distance or shielding, and generally accepted as secure against such access.

In particular, the phenomenon we have investigated most extensively is the ability of a subject to view remote geographical locations, even at intercontinental distances, given only geographical coordinates or a known person on whom to target. The remote-viewing abilities of several subjects have now been developed sufficiently to allow the subjects to describe--often in great detail--geographical or technical material such as natural formations, buildings, roads, interior laboratory apparatus, and the like.

In a series of experiments extending up to 5000 km, we have not found any degradation in accuracy or resolution as a function of increasing distance. Furthermore, real-time tracking of the activity of individuals has been accomplished over these distances. Such experiments have included the successful real-time remote viewing by two subjects of a series of solid-propellant missile static test firings in the western United States. These events were designated as targets by the sponsor's technical contract monitor and kept blind to SRI program participants

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until the series was completed and the data were submitted to the sponsor for evaluation.

Finally, remote viewing through the use of geographical coordinates as target designators has provided detailed descriptions of Soviet military facilities designated as targets by the sponsor. Sponsor evaluation of the data is contained in a separate report.

As is generally true with human perceptual sources, the information may be imperfect, and is therefore best utilized in conjunction with other resources. Nonetheless, the data generated by this process exceeded any reasonable bounds of coincidental correlation, and therefore may constitute a valuable information source.

With regard to a potential Soviet threat, it is known that workers in the Soviet Union have pursued work in the psychoenergetics field for the past forty years. We must therefore assume that they have achieved a level of proficiency similar to that reported here.

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III INTRODUCTION

A. Background

Recent publications in both the open and classified literature provide mounting evidence for the existence of so-called "parapsychological," "paraphysical," or "psychoenergetic" processes. These processes include:

- (1) The acquisition and description, by mental means, of information blocked from ordinary perception by distance or shielding and thought to be secure against such access.
- (2) The production of physical effects such as the perturbation of instrumentation or equipment that would appear to be well shielded against such interactions.

The literature also provides evidence of the acceleration of research in both the Western and Soviet Bloc countries in an effort to precipitate a breakthrough. Attention was called to this area by the United States Intelligence Board's (USIB) Scientific and Technical Intelligence Committee (STIC) in a recent document entitled "Views on Emerging Areas of Science and Technology Potentially Important to National Security."^{1*}

In the West, an exploratory research effort on psychoenergetic channels has been carried out in our laboratory at Stanford Research Institute (SRI). These results have been reported in two documents, one classified,² and one unclassified.³ This work dealt primarily with a capability that we call "remote viewing," the ability to view remote geographical locations up to several thousand kilometers. In more than 100 experiments with roughly a dozen subjects, extending over almost five years, results were obtained on the viewing of buildings, laboratory apparatus, and the like. From this work we conclude that:

*References are listed at the end of this report.

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- (1) (U) The phenomenon is not a sensitive function of distance over a range of several kilometers and is still operative over a range of several thousand kilometers.
- (2) (U) Faraday cage electrical shielding does not appear to degrade the quality or accuracy of perception.
- (3) (U) Most of the correct information pertains to shape, form, color, and material rather than to function or name.
- (4) (U) The principal difference between experienced subjects and inexperienced volunteers is not that the latter do not exhibit the faculty but rather that their results are simply less reliable, indicating that remote viewing may be a latent and widely distributed, though repressed, perceptual ability.
- (5) (S) Subjects trained over a several-year period have performed well under operational conditions.

Work in this area of research in the Soviet Union and Czechoslovakia is discussed in a DIA document.⁴ It is pointed out that beginning with early work (1930s) in the laboratory of L. Vasiliev⁵ (Leningrad Institute for Brain Research), Soviet efforts in the area of paranormal functioning have concentrated on behavior modification and control (e.g., putting people into a trance at a distance through hypnosis) in contrast to the Western orientation toward remote data acquisition. Also, apparently in keeping with Soviet ideology, the work in the USSR is strongly oriented toward the physical aspects of the channel. Indeed, some of the best theoretical work has been done by Soviet researcher I. Kogan in his investigation of the ELF (extremely low frequency) electromagnetic hypothesis.⁶⁻⁹ The authors of the DIA document conclude that the Soviet Bloc parapsychology research effort is now aimed at achieving an understanding and control of the energy involved.

Garrett Airesearch, an aerospace firm in southern California, has performed a review of Soviet literature on psychoenergetic research that led to conclusions similar to those of the DIA document.^{10,11} The body of the report treats Soviet application of statistical theories, research done on electrostatics, the development of remote sensors, hypothesized carrier mechanisms, human sensitivity to magnetic fields, and performance training to improve accuracy. Their conclusions include (U):

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- (1) Soviet researchers have done significant work on signal-extraction, statistical, and information-theory approaches to psychoenergetic processes.
- (2) Soviet researchers have done creditable work on the electrostatics of telekinesis and have probably now turned their attention to the psychophysiological aspects of the phenomenon.
- (3) Soviet researchers have an interest in remote physiological monitors, have developed one or two new instruments, and are probably performing R&D in this area.
- (4) Soviet researchers had, and probably still have, an interest in the physics of psychoenergetic transmission mechanisms and are probably doing research in this area.
- (5) There is a developing interest in the Soviet Bloc to apply psychophysiological training methods (similar to biofeedback) to develop control over psychoenergetic mechanisms.
- (6) Soviet researchers are investigating the psychophysiology of multimodal, programmed stimulation as a method to entrain physiological rhythms and produce changes in states of consciousness.
- (7) A systematic, interdisciplinary approach to psychoenergetic research by the USSR would require only a modest commitment of resources. A small number of key personnel with an adequate supporting staff of engineers and technicians could make substantial headway in this area. At this stage, in Garrett's opinion; no unique technological breakthrough is required--only careful investigation. In addition, no unique features such as physical plant facilities, services, or equipment would specifically identify a psychoenergetics laboratory from other types of R&D laboratories.
- (8) Finally, Garrett notes that open publication of some of the most advanced work in this area has inexplicably stopped. The implausibility of the work itself being stopped has led Garrett to conclude that the work is continuing secretly.

Further support for the idea that work in this area is continuing in the USSR can be inferred from a 1974 interview with Kogan, which appeared in the newspaper Leninskoye Znamya (Lenin's Banner), an official organ of the Moscow region Communist Party.¹² In that interview Kogan discusses a number of recent developments in the field, including his own experiments, and gives an estimate as to the number of well-developed psychics in the general population (~ 1 in 10^5).

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Thus, the DIA and Garrett reports, and supporting data point to the increasing importance of the psychoenergetics area in Soviet research. The validity of this conclusion received further support when the Soviet Psychological Association recently issued an unprecedented position paper calling on the Soviet Academy of Sciences to step up efforts in this area.¹³ The Association recommended that the newly formed Psychological Institute of the Academy of Pedagogical Sciences review the area and consider the creation of a new laboratory within one of the institutes to study persons with unusual abilities. They also recommended a comprehensive evaluation of experiments and theory by the Academy of Sciences' Institute of Biophysics and Institute for the Problems of Information Transmission.

It was in this climate that SRI was tasked to provide a basis for assessing the probability of an advanced psychoenergetics threat technique that could be in development in the USSR. The study was to provide indicators that suggested particular advanced threat related applications, and was to include feasibility evaluation using US capabilities in a modeled or simulated threat role.

B. SRI Program Content

Following is an outline of the areas of investigation carried out in this program. Each item is described in detail in the remaining sections of the report.

- Section IV: Local Remote-Viewing Experiments
 - Local (less than 10 km distance) remote-viewing experiments under sponsor observation, using experienced subjects, to examine subject biases that introduce noise into the perceptual channel.
 - Content analysis of remote viewing transcripts to obtain a quantitative measure of accuracy.
 - Pilot experiments in the tracking of persons unknown to the subject.
 - Alphabet target experiments to investigate techniques to permit increased resolution in remote viewing.

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- Section V: Long-Distance Remote-Viewing Experiments
 - Use of the DARPA teleconferencing computer network to provide date and time records of experiments in progress.
 - Long distance remote-viewing experiments (New York to California; New York to Dayton; New Orleans to California).
- Section VI: Remote Viewing by Coordinates
 - The use of geographical coordinates to designate a remote-viewing target.
 - Application of coordinate procedure to the description of local (San Francisco Bay Area) high-technology targets (Sylvania Laser Laboratory, Mountain View, California; Lawrence Berkeley Laboratory Bevatron, Berkeley, California).
 - Application of coordinate procedure to real-time remote viewing of solid-propellant missile firings in the western United States.
 - Application of coordinate procedure to sponsor-designated targets in the USSR.
- Section VII: Conclusions

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IV LOCAL REMOTE-VIEWING EXPERIMENTS

A. General

To demonstrate our procedures to the technical representative of the sponsor organization a series of five experiments involving local targets were carried out during the initial month of this program. The sponsor's representative either remained in the laboratory with the subject or participated in the selection of the target and proceeded there with the outbound experimenter. He therefore had an opportunity to assess the functioning and accuracy of the remote-viewing channel on a first-hand basis.

To begin the experiment, the subject was closeted with an experimenter at SRI and instructed to wait 30 minutes before beginning a narrative description of the remote location. An outbound experimenter then either chose (by use of a Texas Instruments SR-51 random number generator) a target location from a pool of more than 100 targets within a 30-minute driving time from SRI, or, in the case of the first two of the five experiments, the sponsor representative selected sites of his own choosing. The outbound experimenters then left SRI by automobile and proceeded directly to the target without any communication with the subject or experimenter remaining behind, so that the target location selected was kept blind to subject and experimenters in the laboratory. The experimenter remaining with the subject at SRI was kept ignorant of both the particular target and the target pool so as to eliminate the possibility of cueing (overt or subliminal) and to allow him freedom in questioning the subject for clarification of his descriptions. The outbound experimenters remained at the target site for an agreed-on 15-minute observation period following the 30 minutes allotted for travel. During the observation period, the remote-viewing subject at SRI was asked to describe his impressions of the target site into a tape recorder and to make any drawings he thought appropriate. A tentative evaluation

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was made of the subject's output when the demarcation team returned. Also, following the experiment the subject was taken to the site to provide feedback.

In addition to providing a demonstration of remote viewing, an important purpose of these initial experiments was to obtain information about the resolution capability of the remote-viewing channel. To this end we worked with two of our most experienced subjects, designated here as I1 and H1.* Results from these subjects can be compared with those of two less experienced subjects who also took part in the experiments.

The results of these five experiments are summarized below, and transcripts of the subjects' narratives can be provided upon request. These were all the experiments carried out during this orientation procedure; no data have been suppressed.

B. Remote-Viewing Experiments with Sponsor Participation

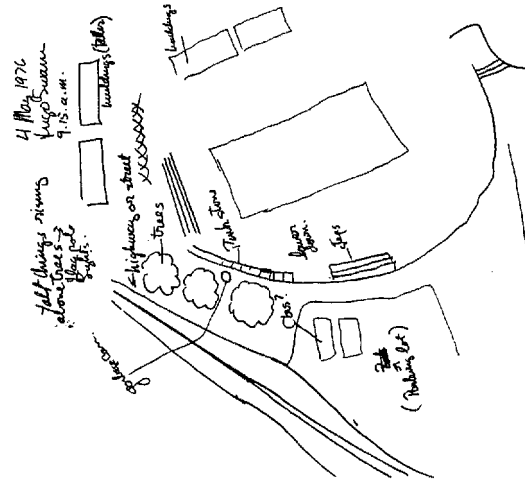
Golden Pavilion Restaurant. Subject I1's drawing of a cluster of buildings located at a sweeping turn-off from a divided roadway has many of the characteristics of the target, located on El Camino Real in Palo Alto, as shown in Figure 1. Dr. Puthoff and the contract monitor were at the target.

Hyatt House Hotel. In this case Subject I1 made a number of drawings that did not come together into a coherent representation, although some elements of his output were suggestive of the location (e.g., he made a drawing of an arched structure with a small block labeled "house" on the top of the arch). During this experiment a response was obtained from a second subject (R1) remote viewing the target from a second laboratory location. The subjects worked simultaneously in separate rooms, and did not communicate. The sketch

*The key to numerical designations for subjects is available from the sponsoring agency's contract monitor.

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FIGURE 1 GOLDEN PAVILION RESTAURANT, AND DRAWING BY SUBJECT I1 OF DIVIDED ROADWAY, TREES, STEPS, AND BUILDINGS (U)

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made by R1 is shown together with a photograph of the target in Figure 2.

Pool Complex. In this experiment, Subjects I1 and H1 attempted to describe or draw aspects of the target (shown in Figure 3) visited by the remote team. Subject H1's description was of a pool or pond in a shady glen, which was essentially a direct hit. Subject I1 drew a little hill of grass surrounded by a plaza with squares and a curved path leading to water, again a result in close correspondence with the target area. His second drawing continues this watery theme with some added shrubs.

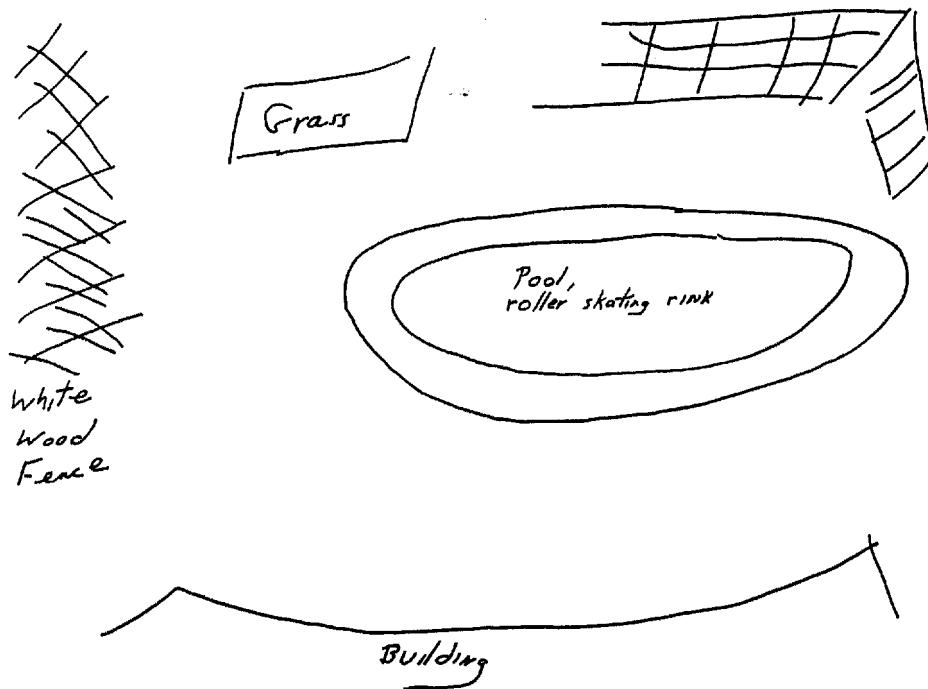
Baylands Nature Preserve. The subject in this case was a visiting scientist, D1, who had read of our research. He described and drew a long wooden walkway, and described some extensive gardens. Both of these elements are strongly present at the target location. He also described a building he had visited on the previous day, which was not at the place visited. This sort of superposition of erroneous imagery on an otherwise accurate description is often observed and is a principal obstacle to be overcome if remote viewing is to become a useful tool.

Stanford University Inner Quad. In a second experiment using D1, the subject described a courtyard and made the two drawings shown in Figure 4. Almost every element of his drawings corresponds to the actual arrangement at the location of the remote experimenters. Although the subject was inexperienced in remote viewing, this set of responses is among the most accurate and detailed we have obtained.

From experiments conducted to date it appears likely that the ability to do remote viewing is distributed throughout the population and that high-quality results can be obtained even from inexperienced subjects. As in our previously published work,^{2,3} we find that even in this introductory series the evidence accumulates that improved reliability can be obtained by having more than one subject work independently to describe target sites. The use of multiple subjects thus appears to provide an opportunity to correct for individual subject biases.

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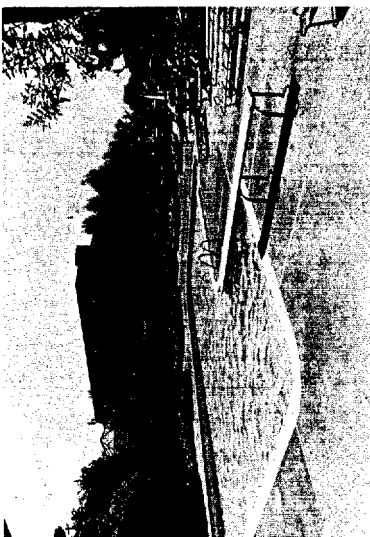
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FIGURE 2 HYATT HOUSE HOTEL IN PALO ALTO, AND SKETCH PRODUCED BY SUBJECT IN MENLO PARK (U)

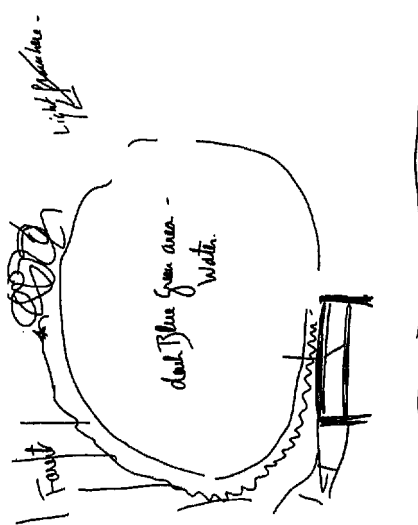
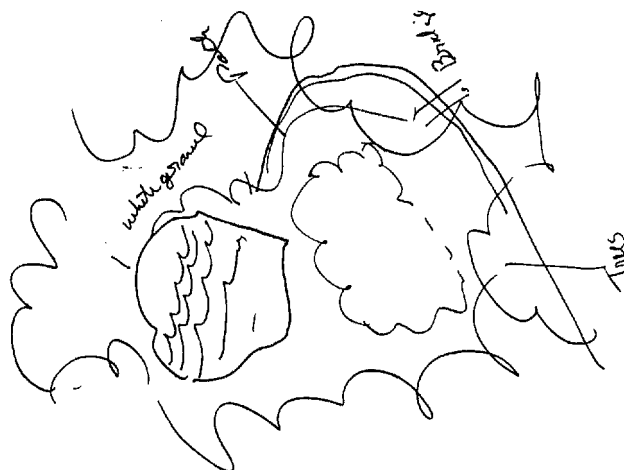
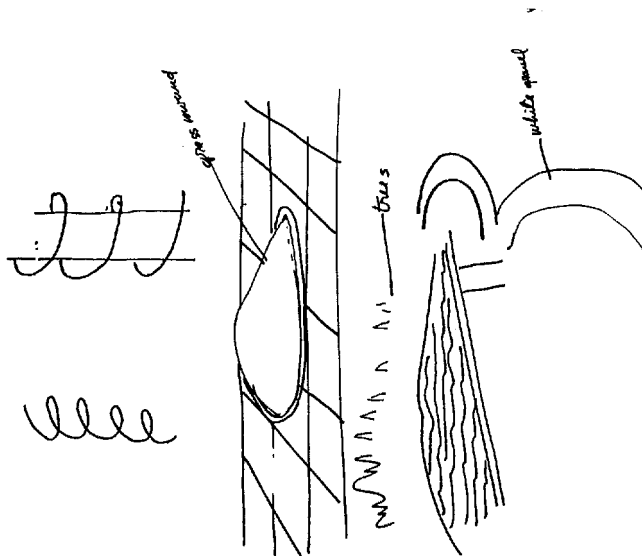
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DRAWING BY SUBJECT H1



DRAWINGS BY SUBJECT I1



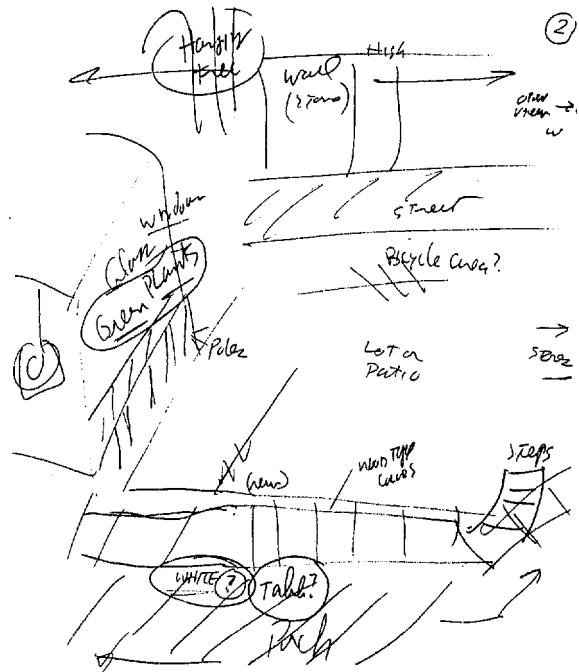
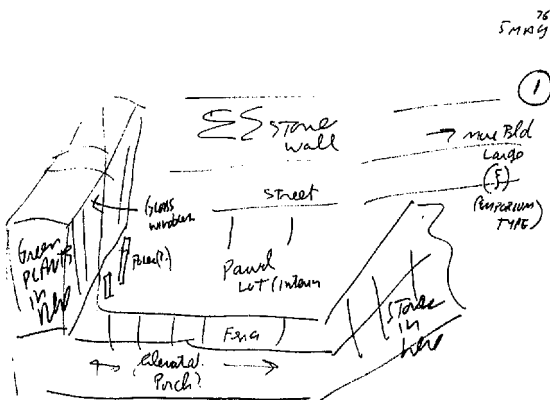
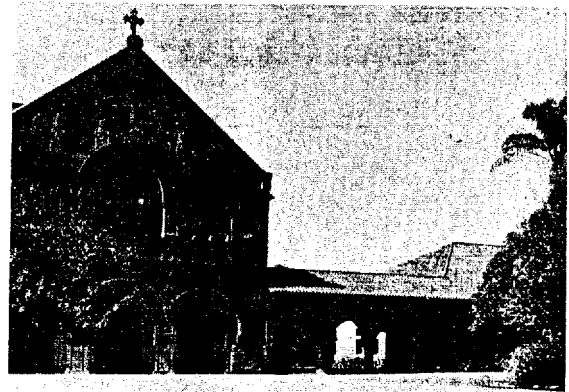
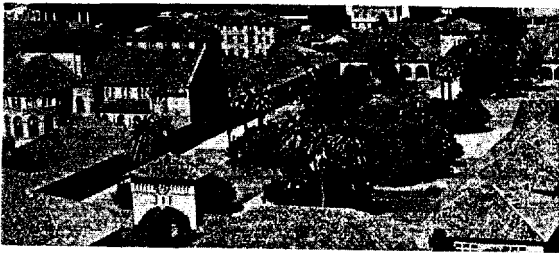
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FIGURE 3 MOUNTAIN VIEW SWIMMING POOL COMPLEX, AND DRAWINGS BY SUBJECTS I1 AND H1 IN SIMULTANEOUS, SEPARATE EXPERIMENTS. Both perceived a pool of water at the site. (U)

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FIGURE 4 STANFORD UNIVERSITY INNER QUADRANGLE, AND SKETCHES PRODUCED BY SUBJECT INEXPERIENCED AT REMOTE VIEWING (U)

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C. Content Analysis of a Local Remote-Viewing Transcript

1. Psychologist's General Assessment

In consultation with Dr. Ralph Kiernan of Stanford University Medical Center, we have been analyzing past transcripts from remote-viewing experiments, to help us learn what parts of the transcripts are the most reliable.

In Dr. Kiernan's opinion the adjectival portions constitute the primary carrier of correct information as compared with the nouns, and especially as compared with proper nouns. For example, if a subject reports that there is "a shiny, red fire hydrant," one would be safe only in assuming that there was a red cylinder at the remote site. But a search for a fire hydrant would in general be unwarranted. We see that descriptors like wide, flat, underground, and dark are all likely to be reliable. Whereas references to nuclear, secret, Mercedes or factory are less likely to be correct.

Dr. Kiernan was willing to make a prediction based on our past work. He observes that since almost everyone we have tested shows ability to do remote viewing to some extent, and since it appears to be mediated primarily by the right cerebral hemisphere of the brain, it is likely that a right-brain-damaged patient would not be successful at remote viewing. We consider it important to carry out this experiment at some future date as a test of this particular hypothesis, so as to verify whether the general handling of data on the basis of right-hemisphere biasing assumptions is correct.

2. Sample Transcript Analysis

Following the sponsor orientation series, we conducted an experiment with an SRI systems analyst and research engineer. A detailed analysis of all phases of this subject's output was carried out. This analysis included the following:

- (1) Comparison of the subject's largest and most prominent sketch, with the outbound experimenter's descriptive comments.

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- (2) Comparison of the sequence of events recorded at the site, with that reported by the subject.
- (3) Comparison of quotes from the subject with quotes by the outbound experimenters concerning the site.
- (4) Comparison of subject's drawings with drawings of outbound experimenters.
- (5) Underlining of relevant portions of unedited subject transcript.
- (6) Listing of reactions of the subject to being taken to the target site.
- (7) Phrases used by the subject during the experiment as compared with the phrases used by the outbound experimenters to describe the same objects.
- (8) Notes made by the outbound experimenters while at the site.
- (9) Subject's guesses and analytical comments in the time sequence in which they were made.

The experiment analyzed in greatest detail was that of July 14, 1976. The site was the Vallombrosa Chapel in Menlo Park, California. The team who selected the target pool for this experiment wrote of this target:

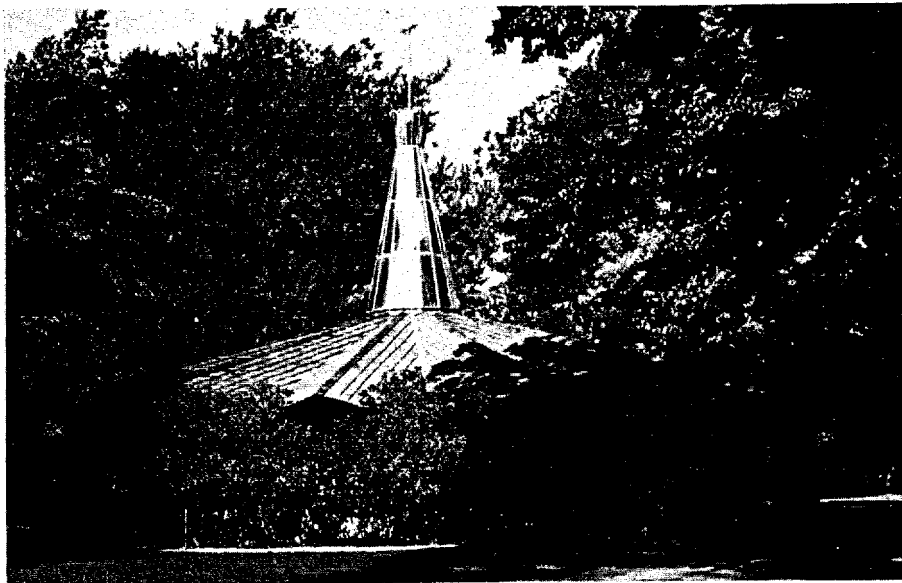
"Vallombrosa chapel had all the features for which we were looking. It had an unusual spire which dominates the building. It is a church retreat for women, a function entirely different from the other 5 sites in our target pool. It had a calm, quiet, peaceful atmosphere, and an integrated feeling that we believed would make it a good target for a subject and for judging."

The photographs taken at the time of target selection are presented in Figure 5, showing the church building and its prominent yellow glass tower.

The outbound team performed a number of qualitative analyses of the Vallombrosa transcript, of which three are included here. They are (1) the comparison of quotes from subject and outbound experimenters, (2) the comparison of drawings and descriptions, and (3) the time-sequence of selected comments from all participants.

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FIGURE 5 VALLOMBROSA CHAPEL IN MENLO PARK (U)

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a. Comparison of Quotes from Subject with Quotes from Outbound Experimenters

The following consists of quotes from the subject's tape recorded comments during the experiment compared with the taped debriefing comments made by the outbound experimenters at the site. (Each outbounder made a separate tape out of hearing range of the other.) The purpose of this analysis is to detect possible similarities.

G1: Ob1 (Observer 1) looking up to the blue sky. [Later] It was like a steeple, something that was painted..."

Ob2: Tall steeple on the chapel that reached out to the blue sky.

G1: She's (Ob1) looking down.... I'm seeing the ground...she's squatting down looking at something, or kneeling down. Ob2 is also kneeling, looking at something.

Ob2: The lawn felt cool. I felt it with my hand.

G1: Like it's a...something swirled with...like a snail, almost, like something swirled with straight tentacles extending from it.

Ob1: We saw two sprinklers going in the first part of the experiment, one twirling around...the other was spraying out a cone-shaped spray of water.

G1: I don't think it's something she could touch...but it's something that she could look into.

Ob2: Put my hand in the water sprinkler.... Felt like rain on my arm.

G1: Objects whirling around, something whirling around...lots of it. But it's not like a noise...all these things standing upright that are circular in shape.... But there's movement. Something about them that's natural...hazy, swirling thing.... But I get the feeling it's man-made.... They seem to be placed. That's the man-made aspect of it.... They seem to be placed in certain spots, but they're natural.... It's almost like a semi-circle.... But yet they (Ob1 and Ob2) could turn around and walk out of this thing, or out of this area.

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G1: I get the feeling it's...outdoors, but they're protected in some way from sunlight...it's just a shade.

Ob2: The trees were large...trees--giant trees everywhere.

Ob1: Many trees around...a very large deciduous tree.

G1: There's a grassy knoll on a hillside.... But that's quite a ways away.... I can't guess the distance.... This* hill is off...fuzzy things...it moved. It didn't stay still.... If you took a photograph, it would be fuzzy. If you took a photograph sometime later, it would be gone and moved.

Ob2: We walked...Ob1 and I, over to the pond...she caught several pollywogs...saw them wiggle...two...dragon flies, flying together back and forth.

Ob1: Then we walked over, a brief short distance...to a rather large lilly pad (pond) that was essentially oval in shape. There are three major clumps of lilly pads on it...noticed dragon flies flying.... I concentrated on the ripples on the water.... I picked up three pollywogs...watched them squirm.

G1: Something roundish.

Ob2: I put my hands in the water, I swished them back and forth... water lilly leaves were round and very circular.... The pond is oval in shape...looking down on the surface of the water...I noticed that there were little circles ever widening outward caused by the movement of the fish.... Circles, circles, circles going outward.

Ob1: I threw a mud clod...watched the circles go out.... As I threw a few more pebbles in the water, I noticed the circles they made and how they went out.

G1: There's something on a pole that's associated with this thing, this place. Maybe it identifies it...not your average pole.... There was something at the top.

Ob1: Cylinder...with jagged top and above that is a metal cross.

* Photographs of the pond show that it is on a raised area, built up above the surrounding ground level.

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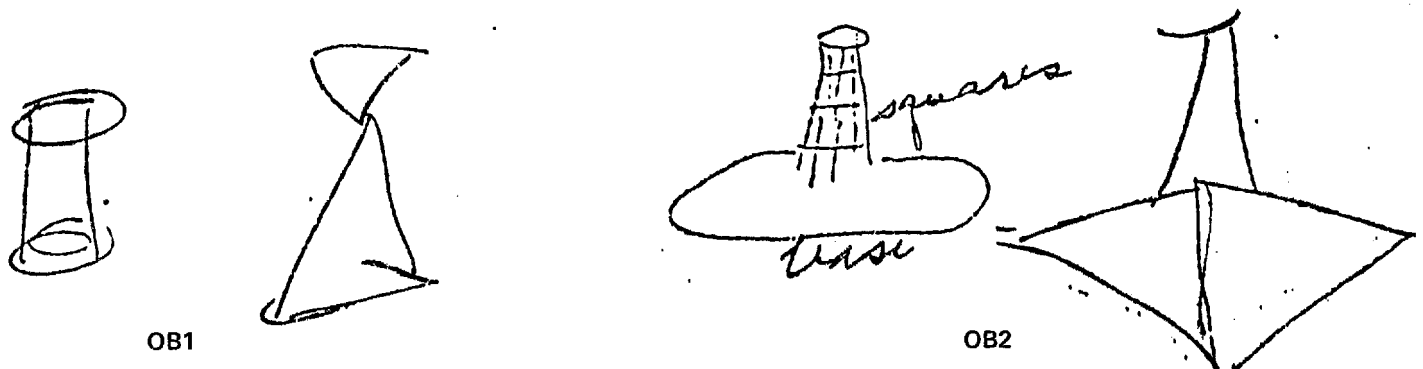
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G1: It looks like that pole was metal, like an extruded pipe. It has lines that are marked...has an aluminum finish.

Ob1: Put my arms around one of the cement pillars and hugged it...had been wrapped with some kind of thing in which the concrete was poured into it...round cement light concrete pillars.

b. Comparison of Sketches Made by the Subject and by the Outbound Experimenters During Remote Viewing

The brief sketches made by the outbound experimenters at the target site to capture the essence of what they were seeing are simple and rather primitive in nature, much like those made by the subject who was perceiving the scene remotely. Thus, although subject sketches may seem simple and incomplete, those who were physically there at the site unintentionally sketched in a similar manner, sketching to capture the gestalt of the place with little thought for the drawing itself. A comparison shows that both sets of drawings are characterized by simplicity and directness. The sketches below were made by the outbound experimenters at the site during the experiment and are to be compared with the subject's sketch shown in Figure 6.



Perhaps drawings by subjects could be compared more often in future experiments, with those made at the site by the outbound experimenters. When the subject and outbound experimenters are "into" the experience of perceiving a site, similarities may show up in sketches

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OB1

"THE MAIN INTENSE FEATURE THAT ONE SEES IS A CYLINDER THAT'S CONICAL TYPE STRUCTURE."

DESCRIPTIVE WORDS USED TO DESCRIBE THIS STRUCTURE

"CYLINDER"
"CONICAL"
"CYLINDER"
"CIRCULAR CONE"
"CONICAL STRUCTURE"

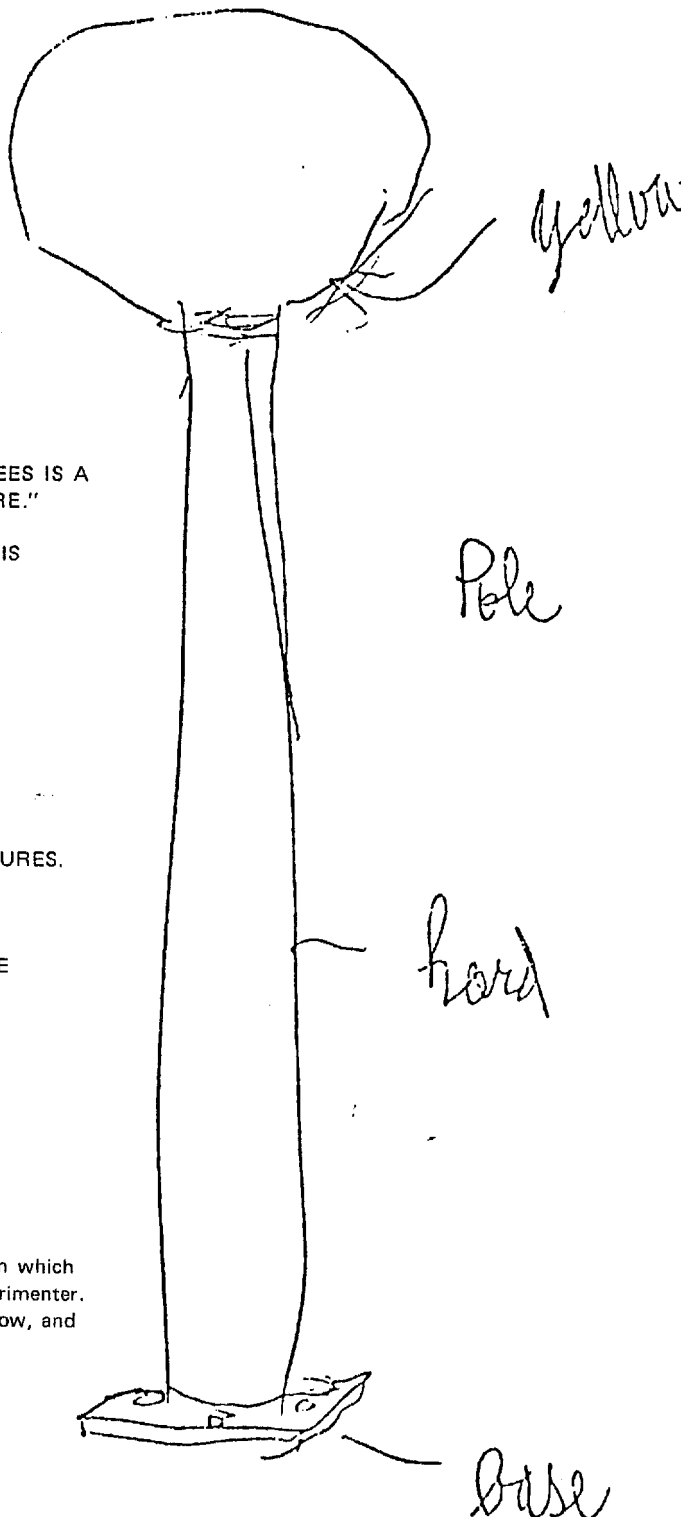
OB2

"THERE WERE TWO REALLY STRIKING FEATURES. THERE WAS THE TALL STEEPLE ... AND THE CHAPEL BENEATH."

DESCRIPTIVE WORDS USED TO DESCRIBE THE STEEPLE

"TALL STEEPLE"
"CYLINDER"
"CYLINDER SHAPES"
"CIRCULAR SHAPES"
"CYLINDRICAL TOWER"

NOTE: The descriptive words appear in the order in which they were recorded by each outbound experimenter. The overall impression of the steeple is yellow, and yellow-white glass [ed.].



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FIGURE 6 SUBJECT G1's LARGEST AND MOST PROMINENT SKETCH COMPARED WITH DEBRIEFING COMMENTS BY OUTBOUND EXPERIMENTERS (U)

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that would give another means of comparison (in addition to verbal reports and later photographic records).

c. Selected Comments for a Comparison of the Time Sequence Reported at the Site with That Reported by the Subject

As mentioned above, the protocol called for outbound experimenters to make notes during the experiment and to use them to debrief into a tape recorder just after the experiment. This resulted in a record of the sequence in which events at the site took place, and allows that sequence to be compared with the comments put on tape by the subject during the experiment. This comparison is given in the following:

• Subject

The following is the time sequence taken from the tape recordings made by Subject G1 during the experiment and during the post-experiment debriefing:

G1: "...looking up to the blue sky. Looks like she (Ob1) was looking up at something that caught her eye."
 "Looking down...I'm seeing the ground...she's squatting down looking at something, or kneeling down."
 "Like its a something swirled with...almost like something swirled with straight tenacles extending from it...swirling thing..."
 "I get the feeling it's outdoors, but they're protected in someway from sunlight...it's just a shade."
 "A hillside.... This hill is off..."
 "Fuzzy things...it moved, it didn't stay still. If you took a photograph sometime later, it would be gone and moved. There's some movement."
 "Something roundish, like they were moving like that."
 "Not your average pole...it looks like that pole was metal, like an extruded pipe. It has lines that are marked..."

• Outbound Experimenters

The following is the actual time sequence at the site taken from tape recordings made during the post-experiment debriefing period by Ob2 and Ob1.

Ob1: "The first thing we did was to walk across...lawn... stand by the chapel tower, look at the...glass in it... the tall steeple on the chapel that reached out to the blue sky."

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"The lawn felt cool.... I felt it with my hand."

"Put my hand in the water sprinkler that was on the lawn...felt very much like rain on my arm."

"Giant trees everywhere."

"Approximately halfway through our time period, we walked...over to a pond. I saw two beautiful...dragon flies, flying together back and forth across the lilly pond. The pond is oval in shape."

"I noticed that there were little circles ever widening outward caused by the movement of the fish. Circles, circles, circles going outward."

"We went back by the chapel, Ob1 went over and hugged one of the giant columns that holds the roof up. Looked like cement."

Ob1: "The main intense feature that one sees is a cylinder that's conical type structure above the church."

"We saw two sprinklers going in the first part of the experiment, one twirling around, the other was spraying out a cone shaped spray."

"We walked over to a rather large lilly pad (pond) that was essentially oval in shape. Ob2 noticed two red dragon flies flying over...and I saw..."

"I threw a mud clod into the water, watched the circles go out...more pebbles in the water, I noticed the circles that they made and how they went out. Ob2 was doing the same thing."

"...the last minute...back to the church...put my arms around one of the cement pillars and hugged it...had been wrapped with some kind of thing in which the concrete was poured..."

"About 11 minutes into the experiment, I was noticing... many trees around..."

These selected quotes indicate that the subject's time sequence was very similar to that occurring at the site. This type of time-sequence comparison has possibilities for studying psi functioning.

D. Tracking Persons Unknown to Subject (Abstract Targeting)

As part of the local remote viewing experiments (distances less than 10 km), we performed two experiments using a new technique that we refer to as abstract targeting. Instead of sending a person, known to

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the subject, to the remote site to be viewed via the remote viewing channel, we provided the subject only with the driver's license of a person unknown to the subject.

Admittedly, such an experiment seems without basis in logic (at least with regard to the present scientific paradigm). However, it has some basis in the anecdotal literature of spontaneous psychoenergetic functioning when, for example, a kidnap victim is found on the basis of the victim's belongings being used to assist targeting. With regard to research in psychoenergetics in general, the possibility of success in such an experiment also is in accord with the observed goal-oriented nature of the "laws" that appear to govern such functioning.*

In the two experiments carried out under this abstract targeting protocol, excellent results were obtained, comparable to those obtained under the standard protocol in which a person known to the subject is used as a target. In the first experiment, the subject correctly described the outbound experimenter as sitting quietly in an enclosed shell-like structure, and the results of the second experiment are shown in Figure 7.

Thus, the two-experiment pilot effort in this form of abstract targeting, carried out under controlled laboratory conditions, tends to substantiate the results observed in field investigations associated with forensic work. Rather than follow through with more experimentation in this vein, the emphasis with regard to abstract targeting work was shifted to geographical coordinates, a potentially more useful targeting procedure, described later in Section VI.

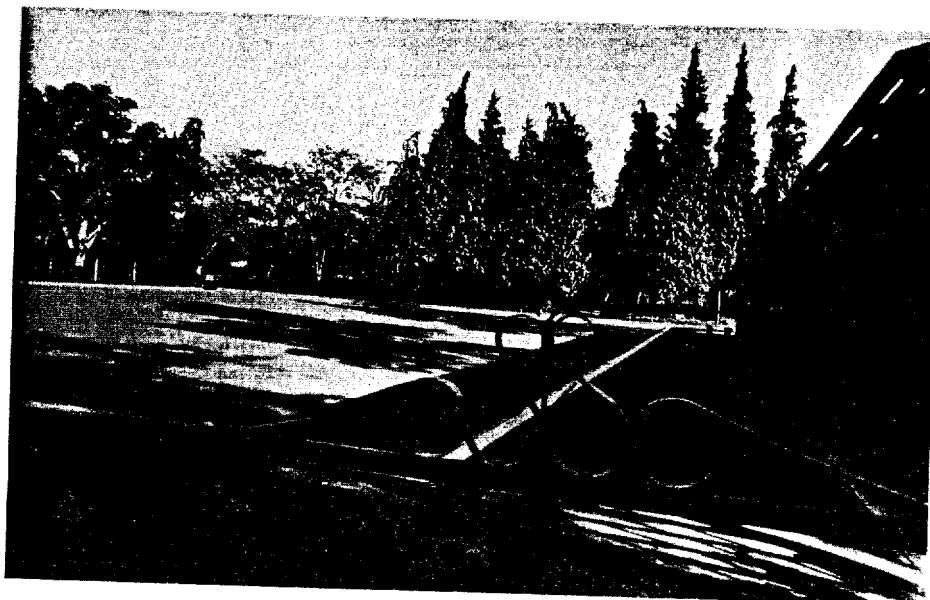
E. Alphabet Experiments

When targets are chosen from a limited pool that is known to the subject, he will tend to guess at the target, rather than use his

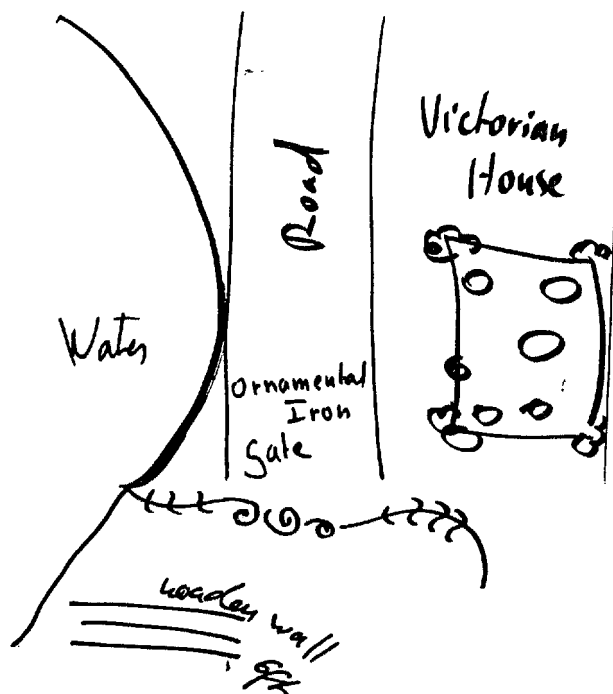
*The possibility that such goal orientation may find support in modern physical theory has been argued by information-theorist O. Costa de Beauregard of the Poincare Institute in France.¹⁴

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PALO ALTO BOWLING GREEN



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FIGURE 7 PALO ALTO BOWLING GREEN, AND DRAWING BY SUBJECT H1. Subject's task was to locate unknown target person, given only his driver's license. Subject correctly described fenced-in area with road leading to ornamental iron gate, building at right, and depressed area at left (however, it is covered with grass, not water; ed). A railroad-tie barrier, not shown in photograph, is located where subject has indicated a wooden wall. (U)

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remote-viewing capability. Thus it is well known in psychoenergetics research that "guessing a number from one to ten" is a more difficult task than, for example, describing a remote scene chosen from an infinitude of possible locations. This latter task, termed a free-response task, prevents the subject from attempting to match his pre-conception of possible targets, with his actual, though perhaps vague, perception. The problem in the forced-choice matching experiments, as opposed to the free-response task, is that the subject's stored mental images are available to him from his memory, and constitute an important source of "noise" in the remote-viewing channel.

1. Twenty-Trial Tests with Two Subjects

In an effort to determine whether the forced-choice noise problem could be overcome with experienced subjects, we carried out a series of twenty "letter guessing" experiments as the first part of a pilot study. Subjects H1 and I1 were located in their respective homes in Los Angeles and New York City, while the targets were posted daily, one per day, in a laboratory at SRI in Menlo Park, California.

Both subjects submitted their lists of twenty letters. The results were not found to depart from chance expectation.

2. Remote Viewing of Alphabet Letters

A second pilot study alphabet experiment was then carried out with an inexperienced subject, S1, who had been especially chosen for this task because the subject reported frequently "reading things" during dreams, a relatively infrequent occurrence that we hypothesized may be an indicator of a natural talent for remote viewing.

In these experiments the subject was told to consider alphabet reading to be the same as remote viewing; that is, rather than try to guess what the letter was, Subject S1 was asked to ignore the fact that the target was a letter and to describe it as though it was a more general remote-viewing target. S1 was asked to make a drawing and to describe it in a non-analytic fashion. Someone else would then look at

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the drawings and description and make the final assessment as to what the target letter was. S1 was specifically instructed not to guess the letter. The experiments were carried out between nonadjacent labs at SRI to provide sufficient sensory isolation between subject and target to eliminate spurious information channels. The target letters were determined by use of a Texas Instruments SR-51 random number generator.

In the first experiment the subject submitted a number of drawings, including what looked like a series of J's, forward and backward, with heavy markings at the bottom. The subject's final words on the associated tape recording made during the session were that "...it could be a 'U' but I don't think so." Nonetheless, experimenter Puthoff, who was given the subject-generated data on a blind basis, correctly identified the target letter as a "U" on the basis of all the data taken together.

The following day a second experiment was done. Subject S1 described a letter "with an acute angle...as though there is a trench...like a whole stack of V's." The subject drew a pile of overlapping V's. Again, on a blind basis, experimenter Puthoff correctly identified the target letter as a V.

In a series of three experiments with subject H1, one of three target letters was similarly identified. Thus, in this pilot experiment utilizing a free-response as opposed to a forced-choice protocol, three letters out of a total of five trials were identified. The probability of such an occurrence by chance is less than one in 1500 ($p = 5.37 \times 10^{-4}$). This suggests that the way to increase the analytical capability to include written material is to arrange to separate the perception from the analysis, to encourage the subject to describe only his or her perceptions, and to follow up by having a different person do the final analysis on a blind basis.

3. Machine-Generated Targets with Feedback

Based on the results of the two-part pilot study, a third type of alphabet experiment was pursued utilizing a totally automated

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experimental setup. The subject was asked to approach the task as a remote-viewing experiment with emphasis on form and shape, with analysis to play a role only when finally a letter choice had to be made.

Each of the 26 letters of the alphabet was made into a 35-mm slide so that when back-illuminated by a white light it becomes a target consisting of a black letter against a white background. These slides are used in conjunction with a random-number-generator-triggered light panel that can hold four slides, of which one at a time is backlit in a random fashion. This panel is located in a laboratory remote from the subject. An identical panel with pushbuttons for subject choice is mounted in the subject room. On the subject panel the correct target slide is not lit until the subject makes his choice, at which time he is given feedback. (The random-number generator machine has four stable internal states, corresponding to each of the four letters. A 1.0-MHz square-wave oscillator sends pulses to an electronic "scale-of-four" counter that passes through each of its four states 250,000 times per second. The state of the counter is determined by the length of time the oscillator has run--that is, the time between subject choices.) As soon as the subject indicates his choice, the target slide on his panel is illuminated to provide visual and auditory (bell if correct) feedback as to the correctness or incorrectness of his choice. Until that time, both subject (and experimenter in the subject location) remain ignorant of the machine's choice, so the experiment is of the double-blind type. Five encouraging phrases at the top of the machine face are illuminated one at a time with increasing correct choices (6, 8, 10, ...) to provide additional reinforcement. After trial number 25, the machine must be reset manually by depressing a RESET button.

A methodological feature of the machine is that the choice of a target is not forced. That is, a subject may press a PASS button when he wishes not to guess, in which case the machine indicates what its choice was. The machine thus scores neither a hit nor a trial and then goes on to make its next selection. Thus, the subject does not have to guess at targets when he feels that he has no idea as to which to choose.

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In a study to determine whether this approach was likely to be useful, a series of four four-letter experiments were carried out with Subject II. The results, shown in Table 1, provide evidence for alphabet reading at a statistically significant level. The overall probability of obtaining the number of correct guesses by chance exhibited in this series is less than one in 10^5 (i.e., $p < 10^{-5}$).^{*} Therefore, this technique could be pursued more extensively as a training routine for alphabet reading.

Table 1

ALPHABET SERIES
(p = 1/4 Random Selection)

Experiment	Target Letters	Number of Trials, n	Number of Hits, H, as Compared with Expected Number, μ	Statistic, t	Probability, P
1	ABIO	200	64 ($\mu = 50$)	2.20	0.014
2	CDGQ	100	44 ($\mu = 25$)	4.27	1.07×10^{-5}
3	EHLT	100	31 ($\mu = 25$)	1.27	0.102
4	KWYZ	100	28 ($\mu = 25$)	0.58	0.28
Total		500	167 ($\mu = 125$)	4.29	$< 10^{-5}$

* Under the null hypothesis of random binomial choices with probability 1/4 and no learning, the probability of observing $\geq k$ successes in n trials is obtained by table lookup of the probability of a normal distribution value

$$t \geq \left(k - \frac{n}{4} - \frac{1}{2} \right) / (3n/16)^{1/2} .$$

It is therefore possible to examine a run of alphabet trials and determine whether the letters are correctly identified significantly more often than expected by chance.

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The observation that alphabet reading is a more difficult task than site description is compatible with the hypothesis that psycho-energetic functioning may involve specialization that is characteristic of the brain's right hemisphere, which predominates in spatial and other holistic processing, in contrast to the left hemisphere which predominates in verbal and other analytical functioning.¹⁵⁻¹⁷ Nonetheless, the results obtained in the remote-viewing and machine approaches to reading remote alphabet characters do indicate a potential for developing acceptable levels of reliability in reading text for operational purposes. Further study is required to determine whether this reliability can be achieved with a reasonable effort.

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V LONG-DISTANCE REMOTE-VIEWING EXPERIMENTS

A. General

Previous SRI work had established a data base of over 50 remote-viewing experiments with local targets (sites within a few kilometers).^{2,3} As part of the program described herein we undertook a series of five experiments designed to determine whether an increase in subject-target separation to transcontinental distances would degrade the quality or accuracy of perception. A major motivation for this effort was the desire to begin to accumulate data to examine the Soviet hypothesis that remote viewing is mediated by extremely low-frequency (ELF) electromagnetic waves. Under this hypothesis, one would expect a degradation in accuracy as the subject-target distance is increased to several thousand kilometers; it is claimed that the Soviet data indicate this degradation.⁶⁻⁹

As a secondary goal, we were interested in the real-time data rate--e.g., determining the extent to which a remote-viewing subject can track the real-time activities and movements of a known individual in a distant city. Therefore, the subjects were encouraged to describe real-time activity during the viewing period.

The methodology with regard to target selection was identical to that described in Section IV-B. That is, targets were determined either by random-number generator entry into a previously prepared target list unknown to subject and experimenters with the subject, or on the basis of site selection by a sponsor representative.

An interesting additional technique that was employed successfully in the first two of the five experiments was the use of the DARPA computer teleconferencing network for post-experiment feedback. Access to the computer by the traveling experimenter was by means of a portable terminal. The use of the teleconferencing service allows a subject in one state (e.g., California) to communicate with an experimenter in

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another state--say, New York. The conversational TALK mode available on the DARPA net was used for this purpose in the following manner.

The subject at SRI and the experimenter on the east coast agreed (via computer teleconferencing) to begin an experiment in one-half hour. The purpose of the computer in this experiment was to provide time- and date-stamped permanent records of all communications between the various parties involved in the experiment. These data can be read in real time by any authorized person entering the SRI-AI Tenex (MSG) system--for example, the sponsor's technical representative.

After logging off the computer, the outbound experimenter would use a random-number generator to determine which of six locations in the target area would constitute the target to be visited in this experiment. Neither the subject nor the experimenter at SRI knew the contents of the target list, compiled after logging off. Having selected a target location by the random protocol, the outbound experimenter would proceed directly to the site and remain there for 15 minutes.

At the previously agreed-upon start time (one-half hour after breaking computer links) the subject would begin to type impressions into a special computer file established for this purpose.

When the outbound experimenter returned from the target site to his hotel, he would make use of a limited-access file to enter his description of the place he actually visited. He would then return to the executive level of the computer, and await the appearance of the SRI experimenters and subject who could then (and only then) link the New York and Menlo Park terminals. At that time both files would be printed out on both terminals (and at a third location if desired--for example, at the sponsor facility), and the subject and the outbound experimenter would each learn what the other had written.

B. Menlo Park to New York City (Grant's Tomb)

Two subjects, S1 and G1, both in California, participated simultaneously in this experiment at Grant's Tomb, which was the first of two New York City targets. Both subjects independently provided

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computer-stored records of their impressions, and one made the sketch shown in Figure 8. (The five possible targets in addition to Grant's Tomb were a railroad bridge, the 20-story New York University law library, the fountain in Washington Square Park, the Columbia University subway station, and the 72nd Street boat basin. The targets were chosen to be dissimilar, and thus differentiable, by potential judges.)

Subject G1, an SRI systems analyst, said in his opening paragraph: "Outdoors, large open area, standing on and then off asphalt (rough material), dark for a path. A white building, like a ticket booth. Wooden structure, is white in color, and has an arched look about it. There is a large shade tree close to Russ (outbound experimenter)."

Subject S1, closeted in a separate SRI location, began with: "I thought of a high place with a view." The subject continued with "I saw a tree on your left in a brick plaza--it seemed to be in front of a building you were entering." Later, "I could not clearly identify the activity. A restaurant? A museum? A bookstore?" And, "You were looking at coins in the palm of your hand, maybe giving some to Nicky (son of outbound experimenter)." (For the complete transcript, see Figure 9.)

The coins were in fact used to purchase the postcard from which Figure 8 was made, and they were given to the experimenter's son who made the purchase. Both subjects then went on for an additional paragraph to describe details of the activities they imagined to be going on inside the building they saw, details that were partly correct, partly incorrect.

C. Menlo Park to New York City (Washington Square Fountain)

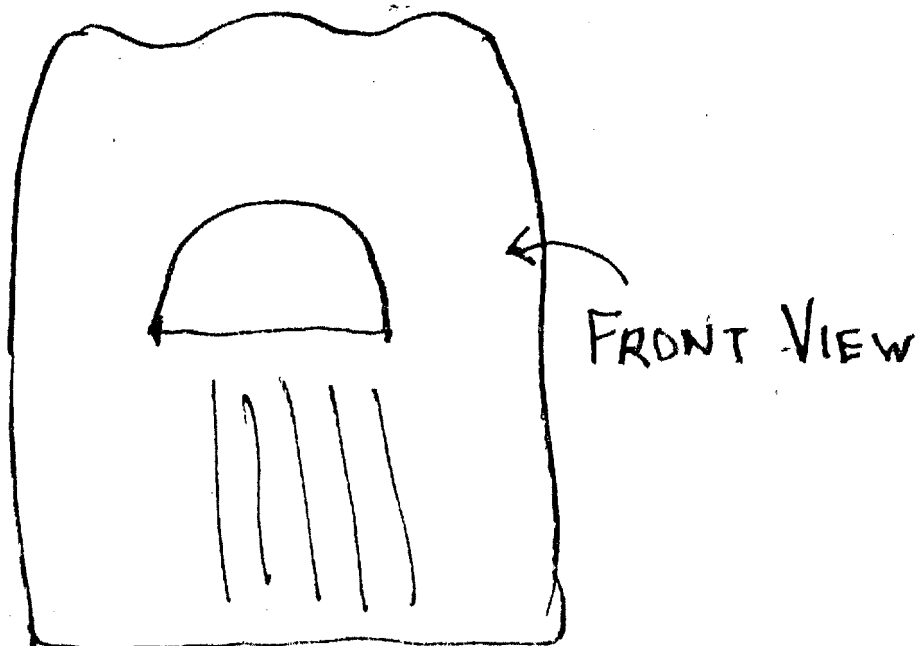
In the second experiment, the target, again chosen by random protocol, was the fountain in Washington Square Park. One subject, S1, participated. The subject produced an exceptionally accurate transcript. The photos and the subject's drawing of the fountain are shown in Figure 10. The subject began his printout with the following: "The first image I got at about the first minute was of a cement depression--as if

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GRANT'S TOMB TARGET



SUBJECT DESCRIBED: "OUTDOORS, LARGE OPEN AREA.... SHADE TREES....
WHITE BUILDING WITH ARCHES."

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FIGURE 8 GRANT'S TOMB, USED AS TARGET IN COAST-TO-COAST REMOTE-VIEWING
EXPERIMENT, 2 JULY 1976. Subject described: "Outdoors, large open area ...
shade trees ... white building with arches." (U)

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MSG -- VERSION OF 1 APRIL 1976
TYPE ? FOR HELP, ? # FOR NEWS

LAST READ: 2-JUL-76 12:09:34; 7 MSGS, 2 DISK PAGES.

<- TYPE 6:7
(MSG. # 6, 1678 CHARS)
DATE: 2 JUL 1976 1126-PDT
FROM: TARG
SUBJECT: S1'S REPORT
TO: TARG

RUSSEL - I THOUGHT OF A HIGH PLACE WITH A VIEW - DETAILS INCLUDED 3 MI
**VIEWING I SAW A TREE ON YOUR
LEFT IN A BRICK PLAZA - IT SEEMED TO BE IN FRONT OF A

WRONG BUTTON - BUILDING YOU WERE ENTERING - YOU WAITED AS IF
FOR AN ELEVATOR AND READ SOMETHING ON THE WALL
YOU CAME OUT (OFF THE ELEVATOR) AND THERE WAS A ROOM ON YOUR
LEFT WITH A VIEW - I COULD NOT CLEARLY IDENTIFY THE ACTIVITY
- A RESTAURANT ? A MUSEUM? A BOOKSTORE? YOU LOOKED AT SOMETHING
A CARVING OR MENU OR DIRECTIONS ON A POST BEFORE ENTERING -
FROM THE ROOM I THOUGHT THERE WAS A VIEW OF A HARBOR OR WATER
ABOUT 1/3 OF THE FRAME - AT ONE TIME I HAD THE FEELING THAT
YOU WERE LOOKING AT COINS IN THE PALM OF YOUR HAND - MAYBE GIVING
SOME TO NICKY - WHICH WERE THEN PUT IN A SLOT - JUKEBOX? PINBALL?-
ALSO THE SURFACE WITH SOMETHING VERTICAL ABOVE - SOMETHING REFLECTING
METAL PIPEX OF AN ORGAN (THE ONE I DIDN'T VIEW LAST TIME)
OR OF BOTTLES AGAINST A MIRROR - SOMETHING REFLECTING - THEN
DAVID SNAPPED HIS FINGERS - I SAW A BASKETBALL VERY CLEAR
TACTILE SENSATION FROM A SOMEWHAT TEXTURED GLOBE - ALSO, ON
ANOTHER SNAP - THE COLOR RED NOT SHARPLY DEFINED - LIQUID OR
FLOWING MATERIAL OR NICKY RACING AROUND IN A RED SHIRT
ANOTHER SNAP AND D ASKED FOR THE NAME OF THE PLACE -
I WAS THINKING "BAR" BUT I THREW THAT OUT AS OLD AND SAW THE
LETTERS "CH" WHICH I COMPLETED AS "CHILE" OR "CHILI" -- ALSO
ANOTHER SNAP AND THE NAME OF THE THIRD PERSON - JOE JOHN OR
GERRY - IS IT GARY? - ARUSSELL I S THAT YOU?HI, THAT WAS S1 , AND WE
**THE "MSG" STILL, I THINK THAT IT MAY
ABORT!

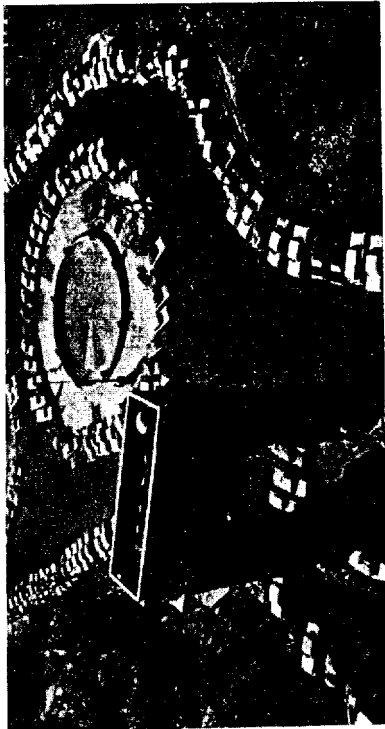
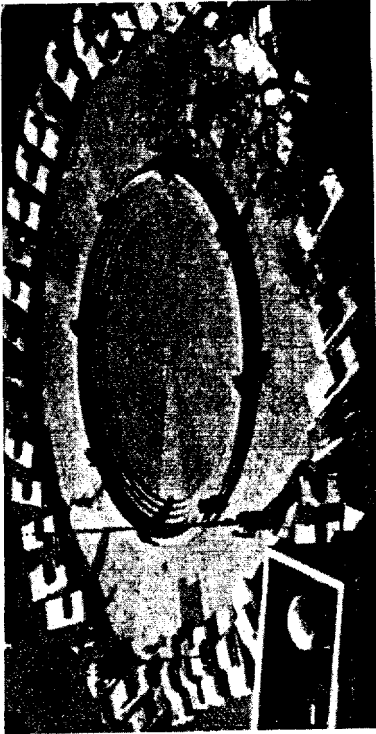
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FIGURE 9 COMPUTER FILE PRINTOUT FROM CALIFORNIA-TO-NEW YORK LONG-
DISTANCE REMOTE-VIEWING EXPERIMENT — TARGET: GRANT'S TOMB
IN NEW YORK CITY (U)

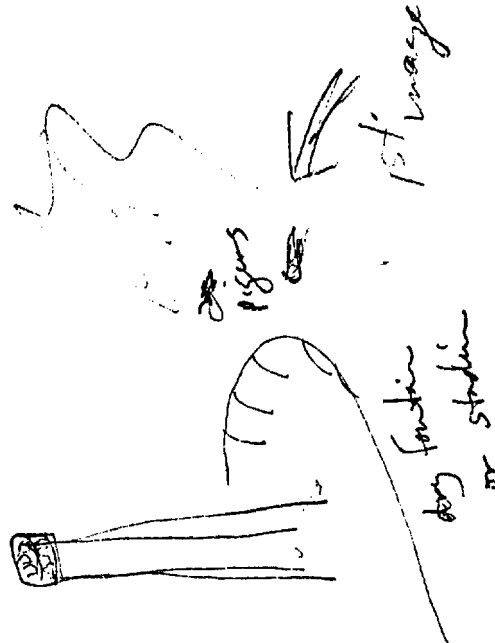
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COAST TO COAST REMOTE VIEWING EXPERIMENT
WITH TARGET AT WASHINGTON SQUARE IN NEW
YORK CITY. SUBJECT'S FIRST PERCEPTION WAS
OF A "CEMENT DEPRESSION - AS IF A DRY
FOUNTAIN - WITH A CEMENT POST IN THE
CENTER OR INSIDE".

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FIGURE 10 WASHINGTON SQUARE IN NEW YORK CITY, USED AS TARGET IN COAST-TO-COAST REMOTE-VIEWING
EXPERIMENT, 6 JULY 1976 (U)

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a dry fountain with a cement post in the center or inside. There seemed to be pigeons off to the right, flying around the surface out of the depression.... At one point I thought you were opening a cellophane bag...." (The experimenter had in fact bought ice cream during the experimental period.) "There was also a rectangular wooden frame, a window frame, but I wasn't sure if it was on a building, or a similar structure with a different purpose." (A possible correlation from a functional viewpoint to the Washington Square Arch through which the outbound experimenters viewed the fountain toward the end of the experimental period.) "All in all I thought you were in Riverside Park...." (Incorrect analysis.) An SRI scientist, familiar with the New York City area but blind to the target, did, however, identify the target correctly on reading the twenty lines of printout as it emerged from the computer terminal.

As an example of the style of narrative generated by a subject during a computer teleconferencing experiment, we include the entire unedited computer-logged text of the Washington Square experiment in Figure 11.

These experiments provide an elegant demonstration of the utility of the teleconferencing process as a secure data recording system to provide real-time monitoring of long-distance remote-viewing experiments.

In a more detailed tape recording made after the experiment, but before any feedback, the subject described "cement steps going into the depression, like a stadium, and the rounded edge of the top of the depression as you go up to ground level." These descriptions are not only correct, but also show remarkable detail.

D. Quantitative Analysis of New York City Target Transcripts

In attempting to derive a quantitative estimate of the amount of valid data in a transcript, we have made a detailed analysis of the previous two transcripts generated by a single subject during the long-distance experiments between Menlo Park, California, and New York City.

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<- TYPE (MESSAGE SEQUENCE) 6
(MSG. # 6, 1730 CHARS)
DATE: 6 JUL 1976 1354-PDT
FROM: TARG
SUBJECT: S1's REPORT PART 2 NYC EXP

THE FIRST IMAGE I GOT AT ABOUT THE FIRST MINUTE WAS OF A CEMENT DEPRESSION - AS IF A DRY FOUNTAIN - WITH A CEMENT POST IN THE CENTER OR INSIDE . THERE SEEMED TO BE PIGEONS OFF TO THE RIGHT, FLYING AROUND THE SURFACE OUT OF THE DEPRESSION. THEN I SAW AS IF IF IF IN THE DISTANCE A REAL STADIUM WITH GRASS IN THE CENTER AND PERHAPS STADIUM LIGHTS. OTHER IMAGES WERE A ROW OF HOUSES/A PICKET FENCE - SOME VERTICAL UNITS WITH JAGGED TOPS. THEN A FLUTED/GROOVED VERTICAL COLUMN, BUT I COULDN'T SENSE WHAT IT WAS RELATED TO. AGAIN YOU WERE IN A DEPRESSED AREA WITH CEMENT SIDES, LOOKING OUT ONTO THE SURFACE OUTSIDE. THE CEMENT SIDES ARE NOT STRAIGHT, BUT SLOPING, ALMOST S-SHAPED. ALSO A CLEAR FEELING OF THE HEAVY, WORN METAL BAR ON THE TOP OF TYPICAL NYC OR ANYCITY FENCES. THERE DIDN'T SEEM TO BE ANYTHING REALLY SPECIAL INSIDE, JUST A SEPARATION BETWEEN TWO TWO SIMILAR AREAS. AT ONE POINT, I THOUGHT YOU WERE OPENING A CELLOPHANE BAG AND LATER I SENSED YOU FEEDING POPCORN - TO PIGEONS. THERE WAS ALSO A RECTANGULAR WOODEN FRAME, A WINDOW FRAME, BUT I WASN'T SURE IF IT WAS ON A BUILDING, OR A SIMILAR STRUCTURE WITH A DIFFERENT PURPOSE. ALL IN ALL, I THOUGHT YOU WERE IN RIVERSIDE PARK NEAR A TRACK AND PLAY AREA, OCCASIONALLY LOOKING UP AT THE "ROCK AND LEAF" CLIFFS LEADING UP TO THE DRIVE. AFTER I HAD THOUGHT THAT AND FIT IT IN WITH THE IMAGES RECEIVED SO FAR, IT KIND OF STUCK, AND I POSSIBLY GENERATED MORE PARK SCENES. THE STADIUM /FOUNTAIN IMAGES WERE THE FIRST AND THUS THE LEAST BIASED AS TO PARK MEMORIES. (I SURE DO LIKE THE TELETYPE. IT CAN BECOME AN OBSSSSIVE PASTIME, I SEE).

THAT WAS MESSAGE 6

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FIGURE 11 COMPUTER FILE PRINTOUT FROM CALIFORNIA-TO-NEW YORK LONG-DISTANCE REMOTE-VIEWING EXPERIMENT — TARGET: WASHINGTON SQUARE IN NEW YORK CITY (U)

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To carry out this analysis, each transcript typed by the subject into a computer file was edited to retain only declarative statements spontaneously generated by the subject, or responses to direct questions. These statements were collected in groups called concepts. For example, if the subject had five references to a condition that can be defined as shady, these would be combined in the concept "shady."

We performed four comparative analyses on the concepts from the two transcripts: Transcript A with Site A; Transcript B with Site B; Transcript A with Site B; and Transcript B with Site A. Each concept was assigned a rating ranging from 0 to 10, depending on the analyst's subjective impression as to whether the concept had no correspondence (a rank of 0) or complete correspondence (a rank of 10) with the target. The cross-matching was to serve as a crude measure of chance or generalized correspondences.

For the Grant's Tomb target site, there were 21 distinct concepts with a mean score of 6.4 ± 4.3 ; for the Washington Square site there were 16 concepts with a mean score of 6.8 ± 2.7 . The individual cross matches were as follows: Grant's Tomb transcript to Washington Square had a mean score of 3.6 ± 4.3 , and the Washington Square transcript matched against Grant's Tomb yielded a mean score of 3.8 ± 3.8 . Table 2 shows the detailed analysis for the Grant's Tomb experiment. For each of the 21 concepts (all that were found) we display a summary of the concept, the target correspondence and its related score, and the correspondence with the control target, Washington Square, and its related score. Table 3 shows the same data for the Washington Square site and its control target, Grant's Tomb.

The combined score for the direct matches is 6.6 ± 5.1 , and for the cross matches is 3.7 ± 5.7 , where the means are calculated by direct average and the standard deviation is computed from the square root of the sum of squares of the deviations from the mean scores. We observe large variances, which are expected in any subjective analysis of verbal text. The difference in the means, although not statistically significant, is consistent with earlier qualitative assessments of transcript

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Table 2
QUANTITATIVE ANALYSIS OF THE GRANT'S TOMB TRANSCRIPT

Subject's Description (Quotes)	Correspondence (0-10)	Cross-Correspondence to Washington Square (0-10)
1. I thought of a high place with a view	Bluff overlooking river	Standing in a depression
2. I saw a tree on your left	Lots of trees	Nearby trees
3. In a brick plaza	Plaza looks like brick	Plaza looks like brick
4. Building you were entering	Entered tomb building	No buildings
5. Read something on the wall	Read informative plaque	No walls, no reading
6. Came off the elevator	No elevator	No elevator
7. A restaurant?	None	None
8. A museum?	It is a museum	None
9. A bookstore?	Books and cards are sold	None
10. A carving, menu or directions on a post	Bronze plaque at entry	None
11. The room has a view	Room looks down on tombs thirty feet below	No room
12. View of harbor or water	View of river	Large operating fountain
13. Coins in your hand	Used to buy cards	Used to buy ice cream
14. Gave some coins to Nicky (son)*	He bought cards	Doesn't apply
15. Nicky put them into a slot	No slot	Doesn't apply
16. Reflecting metal pipes	Could be columns	Metal pipes in fountain
17. Bottles against a mirror	None	None
18. Something reflecting	Marble and glass doors	Water in fountain
19. Basketball or textured globe	None	Glass globes around fountain
20. Nicky in red shirt	Correct	Doesn't apply
21. Liquid or flowing material	None	Water in fountain
	Mean	Mean
	6.4 ± 4.3	3.6 ± 4.3

* Subject knew Nicky was in New York with experimenter.

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Table 3
QUANTITATIVE ANALYSIS OF THE WASHINGTON SQUARE TRANSCRIPT

Subject Description (Quotes)	Correspondences (0-10)	Cross-Correspondence to Grant's Tomb (0-10)
1. Cement depression	We were in a cement depression	Tombs are in marble depression
2. A dry fountain	Operating fountain	None
3. Cement post in the center	Cement post plus large pipe	Tombs in center
4. Pigeons off to the right	Pigeons were in the park nearby	No pigeons
5. Stadium with grass and lights	Scale factor	Scale factor
6. Rows of houses, picket fence	Houses with iron fences	None
7. Vertical units with jagged tops	Arch supports perhaps	Columns in front of building
8. Fluted grooved white columns	Side of arch supports	Columns in front of building
9. You are in depressed area with cement sides	Exactly	Tomb is in a depressed area
10. Sides are sloping almost S-shaped	Exactly	Somewhat curved at top
11. Heavy worn metal	Copper posts in fountain	Marble railing
12. A separation between two different areas	In and out of fountain	Above and below in tomb area
13. You were opening a cellophane bag	Yes	No
14. You were feeding popcorn to pigeons	Others were	No pigeons
15. Rectangular wooden frame...on a building	Could be the arch	Rectangular building
16. Riverside park, tracks and play area	Play area nearby	Tomb is in Riverside Park
	Mean	Mean
	6.8 ± 2.7	3.8 ± 3.8

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accuracy of nearly 100 transcripts. From these means we would estimate that approximately 66% of this one subject's response is an accurate description of the target site, whereas if the data are matched against other target sites, only 37% of the response would typically apply. Although crude, this analysis strongly suggests a method for further single transcript analysis to be carried out by professional linguists. Such analysis will be used in our continuing program.

There are two possible interpretations to the statement that ~ 66% of the transcript is correct. One is that 66% of each concept is correct; the other is that 66% of the concepts are individually completely correct. We lean toward the latter interpretation, since if the transcripts achieved their 66% reliability from partial accuracy of each concept, we would find a much smaller deviation from the mean than we observe. In fact the large deviations from the mean indicate a wide variance in accuracy of individual concepts. Therefore, the high accuracy of the transcript as a whole is derived essentially from a series of individual concepts that are themselves substantially correct.

E. New York City to Ohio (Ohio Caves); Under Sponsor Control

A third long-distance remote-viewing experiment was carried out under the control of the sponsor's technical representative. In this case, both SRI experimenters, while visiting in Ohio, agreed to take part in a remote-viewing experiment in which the contract monitor would select the target.

Under the observation of our contract monitor, we telephoned Subject H1 in New York City and obtained the subject's agreement to participate in a long-distance remote viewing experiment. The subject was told only that we were located somewhere between New York City and our California laboratory and that shortly we would be taken to a target that we would like to have described. The time for the experiment was set for 2:00 PM EDT. We also agreed to call again at 3:00 PM EDT to obtain Subject H1's impressions and to provide feedback as to the actual target.

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The contract monitor took us directly to the Ohio Caverns at Springfield, Ohio, which he had chosen as the target location (see Figure 12). We entered the grounds through an entrance arch, that opens onto an enormous expanse of lawn, perhaps 20 acres. The caves are located at a depth of $\approx$ 150 ft and are entered through a small building having a long flight of steep stairs. Once underground, we walked through a maze of rock-lined tunnels that lead eventually into a series of rooms lined with calcite stalactites and stalagmites, frosty white and beige crystals formed like icicles. The entire cavern is illuminated by small electric light bulbs attached to the walls. After a 45-minute walk, we exited the caves through a large metal door giving access to a square cross-sectional shaft with stairs leading to the surface.

Following the experimental period, the sponsor observer called the subject in New York, 45 minutes after we left the caves. The opening statements of the subject's transcript as dictated over the phone and posted to the SRI experimenters is as follows:

"1:50 PM before starting.... Flat semi-industrial countryside with mountain range in background and something to do with underground caves or mines or deep shafts...half man made, half natural...some electric humming going on...throbbing, inner throbbing. Nuclear or some very far out and possibly secret installation...corridor...mazes of them...whole underground city almost.... Don't like it at all...long for outdoors and nature. 2:00 PM...(Experimenters) R and H walking along sunny road...entering into arbor-like shaft...again looks like man helped nature...vines (wisteria) growing in arch at entrance like to a wine cellar...leading into underground world. Darker earth-smelling cool moist passage with something grey and of interest on left of them...musty...sudden change to bank of elevators...a very man-made steel wall...and shaft-like inverted silo going deep below earth...brightly lit...."

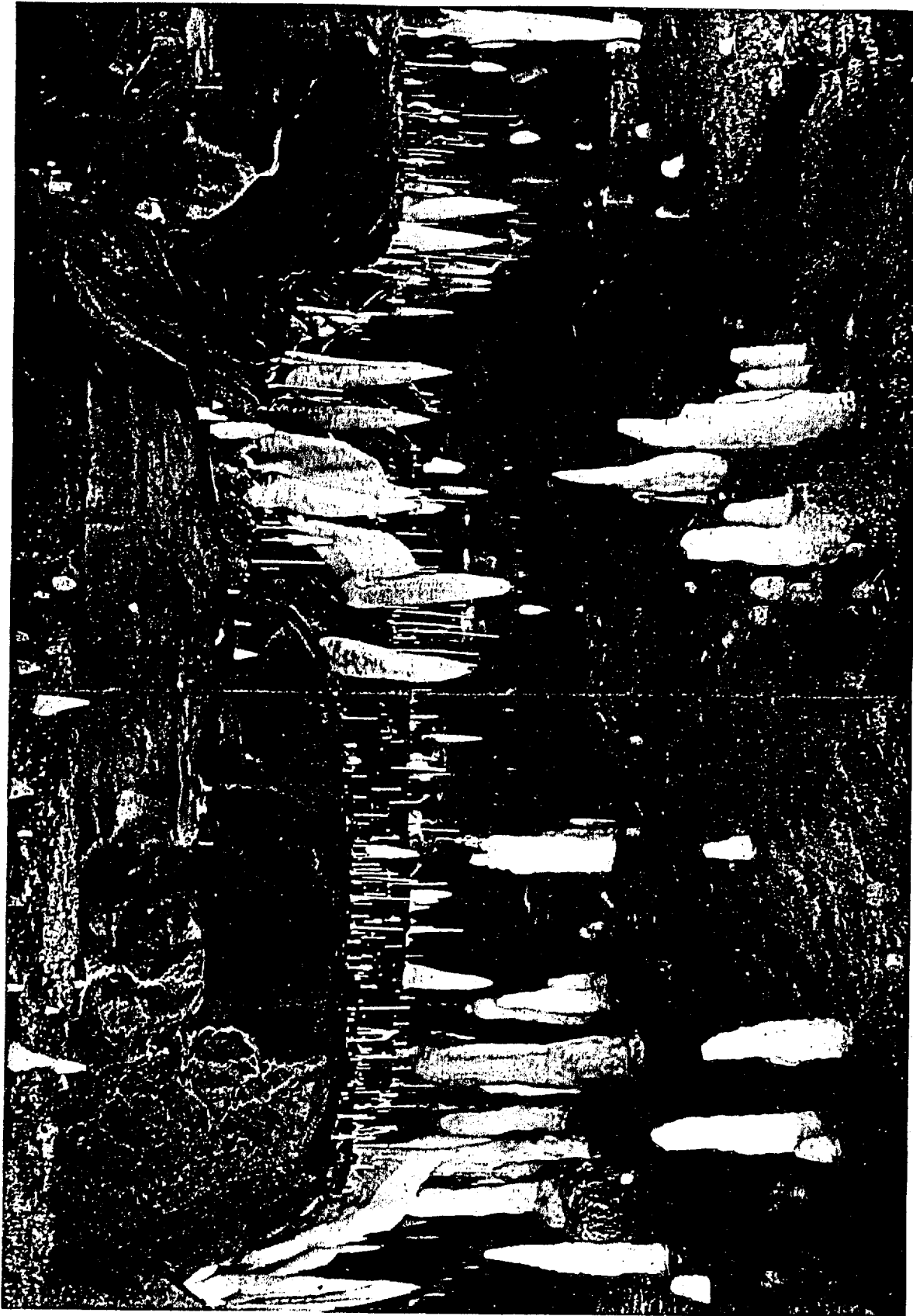
Subject H1 concludes with

"I see a lot of gold and metal and silver-gold glow all over...not much sound...very silent factory...scary...few people...very special."

As is often the case, one observes that the basic gestalt of the target site is cognized and even experienced--e.g., the underground caves

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FIGURE 12 OHIO CAVES, USED AS TARGET IN LONG-DISTANCE REMOTE-VIEWING EXPERIMENT. Described by Subject in New York as, "Underground caves or mines ... deep shafts ... darker, cool, moist earth-smelling passages." (U)

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aspect, while specifics are misinterpreted--e.g., the labeling of the location as a nuclear installation.

A second less experienced subject (G1) working by himself at SRI, who had agreed in advance to participate in the same experiment by date and time, was less successful with the cavern target. This subject erroneously interpreted early impressions as associated with a museum. As a result the majority of his transcript, although containing some correct elements, reflects primarily an incorrect analytical interpretation and cannot be said to constitute evidence for paranormal functioning.

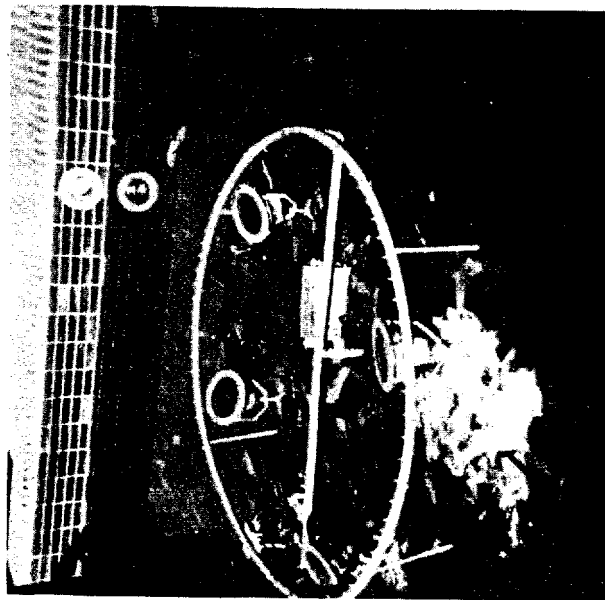
F. New Orleans to Palo Alto (Northern California Bank Plaza)

Two experiments carried out between New Orleans and Menlo Park, California, constitute the final tests of the long-distance series, five experiments of which have been completed to date (all reported here). These last two were carried out with the two subjects who had participated in the first two California-to-New York experiments.

The first experiment in this series involved Subject S1 in New Orleans viewing activities of a group of three people known to the subject, at a location in the Palo Alto/Menlo Park area 2000 miles away. The subject's principal impression was of an "overhang of a building over their heads...also a round gold rim around a sunken depression." The target, a bank building is shown in Figure 13. Principal features of the target include a dramatic building overhang, and a rectangular concrete depression with a fountain in which the water comes out of a circular gold rim. The subject also reported "some kind of fake china flowers mushrooming out of the depression." There were four orange lamps mounted on the gold rim. Finally, S1 reported "there was a projectile coming toward (one of the outbound experimenters). Like a ball or frisbee, as if Ob1 (another experimenter) has tossed him a ball." Actually the experimenters had found a paper airplane lying on the ground and had thrown it back and forth several times. In fact, the photo of the site taken at the time of the experiment shows the airplane between

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FIGURE 13 TARGET USED IN REMOTE-VIEWING EXPERIMENT — NEW ORLEANS TO PALO ALTO, 30 OCTOBER 1976, AND SKETCHES BY SUBJECT S1. Subject described: "The overhang of a building over their heads" Also, "A round gold rim around a sunken depression ... In the surface of the depression there is some kind of fake china flowers. It's like a bonsai tree mushrooming out of the surface." Later in the transcript the subject said, "There was a projectile coming toward (other experimenter). Some kind of a projectile, like a ball or frisbee. As if Ob1 tossed him a ball." (It was a paper airplane.) (U)

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them. This is one of the few times that a remote viewing subject has perceived rapid motion at the target site.

G. Menlo Park to New Orleans (Louisiana Superdome)

For the final experiment (subject in Menlo Park) it was agreed that at 1200 CST on a particular day, the outbound experimenter would choose a target location in his city by random protocol and remain there for the required 15 minutes. During this time, Subject G1 in Menlo Park would tape-record impressions and make any drawings that seemed appropriate. (The DARPA net was not available because of computer net malfunction.)

The target chosen by randomized entry into a New Orleans guide book list was the Louisiana Superdome. The outbound experimenter tape-recorded the following description as he looked at the building: "It is a bright sunshiny day. In front of me is a huge silvery building with a white dome gleaming in the sun. It is a circular building with metal sides. It looks like nothing so much as a flying saucer. The target is in fact the 80,000-seat Louisiana Superdome stadium."

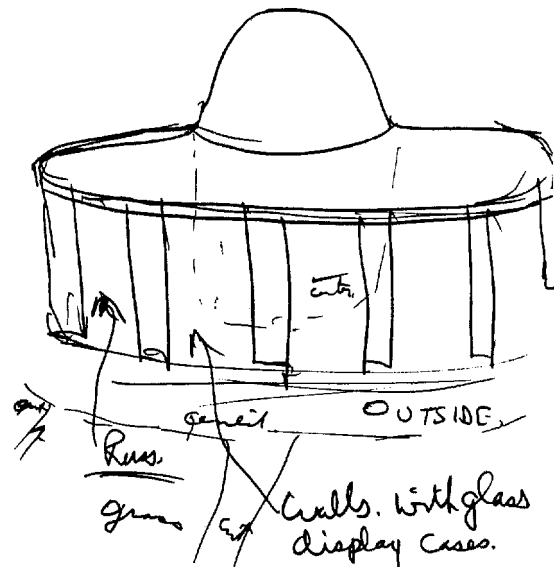
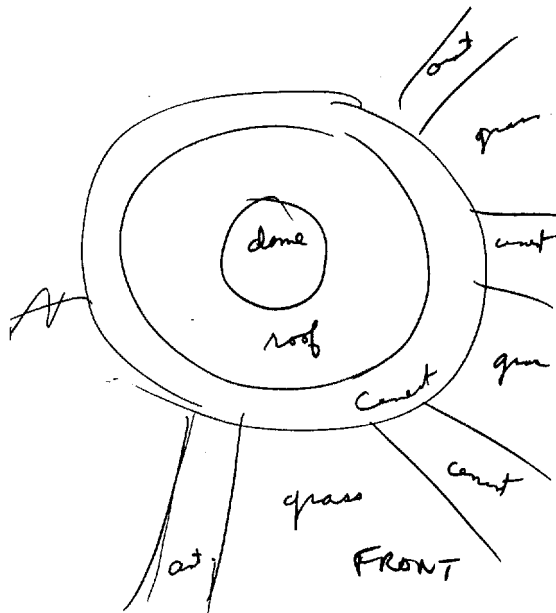
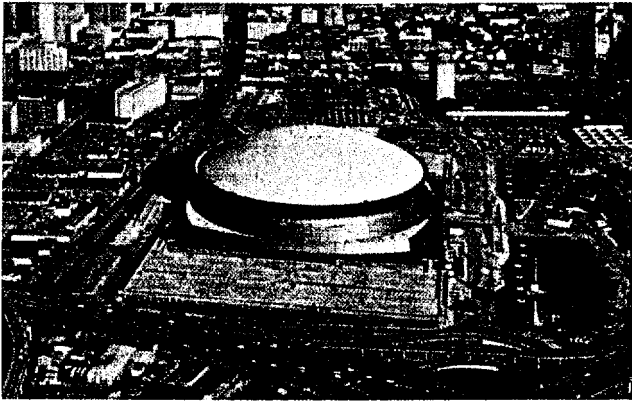
The subject in Menlo Park described the target as "a large circular building with a white dome." The subject also expressed feelings of wanting to reject what he saw because the dome looked "like a flying saucer in the middle of a city." Some appreciation for this perception can be obtained from Figure 14 in which the target is shown, together with the sketches that the subject made.

H. Content Analysis of a Long-Distance Remote-Viewing Transcript (Louisiana Superdome)

The transcript generated during the Superdome experiment was subjected to the same type of qualitative analysis as the earlier local target transcript (see Section IV-C-2). A statement-by-statement comparison between the transcript and associated aspects of the target is given in the following:

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FIGURE 14 LOUISIANA SUPERDOME, USED AS TARGET IN LONG-DISTANCE REMOTE-VIEWING EXPERIMENT FROM SRI, MENLO PARK, AND DRAWINGS BY SUBJECT G1, 31 OCTOBER 1976. Subject described a large circular building with a white dome. (U)

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G1: "Inside a domed area...like a dome." (The subject drew five sketches of a circular building, and marked the center of one, "dome".)

Site: Outbound experimenter, "All I have in view here is this huge dome-shaped building.... In front of me is the incredible silvery white Superdome Stadium that seats 80,000 people with a covered white dome."

G1: "It's like a ceiling...I have the idea of greyness...like grey." (On one of his sketches G1 drew a curved, arched "ceiling" and beside it wrote, "grey color association.")

Site: "The ceiling is dark grey," according to Louis J. Kaposta, the Advertising and Public Relations Director for the Superdome.

G1: "Inside...it's fairly well lit. But it's not a yellow light like you'd get from (incandescent) lights."

Site: Dome lighting includes: mercury lamps (blue, floodlights, tungsten-halogen lamps, fluorescent lamps and globe lamps. "It's quite well lit at the top, inside." (Kaposta)

G1: "It's like maybe sunlight or a cloudy day with sunlight coming through the roof.... "Like its translucent. When you look up you can see light but you can't see images through it."

Site: "It's quite well lit (in the dome)," according to Kaposta. However, he reports, "It's solid" (i.e., there's no translucence).

G1: "I don't see the bright colors, or stained glass windows or anything like that."

Site: Photos show no windows in the dome structure. The outside is silvery white, according to the outbound experimenter.

G1: "I'm getting the feeling of circles, of rings...inside, looking down. Like there's seats." (G1 drew an aerial sketch of seats.)

Site: Diagrams of the seating show a basically circular pattern.

G1: "And cement here." (G1 drew "cement" walkways on an aerial sketch he made of entryways into a circular building.)

Site: Walkways into the Superdome are cement.

G1: "There's grass here...there's grass out the back here.... There's a lot of grass." (On two sketches, G1 wrote "grass.")

Site: "There is a grass lawn adjacent to us which is our property. We may make it a park next door." (Kaposta)

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G1: "Parking lot.... There's a parking lot here." (G1 drew two sketches with large areas he labeled "parking lot.")

Site: Photos show a large parking area.

G1: "Ok, looking up, there's a freeway that's close by.... It's a wide road or freeway. It's a freeway here." (G1 drew a roadway that he labeled "Freeway.")

Site: "Interstate 10 goes right by the Superdome." (Kaposta) The Louisiana Superdome Newsletter for July 15, 1975, states, "The Interstate highway cutting through the downtown area passes right by the Superdome, making it easily accessible from all parts of the city."

G1: "They have blown insulation around it...toward the top."

Site: "They sprayed an insulating material. It was blown on, on top rather than underneath. In this case it was done on the outside on sheet metal. That insulation is about three quarters of an inch thick. Then on top of that they sprayed a plastic waterproof substance. (Kaposta) He also explained that the insulation is not visible, since it is covered over.

G1: "That's the thing that's unique about it, it's designed for acoustics."

Site: "The acoustics are outstanding because it is sound-proofed throughout." (Kaposta)

G1: "It's like an acoustic theater.... Like a concert hall, or something, a stage, something like that."

Site: "The hall has facilities for a stage." (Kaposta)

G1: "There's an openness about it, so it's large...like a dome."
"Yes, it was very large...expansive in a building." (On his first sketch, G1 drew an arrow pointing up into the arched structure he'd drawn, and he wrote, "large open space.")

Site: Superdome General Reference Article, March 1977--"This building, the largest clear span steel structure in the world...is literally held together by its roof." Also, this article refers to the Superdome as, "The world's largest unobstructed room."

G1: "It's fairly new. I think it was opened up last year" (i.e., 1975).

Site: "It's still not complete. We took it as substantially complete August 1975." (Kaposta)

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- G1: On a sketch of the building and parking area, G1 wrote, "light poles."
- Site: Superdome General Reference Article, "In parking areas surrounding the Dome (there are) 400 and 1000-watt Metalarc lamps mounted on poles ranging from 20 to 40 feet."
- G1: "The ceiling with panes above him."
- Site: "The hall has one solid roof which is curved." (Kaposta) However, the Superdome General Reference Article states that the Dome's roof "is nothing more than a series of overlapping triangles building out from a ring in the center."
- G1: "Glass display cases. The glass cases, there were a couple of them. Not like in a row, there were a few. But Russ looked in the glass cases when he walked out."
- Site: Depending upon the building use, there may be glass display cases.
- G1: "Yes, rough surfaces on the top. There's also a waviness to the roof...like a dome. Above it is wavy. I don't know if that's a roof."
- Site: Kaposta said there is "no waviness or roughness inside or out." But the photos Kaposta sent show there is a circular pattern on top of the outside of the dome that could be described (from an aerial side view) as bumps, waviness, or ridges.
- G1: "I'm not certain of the size of the things like the arches. I know he saw arches but I don't know if they were the kind of big huge arches that would be expansive in a building. I don't think they were, they were smaller."
- Site: A photo and a pamphlet sent by Kaposta show pictures of a restaurant area with arches. They are far smaller than the expansive dome structure.

It is well known that the subjective assessment of verbal data can at best only indicate trends, and not support definite conclusions. Therefore, although this analysis is qualitative in nature and may contain possible bias of the analysts, it appears to be consistent with the more quantitative analysis (Section V-D) carried out on two other targets from this same series.

Taken overall, the results obtained in these five long-distance remote-viewing experiments are of roughly the same accuracy with regard

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to site description as those obtained in local remote-viewing experiments. The descriptions not only contain correct information beyond that expected by chance, but also show remarkable detail and resolution. Furthermore, real-time activities are observed and correctly described in a number of instances. Although extensive data must be taken before a final conclusion can be reached, it appears at this point that there is little, if any, degradation in quality of perception as the subject-target distance is increased from a few miles to trans-continental distances. The results obtained in the basis of viewing a New York site from SRI in Menlo Park, California, three thousand miles away, for example, are similar to those obtained in local remote-viewing experiments. Any theory of paranormal functioning put forward at this time should take this insensitivity to distance into account, and any application of paranormal functioning need not, to first order, consider distance as a barrier.

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VI REMOTE VIEWING BY COORDINATES

A. General

One of the tasks identified in the work statement is to provide a basis for evaluating the remote-viewing capability and determining the probability that it is under development in the USSR as an advanced threat technique that could form the basis of future technological surprise. Thus, a significant part of this study is the evaluation of application feasibility using US capabilities in a modeled or simulated threat role.

The assessment of application feasibility in a simulated threat role in this program takes the form of program subjects being asked to view sites chosen by the project's contract monitor as being sites of interest, such as US missile test bays, Soviet military facilities, and so on. For these sites, where deployment of a cooperative agent to the site is not feasible, we employ an abstract targeting procedure developed in an earlier program.² In this procedure the coordinates (latitude and longitude) of sites, with no further information, are relayed to the subject via the SRI experimenters. The subject who is to view the site is asked simply to proceed on the basis of coordinates alone. The material generated in the experiment is then turned over to the project monitor for evaluation. As with the abstract targeting procedure discussed in Section IV-D, we can make no claim as to the logic of the procedure other than the purely pragmatic one that it appears to work.

B. Experiments to Calibrate Remote-Viewing Resolution Capability

In an effort to obtain a calibration of the remote-viewing acquisition and resolution capability under the coordinates procedure, two experiments were carried out in which the coordinates given the subject were of technological facilities in the San Francisco Bay area for which extensive feedback could be obtained. In both cases, the subject was

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simply given the latitude and longitude of the target site with no further information as to the nature of the target.

1. Sylvania Laser Laboratory, Mt. View, California

This was the first of the two experiments involving local technological target sites carried out to assess the acquisition and resolution capability of remote viewing in the abstract-targeting mode. The target latitude and longitude in degrees, minutes, and seconds were selected from a US geological survey map by one of the authors (R.T.) who would have no further contact with the experiment until its conclusion. These identifying coordinates were then passed to a second experimenter (H.P.) who was uninformed as to the precise nature of the target beyond the general knowledge that the site was to be a high-technology complex. This experimenter then departed for the experimental room where Subject I1 was waiting.

The subject's first response to being given the coordinates was that he had an impression of a large complex containing buildings, roads, trees, power lines, etc. After an initial description and sketch, the subject made a clay model of the main buildings and the general layout to capture the three-dimensional aspects. The construction is shown in Figure 15.

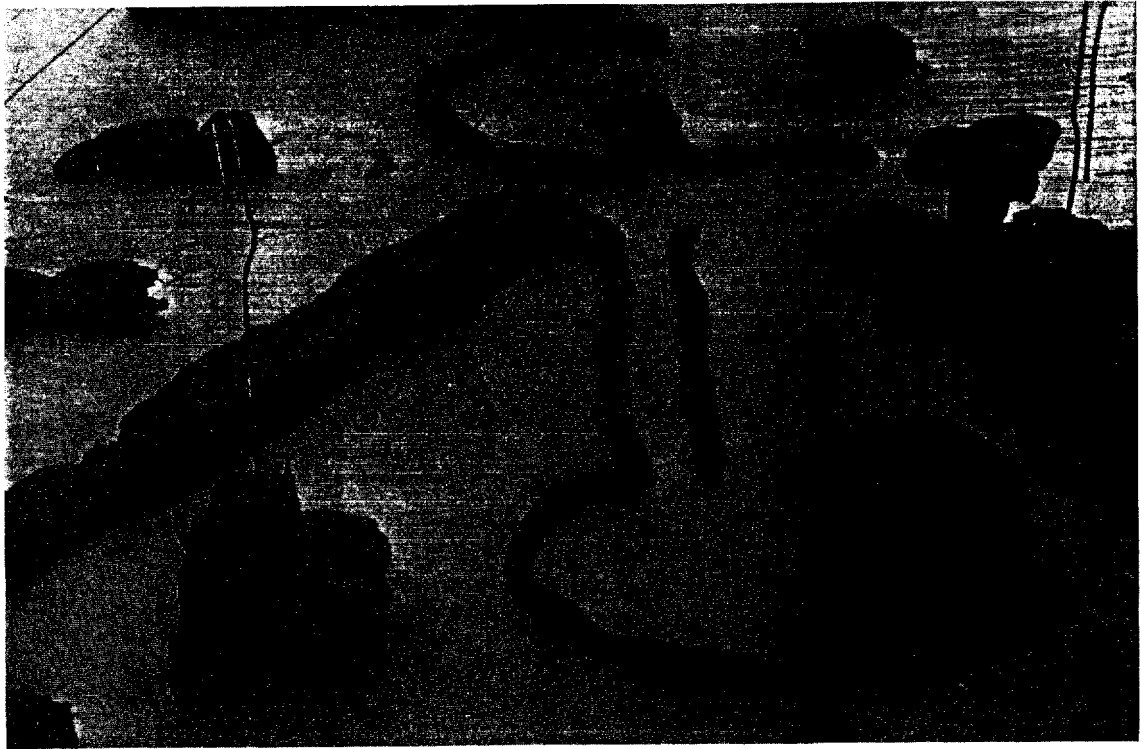
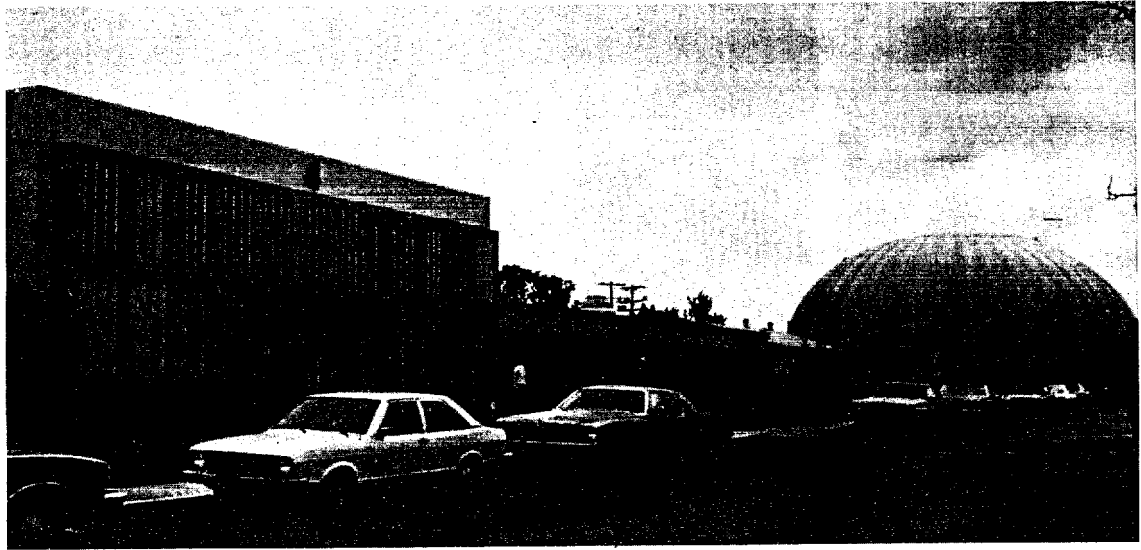
The foreground part of the construction consists principally of a roundish structure on the right and a rectangular building on the left. (The designated geographical coordinates correspond to the center of the round building shown at the right on the upper part of the figure.)

As is the usual procedure, the experimenter with the subject probed for more detail with regard to what the subject had generated. He began by asking about the roundish structure. In response, the subject produced the drawing shown in Figure 16, which he said was some kind of "aereator" (sic) building. (Actually it is an air-inflated hemispheric building.) He also dimensioned the building as 85 feet diameter and 30 feet high. (The true dimensions are 120 feet diameter

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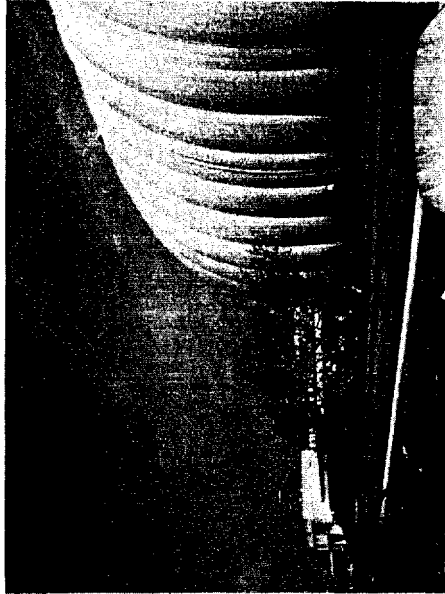
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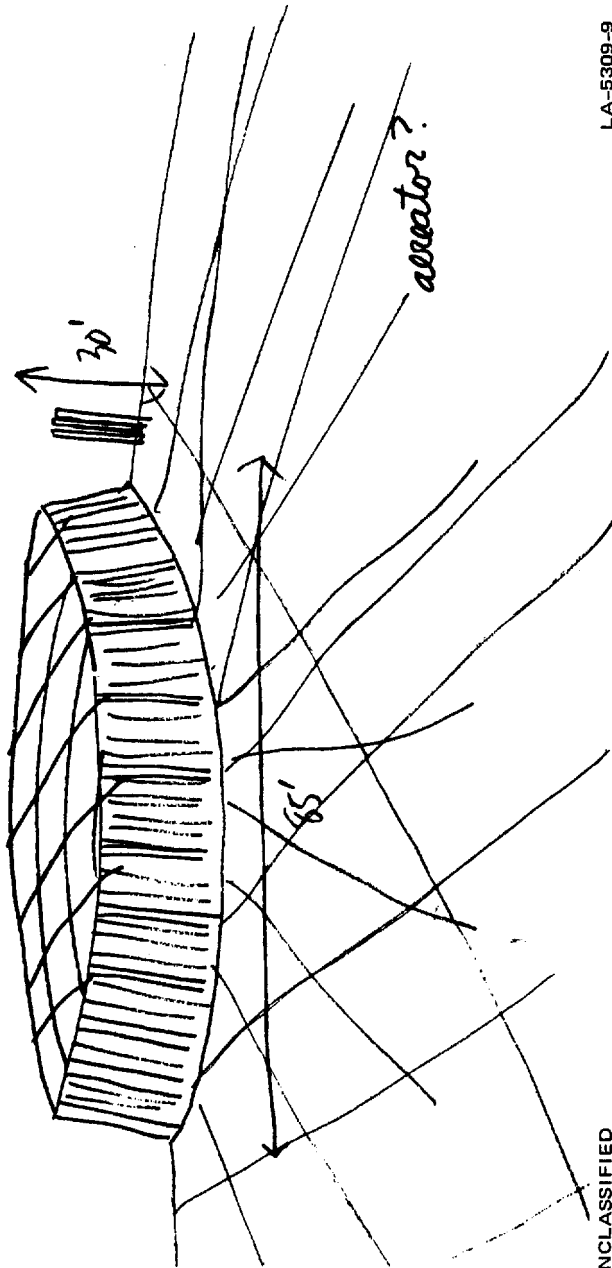
FIGURE 15 TWO BUILDINGS AT SYLVANIA TARGET SITE, AND CLAY MODELS MADE BY SUBJECT I1 IN REMOTE-VIEWING EXPERIMENT, MENLO PARK TO MOUNTAIN VIEW, CALIFORNIA (U)

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37° 23' 20" N
122° 3' 23" W



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FIGURE 16 PHOTOGRAPH OF AIR-SUPPORTED BUILDING AT THE SYLVANIA TARGET SITE, AND SUBJECT I1's DRAWING OF "AEREATOR" (sic) BUILDING. Subject judged the building to be 85 feet long and 30 feet high (actual dimensions are 120 by 60 feet). (U)

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by 60 feet high.) The subject seemed to sense that his scaling was erroneous for he said that the building seemed to be "getting bigger and bigger" as he made his second sketch shown in Figure 17. Finally he offered to put the two buildings in perspective and made the drawing shown in Figure 18.

He then made a more detailed drawing (Figure 19) of the rectangular building, which he volunteered was some kind of manufacturing plant. The experimenter asked him for detail on what was being manufactured. (The principal activity of interest in this factory is the construction of a number of 5-kW-output gas-transport lasers. Within each of these lasers, which are used to heat treat locomotive cylinders, is a large vane-axial blower to move heated carbon-dioxide gas past an electrical discharge region. The laser has a 2-foot-by-6-foot plexiglass viewing port, through which one can observe the glow discharge.) The subject offered that they were making something about the size of a car, that there was a feeling of swirling motion, and that the device being manufactured reminded him of an oven or crematorium because of all the light and heat and energy that seemed to be associated with it. He sketched the interior of the device shown in Figure 20(a). Figure 20(b) is an engineering schematic for comparison. The transformers are on the right of the laser, as indicated by the subject. The total time for this experiment was about 90 minutes.

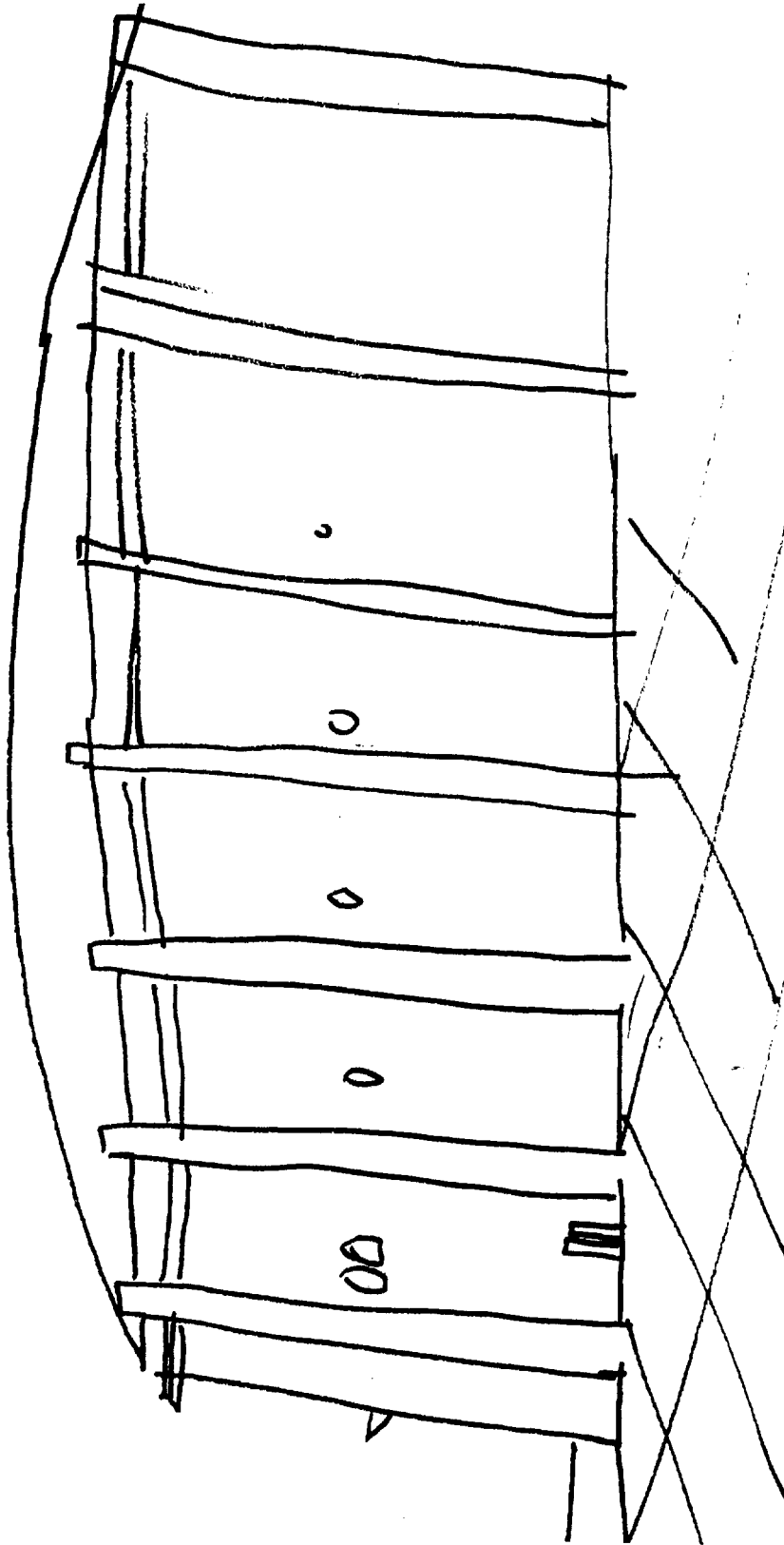
It is significant that the subject emphasized in his drawing of the device little vertical segments, since the major engineering decision that brought about successful production of this laser was the decision to use a segmented anode; that allowed the laser to run at a 100-kW input power without catastrophic arcing.

A photograph of the laser is shown in Figure 21. When the subject was taken to see the laser at Sylvania, he expressed a subjective feeling that he probably did as well as he could have with remote viewing, since seeing the laser in person did not give him that much additional information. It is clear to us from this and the following experiment that the best results can probably be obtained from the use

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getting bigger & bigger.



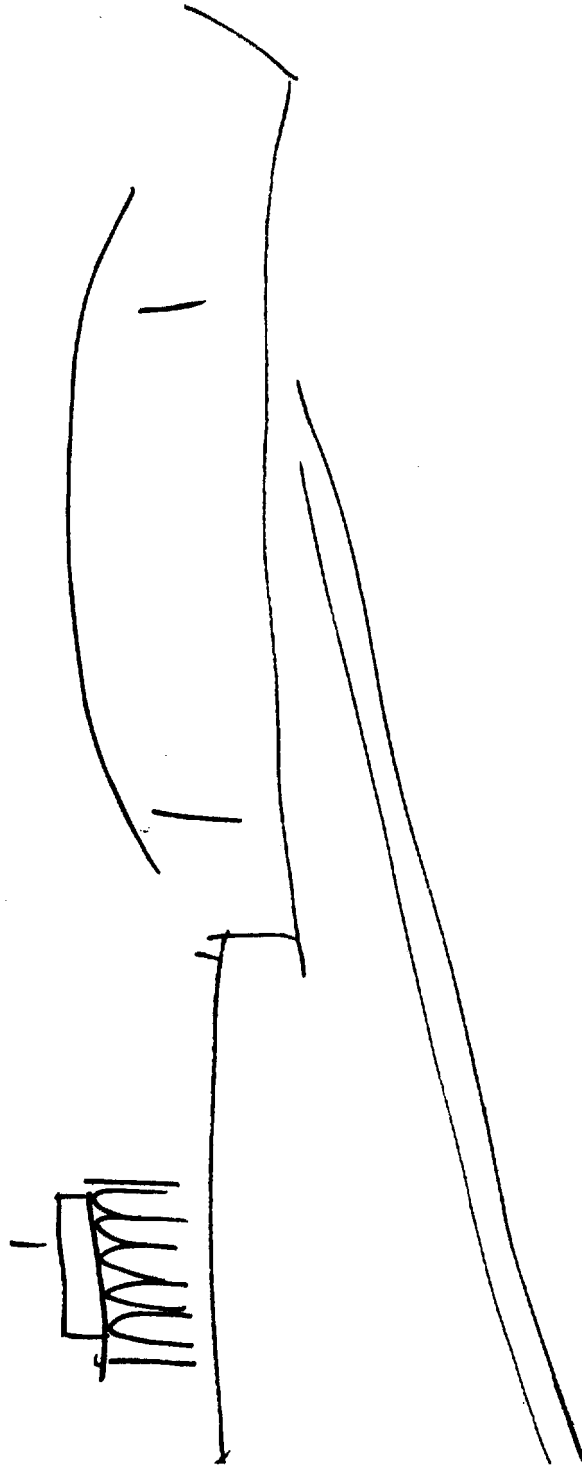
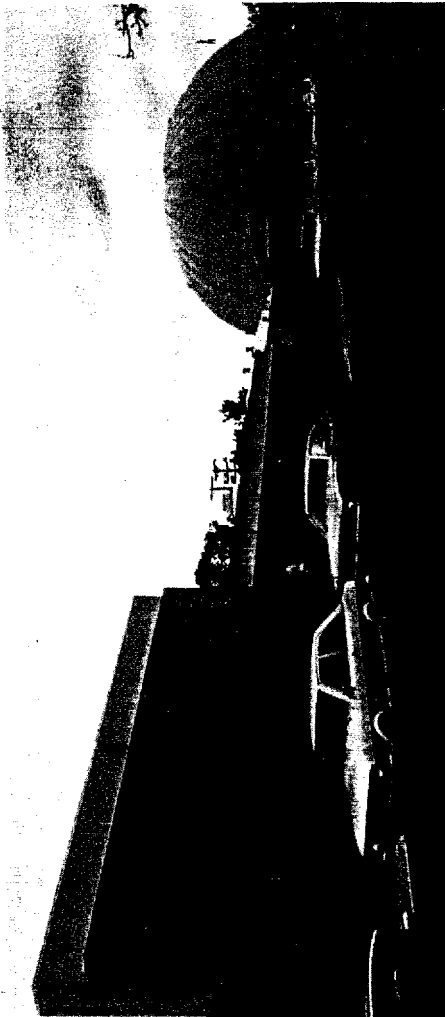
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FIGURE 17 SUBJECT 11's SECOND DRAWING OF SYLVANIA AIR-SUPPORTED BUILDING. Subject described the building as "growing bigger and bigger." (U)

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FIGURE 18 TWO SYLVANIA BUILDINGS, AND DRAWINGS BY SUBJECT I1. Subject correctly pointed out that there were two principal buildings at the site, and he offered to draw them in relation to one another. (U)

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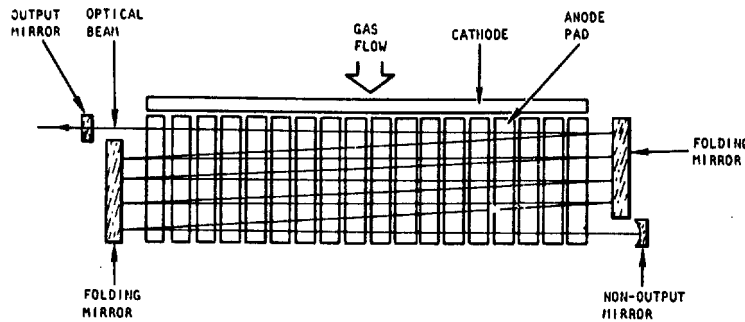
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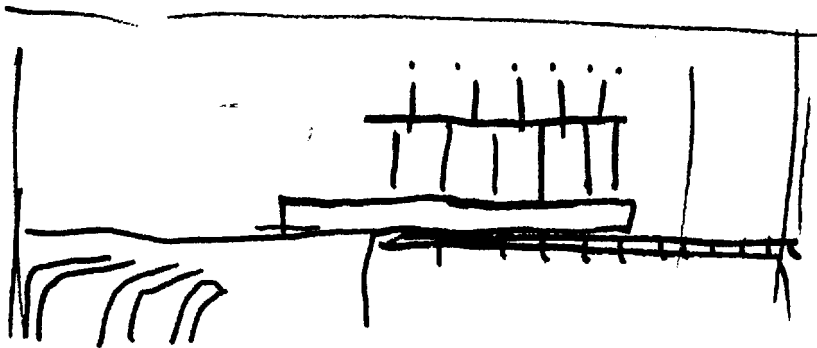
FIGURE 19 FRONT-VIEW PHOTOGRAPH OF MANUFACTURING BUILDING, WITH DRAWING AND CLAY MODEL
BY SUBJECT (U)

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transformers



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FIGURE 20 SUBJECT DRAWING OF INSIDE OF "HEAT AND LIGHT MACHINE" (lower), AND AN INDICATION OF "TRANSFORMERS" ON THE RIGHT (correct). Above is shown the Sylvania schematic of the segmented anode of their 10-kW, 6-foot-long, gas-transport laser under test in the target building. (U)

of a technologist knowledgeable in an area of interest working as an analyst in conjunction with the subject.

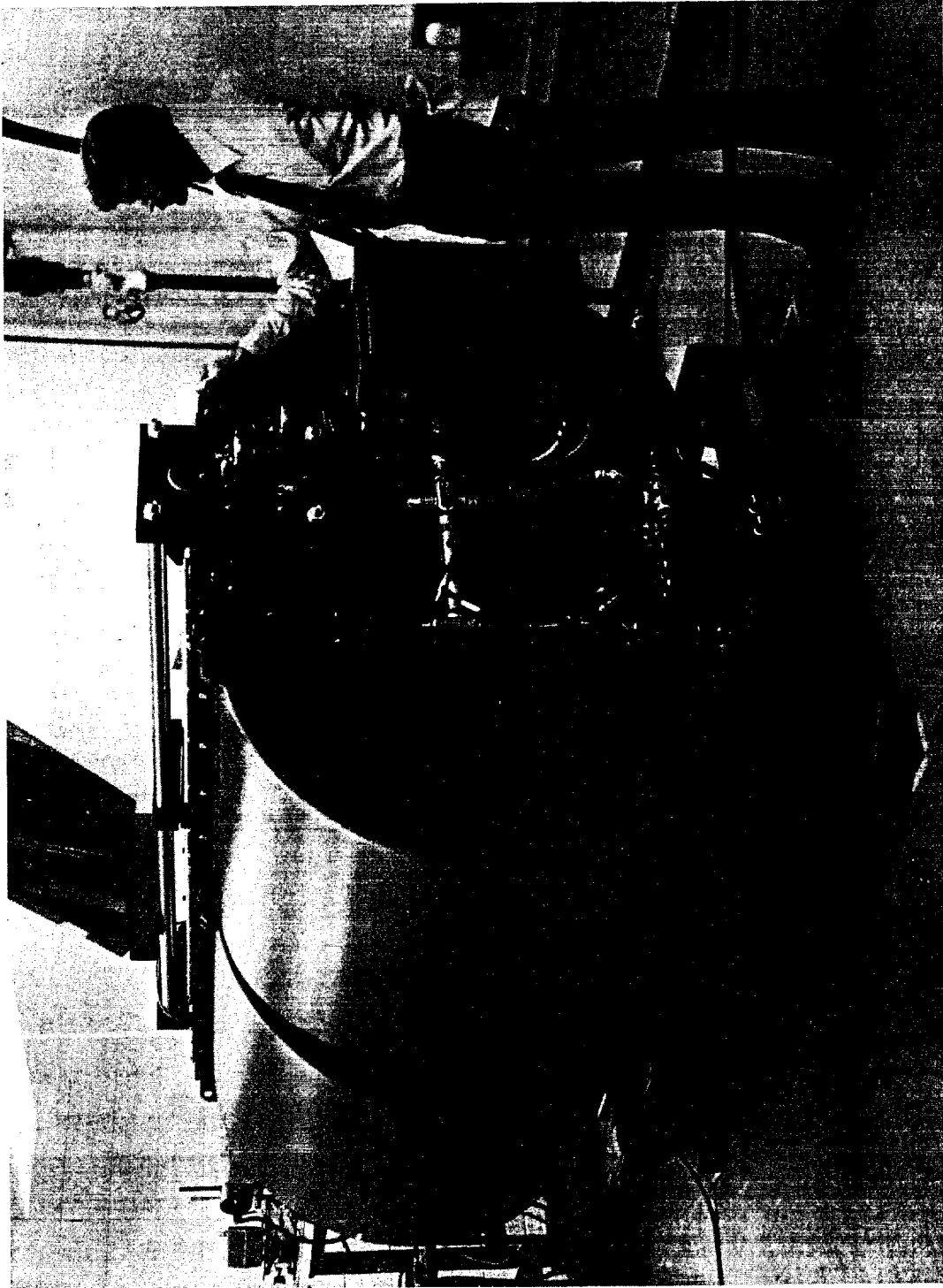
2. Lawrence Berkeley Laboratory Bevatron, Berkeley, California

After the success of the Sylvania experiment with Subject I1, we conducted a similar experiment with an experienced remote-viewing subject, H1, who is, however, a novice in geographical coordinate experiments. Again our primary goal was to determine how much detailed information could be obtained from the target site by this means.

In our normal procedure the experimenter with the subject is kept blind as to the nature of the target so as to prevent cueing, overt

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FIGURE 21 PHOTOGRAPH OF SYLVANIA GAS-TRANSPORT LASER. Transformers are behind the man on the right. (U)

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or subliminal. This is a standard methodological precaution taken in all psychoenergetic research, and one that we adhere to. To obtain a measure of operational utility, however, it was of interest to us to carry out one experiment in which the experimenter had some prior knowledge of the target in order to determine whether this factor led to any obvious enhancement or degradation. Because this experiment represents a departure from standard protocol in testing for psychoenergetic functioning, it must be considered in a separate category with regard to questions of scientific proof of paranormal functioning. Nonetheless, with these caveats it should be appreciated that the experimenter with the subject (1) knew only the name and general function of the target, (2) did not have any detailed information about what was inside the target building, and (3) took every conceivable precaution to prevent cueing or leading the subject.

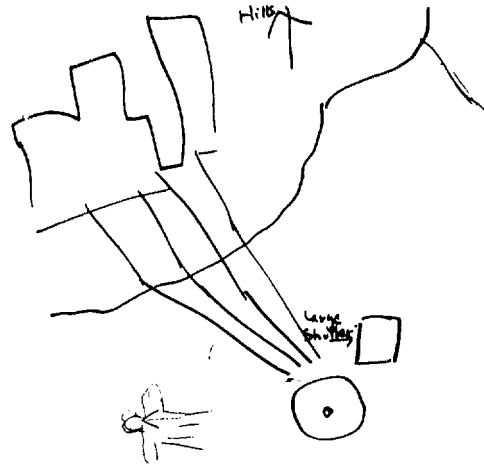
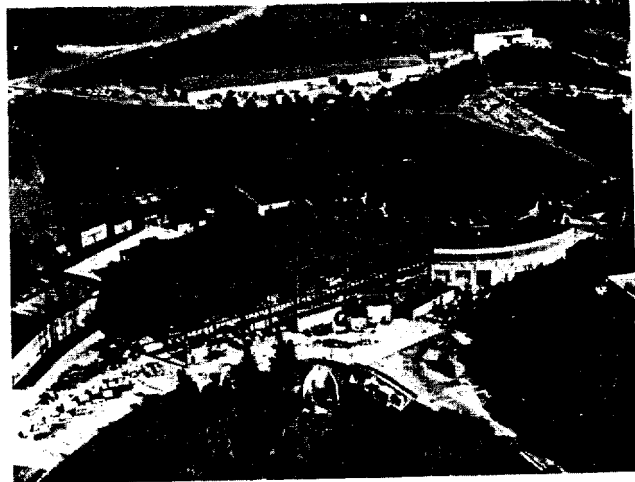
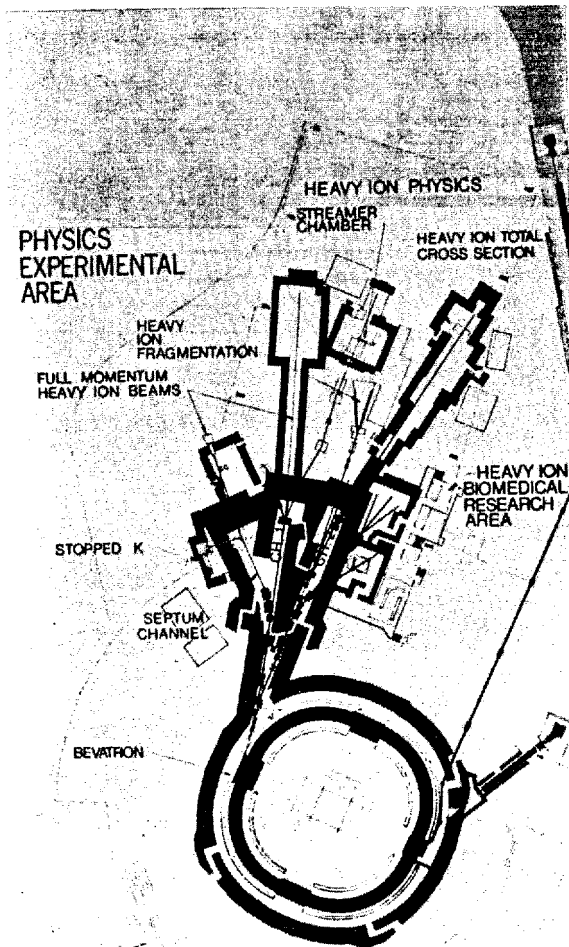
Subject H1 was given the coordinates of the Bevatron, as taken from a US geological survey map of the area. In the tape-recorded interview with the experimenter H1 responded that it was a very technical place, and immediately offered that "there are highly illuminated rays shooting out of a belly-button kind of roundness." H1 then made the sketch shown in Figure 22. The detailed schematic shown at the left was unknown to us at the time of the experiment, and we were not able to confirm the "rays" (or beam-tubes, as it turned out), until a week later. H1 made a clay model in response to the coordinates, as shown in Figure 23.

The subject then volunteered a description of the interior of the building, perceived as an "energy expander" which "hums" with "some very strong electrical, otherwise, energy going around there...energy circulating." To illustrate this, H1 made the second sketch shown in Figure 24.

Two interior items were reported by the subject that were completely unsuspected by the experimenter. One was a "shutter-like door" which H1 said "goes up quite a bit, almost to the top." Subject H1 also described some "hermetically closed cubes, which don't look

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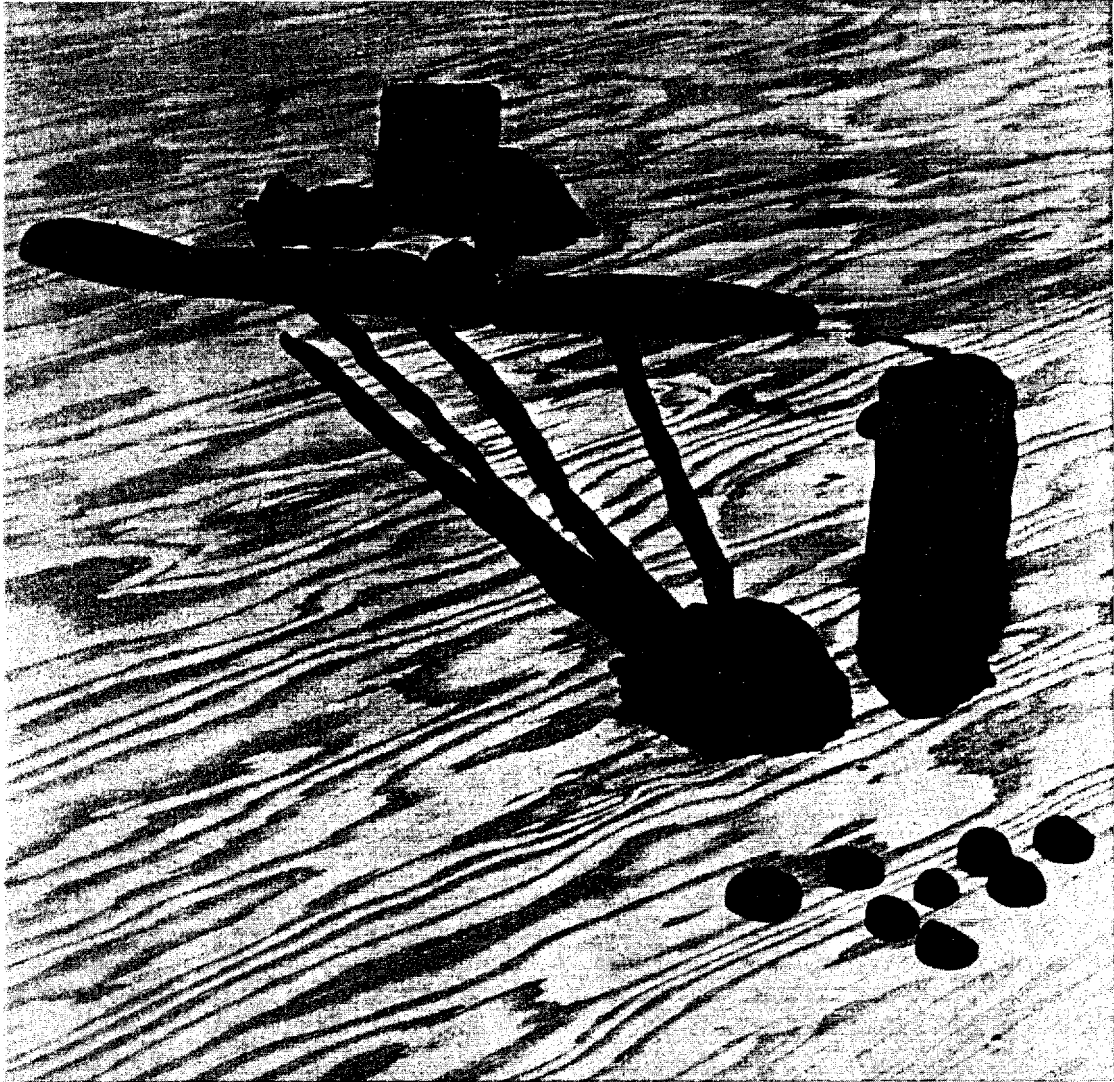
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FIGURE 22 BERKELEY BEVATRON, AND SKETCH BY SUBJECT H1. Subject reported, "There are highly illuminated rays shooting out of a belly-button type of roundness." (U)

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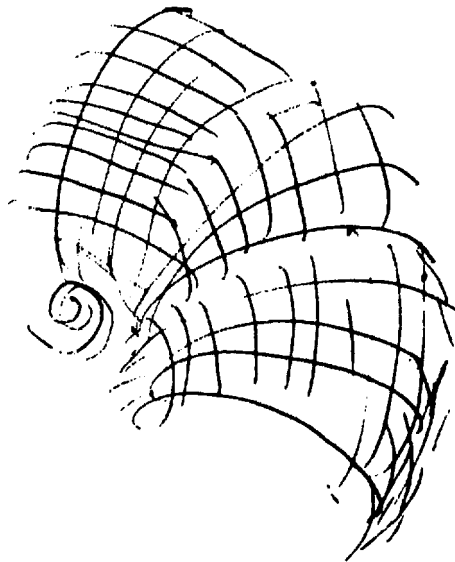
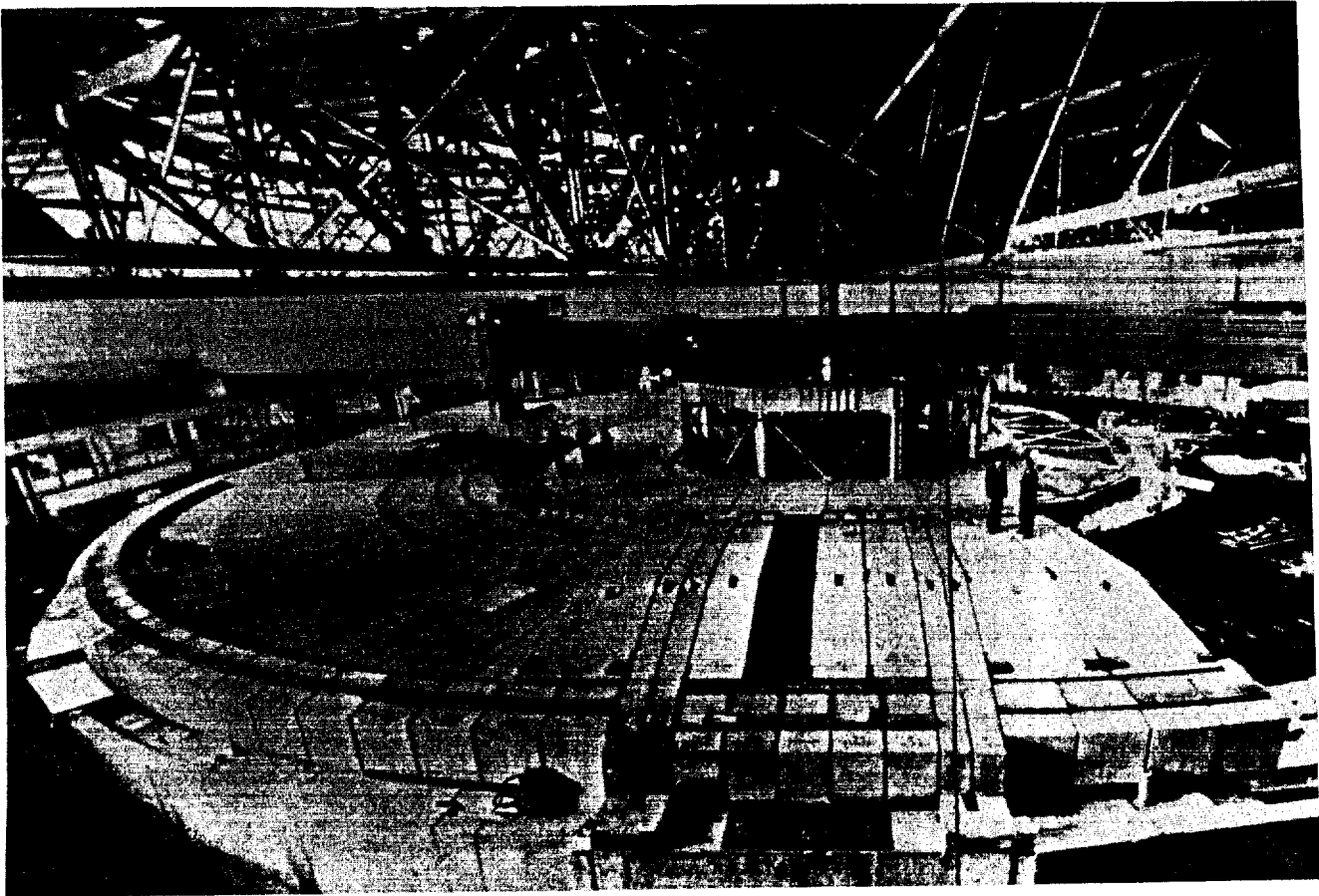
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FIGURE 23 CLAY MODEL MADE BY SUBJECT IN RESPONSE TO COORDINATES OF BERKELEY BEVATRON (U)

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FIGURE 24 INTERIOR OF BEVATRON BUILDING, WITH SKETCH BY SUBJECT H1. Subject reported, "This is an energy expander. It hums. It's some very strong electrical otherwise energy going around there ... pure energy circulating." (U)

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like boxes that contain something," and with "edges sharply defined." The subject then rendered the drawing shown in Figure 25. The enormous slide-up door shown at the left of the figure has a strong resemblance to the subject's drawing, and the building does contain a pile of cubes (concrete shielding blocks, with metal reinforced edges) which also match the subject's description.

A detailed examination of the transcript indicates that the subject's description, although noninterpretative or nonanalytic in nature, constitutes a credible description of the basic features of the Lawrence Berkeley Laboratory Bevatron complex--credible in the sense that a technologist asked to differentiate among transcripts of this caliber associated with a restricted set of known target sites (Bevatron, laser production facility, etc.) would be able to do so without difficulty. A careful examination of the transcript also reveals a lack of cueing on the part of the experimenter, and a description of technological detail beyond that known to the experimenter on the part of the subject; thus, general knowledge of the target site on the part of the experimenter does not appear to play a discernible role in this process.

Finally, from the two remote-viewing experiments involving description of technological target sites acquired on the basis of an abstract coordinate targeting procedure we conclude that (1) remote viewing on the basis of coordinates is at least as effective as remote viewing on the basis of an outbound experimenter at the site, and (2) subjects not technologically oriented can nevertheless produce meaningful descriptions of technological installations.

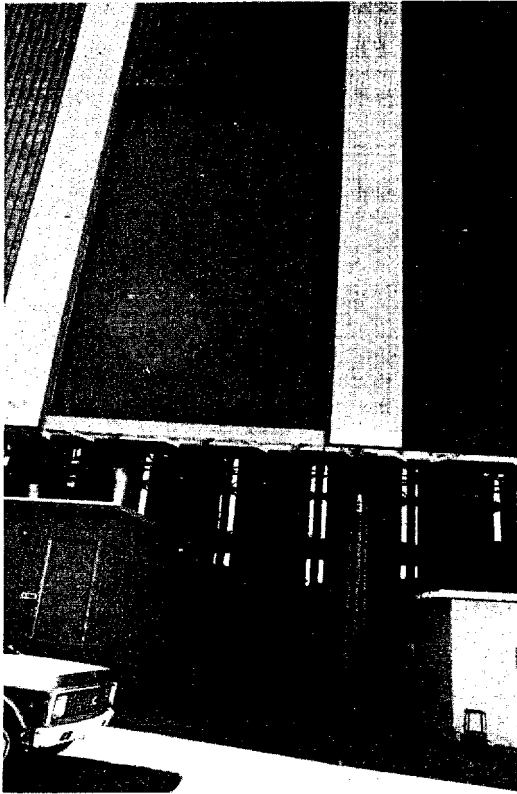
C. Real-Time Targeting (Minuteman and Poseidon Missile Static Test Firings in the Western United States)

In an effort to determine the characteristics of real-time remote viewing, the technical contract monitor requested that SRI subjects target on a series of events to take place at various given coordinates in the western United States (Utah and China Lake, California) during designated time windows. The nature of the events was kept blind to all SRI personnel until five such experiments were completed. One

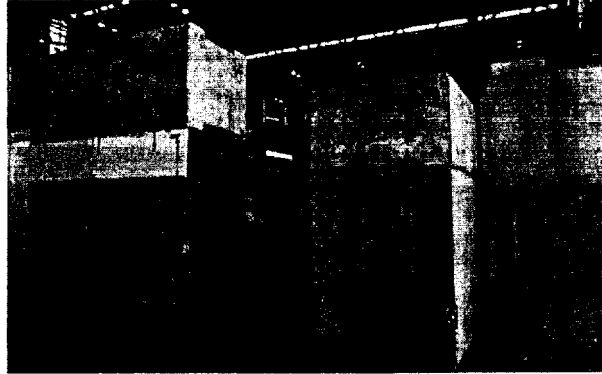
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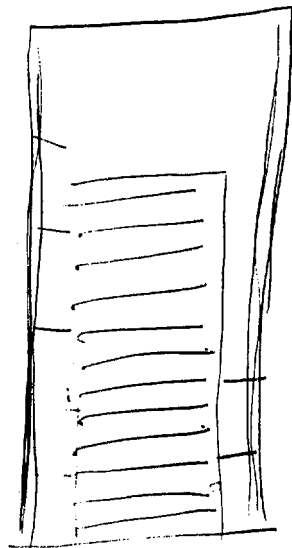
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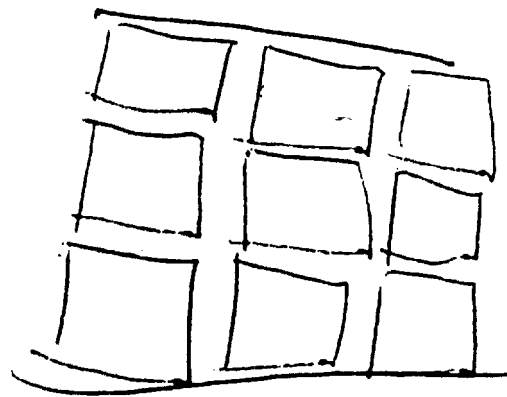
ROLL-UP DOORS — EXTERIOR VIEW



SHIELDING — INTERIOR VIEW



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FIGURE 25 TWO VIEWS OF BEVATRON BUILDING. Subject reported, "the shutter-like door goes up quite a bit, almost to the top ... Inside there are hermetically closed cubes which don't look like boxes that contain something ... large, heavy metal ... very definitely cubed with edges sharply defined." (U)

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subject (I1) participated in the experimental series for all five events, while another (H1) participated in only two. Subject I1 scanned the events from the Menlo Park, California, SRI Laboratory, while subject H1 scanned from Los Angeles, California. During the tests, the subjects made drawings, and their verbal descriptions were tape-recorded.

The characteristics of the events, which SRI experimenters were told later were static tests of Minuteman and Poseidon solid-propellant missile firings, were picked up in some detail by both subjects. During the five event windows, three tests were carried out and two were scrubbed because of technical problems. Subject I1, who participated in the entire series, correctly noted this sequence and also was able to indicate actual event time to within ten seconds.

A drawing by I1 of a dust cloud raised during the test is shown in Figures 26 and 27 along with a photograph for comparison. A comparison of a test site schematic with the sketch that H1 generated for one of the tests is shown in Figure 28, and a photo of the test bay is shown in Figure 29.

The results of the experiments, which included recognition of go versus no-go conditions, timing to within ten seconds, and descriptions of the events as "drawn-out muffled roars" which "raised dust clouds" and involved "glowing melting materials," were judged to be excellent and to constitute a significant breakthrough with regard to real-time data collection.

Thus, although information that subjects relate most accurately tends to be nonanalytic, pertaining to shape, form, color, and material, rather than to function or name, analysts familiar with this aspect of the phenomenon find the data to be of useful quality.

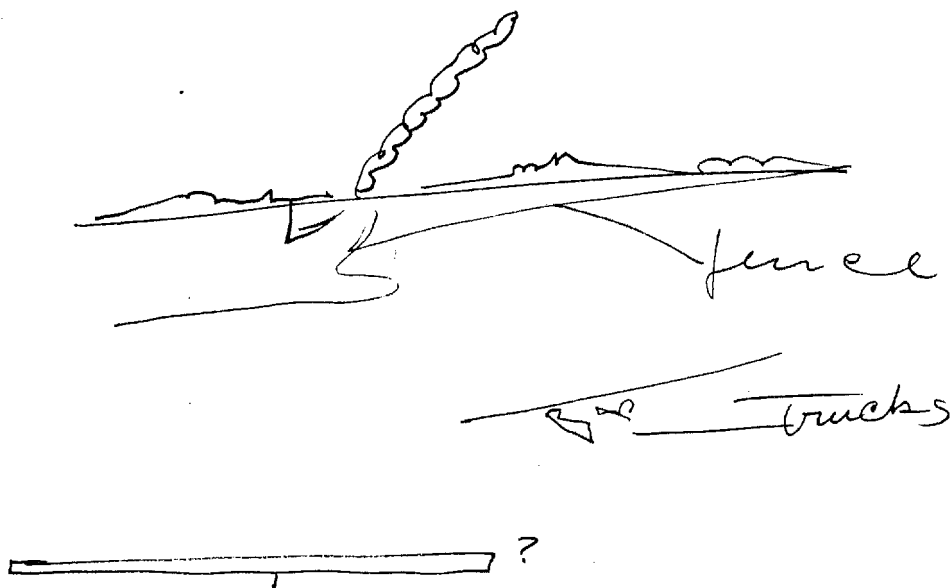
D. Sponsor-Designated Targets in the USSR (S)

One of the purposes of the program as outlined in the work statement was to provide a basis for the assessment of capability, and application probability, of remote viewing as an advanced threat technique that could be under development in the USSR, and which could form

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a white dust cloud



*sound of soft wind
a motor starting up.*

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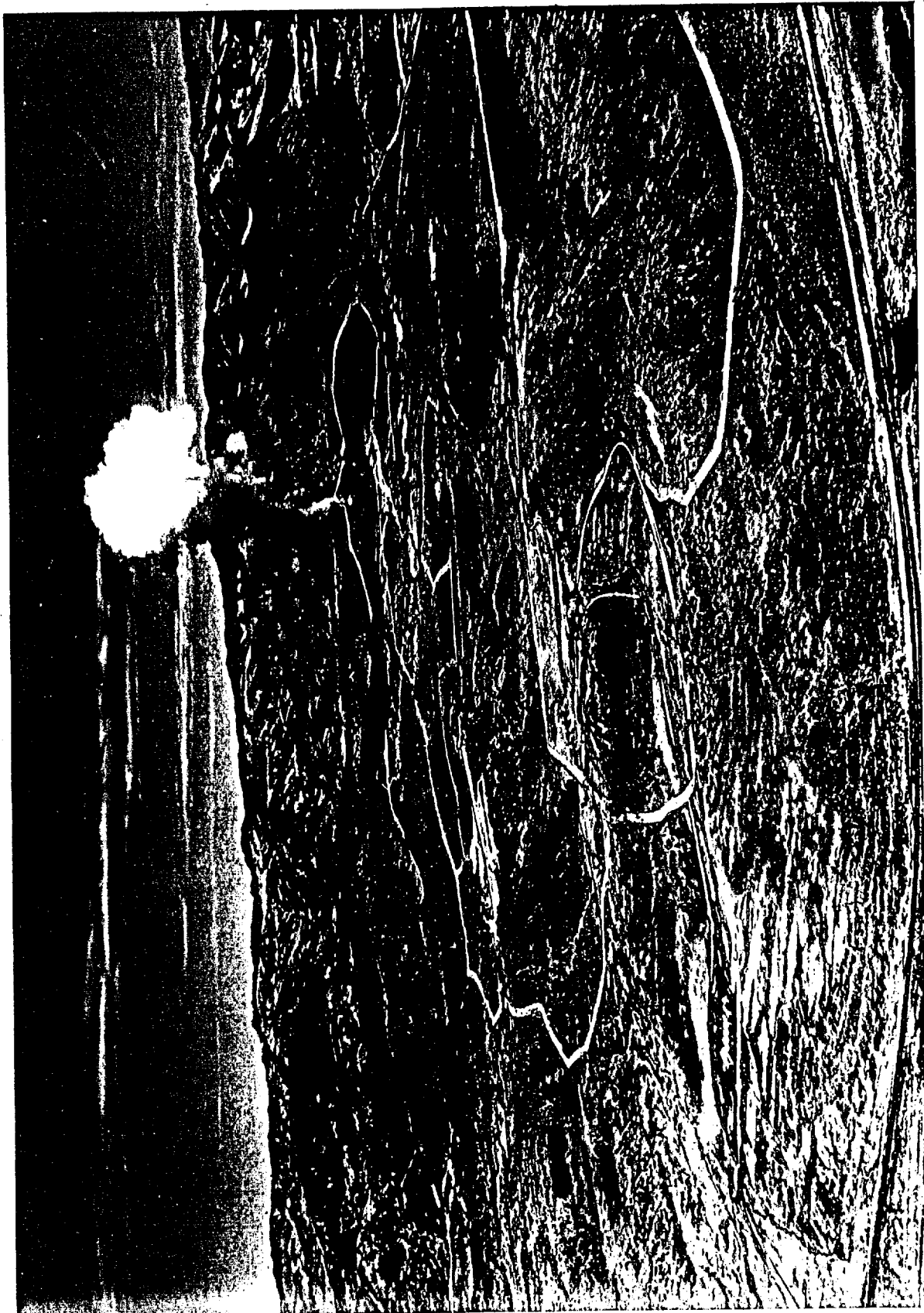
FIGURE 26 DRAWING BY SUBJECT I1 OF DUST CLOUD RAISED DURING ROCKET ENGINE TEST (U)

the basis of future technological surprise. Thus, a significant part of this study was the evaluation of application feasibility using US capabilities in a modeled or simulated threat role. Data from such US applications would provide insight into this area of potential advanced threat development.

In order to assess the potential threat from a Soviet capability in remote viewing, subjects were asked to provide descriptions of sponsor-designated targets in the USSR that were of interest to various members of the intelligence community. The coordinates (latitude and longitude) of sites so chosen, without further information, were relayed to the subject via the SRI experimenters. The subject who was to view the site

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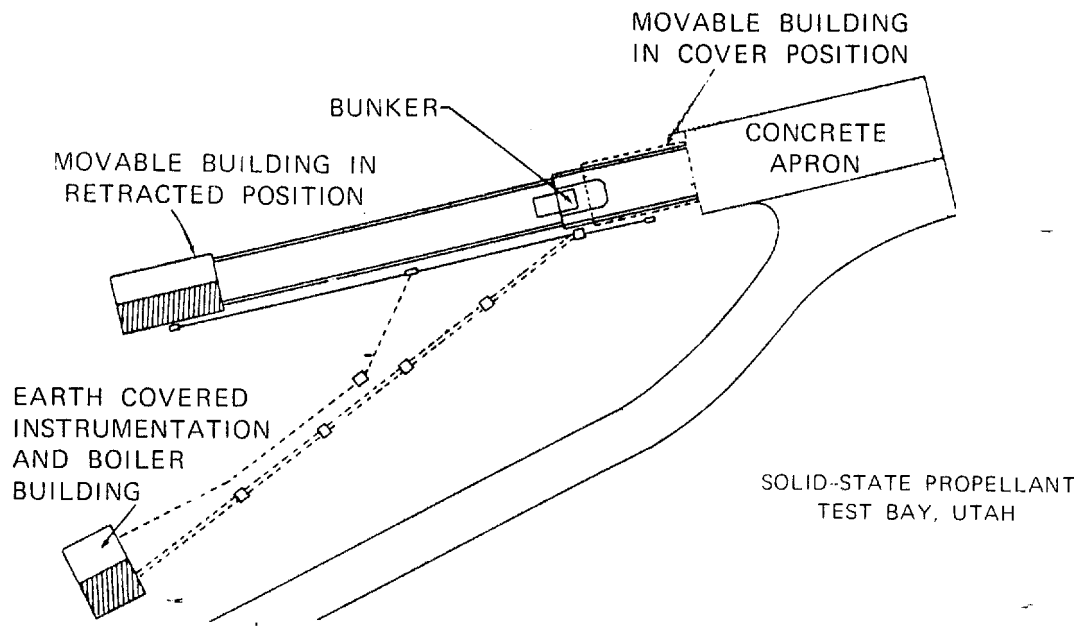
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FIGURE 27 PHOTOGRAPH OF DUST CLOUD AT ROCKET TEST SITE (U)

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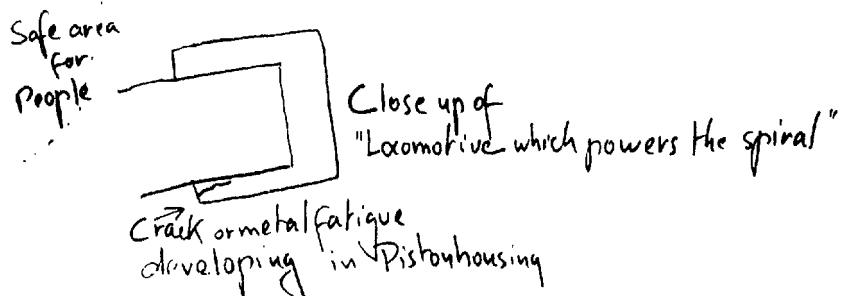
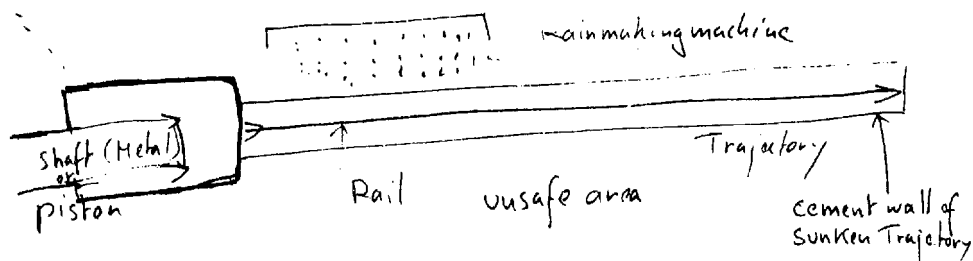
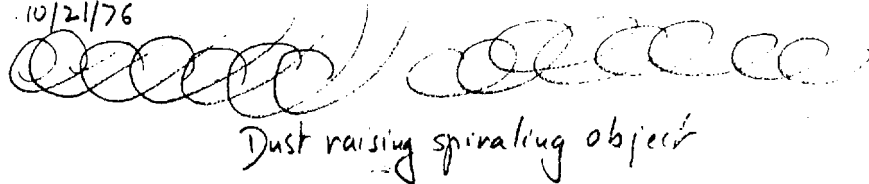
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This experiment's location was: $41^{\circ}3'8''$ N — $112^{\circ}57'46''$ W

11:30 10/21/76



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FIGURE 28 DRAWING BY H1, AND ROCKET TEST SITE SCHEMATIC SHOWN FOR COMPARISON. Subject was kept blind as to the nature of the target. (U)

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FIGURE 29 PHOTO OF TEST BAY SHOWING TEST FIRING OF ROCKET ENGINE (U)

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then proceeded simply on the basis of coordinates alone as described earlier in this section. The material generated in the experiment (tape recordings, drawings, clay models) was then compiled and turned over to the project monitor for evaluation. Before discussing these data, we present a brief description of a pilot study done in cooperation with the project monitor which led to this effort.

1. Pilot Study

During a visit to the SRI facility in Menlo Park, California, the project monitor asked for a demonstration of long-distance remote viewing by coordinates. Subject I1 was available and agreed to such a demonstration (6 May 1976). The project monitor then chose ten coordinate pairs (latitude and longitude) at random by use of the RAND Table of Random Digits, so that during the experiment the target sites would be blind to all concerned. The project monitor and an SRI experimenter (Puthoff) then entered the laboratory and, one by one, read off the coordinates to Subject I1, who quickly sketched a map and jotted down a few phrases to describe what came to mind as the coordinates were read, taking roughly three minutes per target. After the ten response sheets were generated (in the presence of the project monitor and SRI experimenter) in response to the ten coordinates, the data were roughly evaluated by the project monitor and SRI experimenter by reference to The Times Atlas of the World. The results of this informal pilot experiment were sufficiently encouraging to indicate to the project monitor that there was some basis for conducting a series of experiments of this type in viewing Soviet sites of interest.

To begin, we were given the coordinates of two Soviet sites of interest, designated here as Sites A and B. Following is a synopsis of the data generated in response.

2. Soviet Site A

SG1A

The project monitor passes along to SRI experimenters the coordinates of the first site, [REDACTED] Although the SG1A

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coordinates were intended to designate an airport of interest, they were obtained from a list that in fact corresponded to a nearby population center. In response, the first of two subjects to be targeted on this site generated the drawing of a dam as shown in Figure 30. This drawing was passed along to the project monitor who had forwarded the coordinates. Although the existence of the dam was unknown to the project monitor when he chose the coordinates, he later verified that a dam resembling the subject's drawing was located within a few miles of the coordinates, roughly as far from the population center as the airport of interest.

It was then agreed that the appropriate next step was to obtain an overview from the subject without indicating to him that the item of interest was an airport. Should he find an airport during this second phase, he would then be asked for more detail. This procedure was followed and resulted in the overview shown in Figure 31; the subject did in fact mention an airport in his overview. After completion of the overview, the SRI experimenter monitoring the subject's efforts requested more detail on the airport. Figure 32(a) shows the runway outlines and nearby buildings, while Figure 32(b) indicates detail on a structure at the end of the major runway. These data were evaluated by the project monitor, and much of the description was verified. The project officer should be contacted for further details.

A second subject, a government employee (Subject E1) trained in remote viewing in an earlier program, agreed during a visit to SRI on June 24 to participate in our efforts to obtain information about this same site. In his case SRI experimenters indicated the coordinates on a low-resolution world map and told him that the target of interest was an airport. In response he generated a half-hour tape transcript and sketches, including the overview shown in Figure 33, and the sketch of a Concorde-like aircraft that he saw on one of the runways (Figure 34). The tape transcript and sketches were turned over to the project monitor for evaluation.

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SG1A



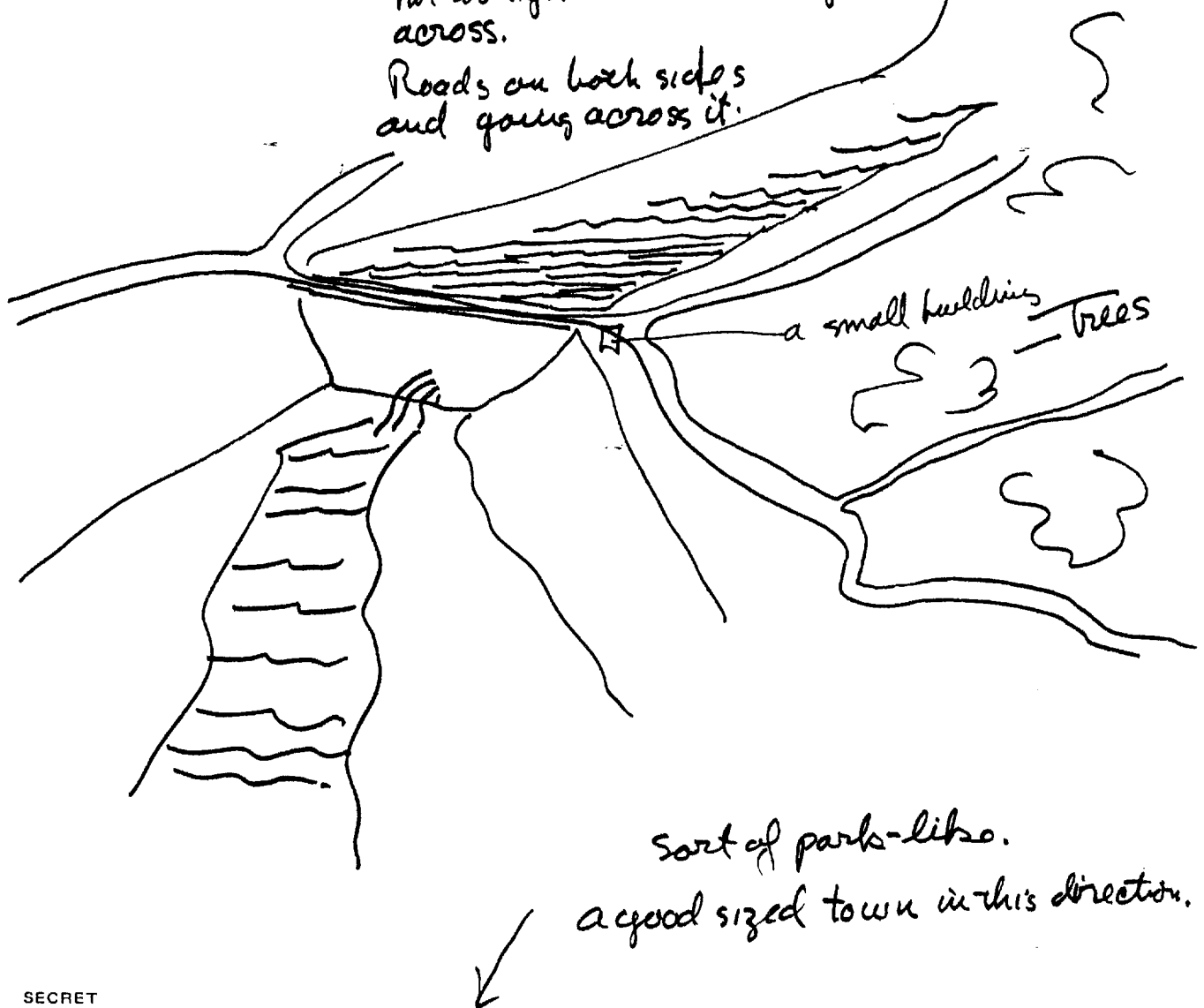
13 May 1976
10.30 a.m.

gets larger
up here.

A river with a dam on it.

Not too high - about 100 yards
across.

Roads on both sides
and going across it.



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FIGURE 30 REMOTE VIEWING BY GEOGRAPHICAL COORDINATES OF DAM SITE IN THE
USSR (S)

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SG1A



14 May 76
11.30 p.m.

This is sort of civilized countryside that reminds me of the outskirts of Prague. It is easier to describe it than draw a map. Some trees. A large highway. Lots of city to the NW. a large river. What seems to be an airport. Some radio towers — maybe a radar net. Another much smaller town (city) to the S.E.



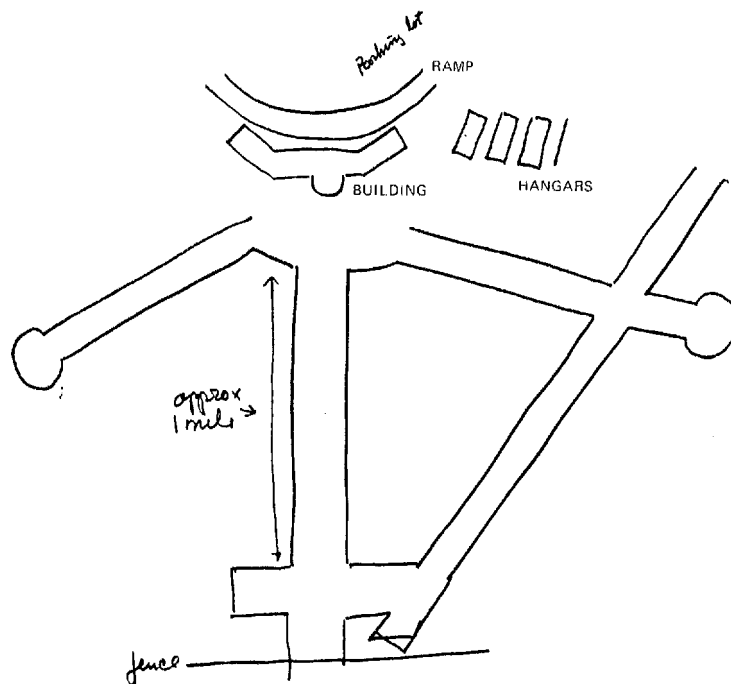
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FIGURE 31 REMOTE-VIEWING OVERVIEW OF DAM-SITE LOCALE, SHOWING AIRPORT OF INTEREST IN THE LOWER LEFT (U)

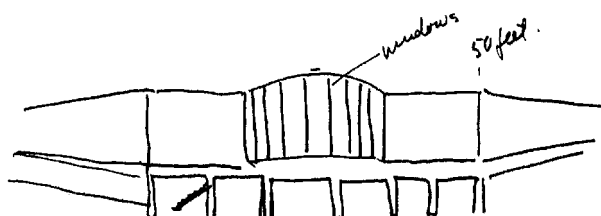
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*I'd say this is a commercial field.
to the degree they have them*



(a) DETAIL ON RUNWAYS

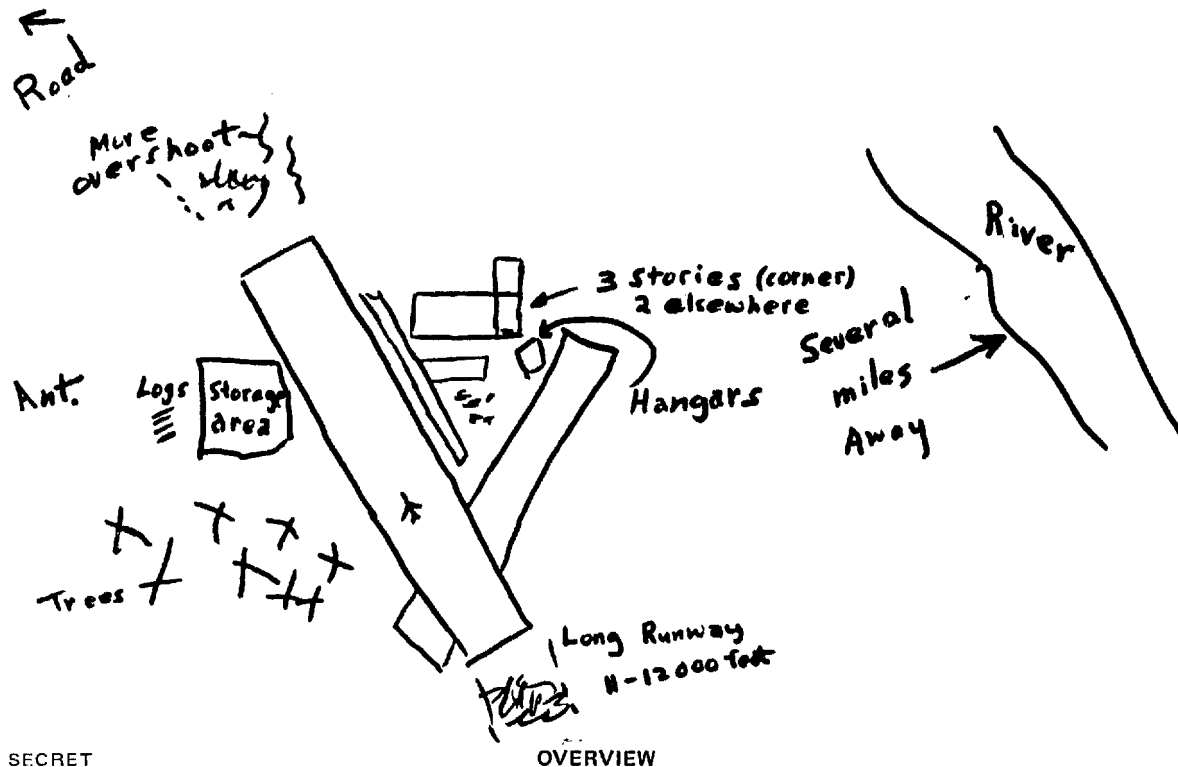


(b) DETAIL ON STRUCTURE AT END OF MAJOR RUNWAY

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FIGURE 32 REMOTE-VIEWING SKETCH OF DETAIL ON RUNWAYS AND STRUCTURES
(Soviet Airport) (S)

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OVERVIEW

FIGURE 33 REMOTE VIEWING BY SECOND SUBJECT ATTEMPTING TO DESCRIBE SOVIET AIRPORT TARGET (S)

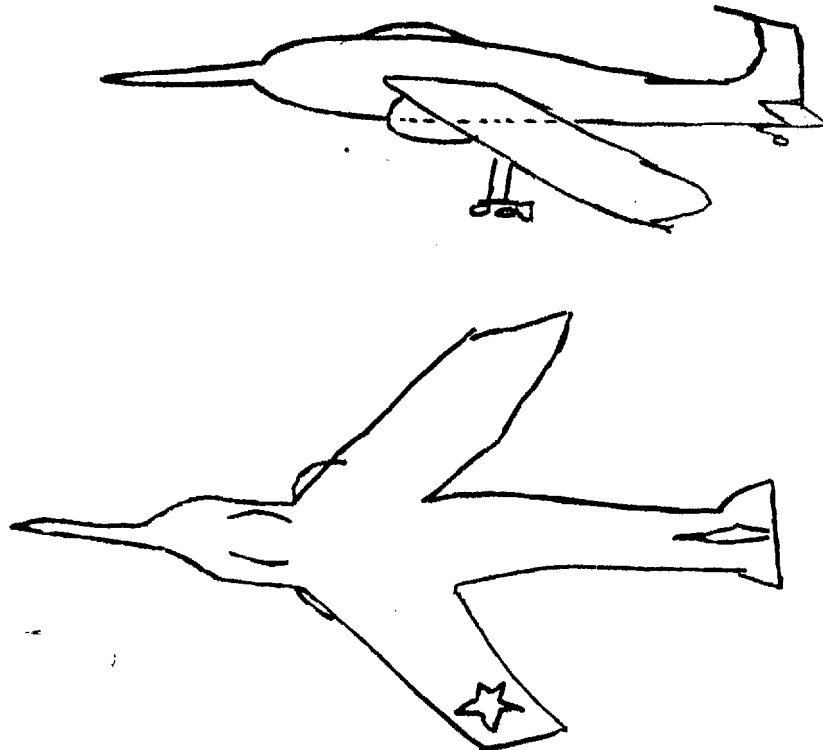
3. Soviet Site B (S)

SG1A

Coordinates for a second Soviet site were given to SRI experimenters, who then passed them on to Subject II. As a result of an error on the part of the individual who chose the coordinates, the coordinates were not of a site of interest, but rather of a barren area out in the countryside.

In response to the coordinates, the subject described a town to the southwest and a relatively barren area with "loopy roads" at the target site (Figure 35). As before, the sketches and a written description were turned over to the project monitor for evaluation, who subsequently verified the results as matching the coordinates given in error. The error thus provided an opportunity to verify that (1) the

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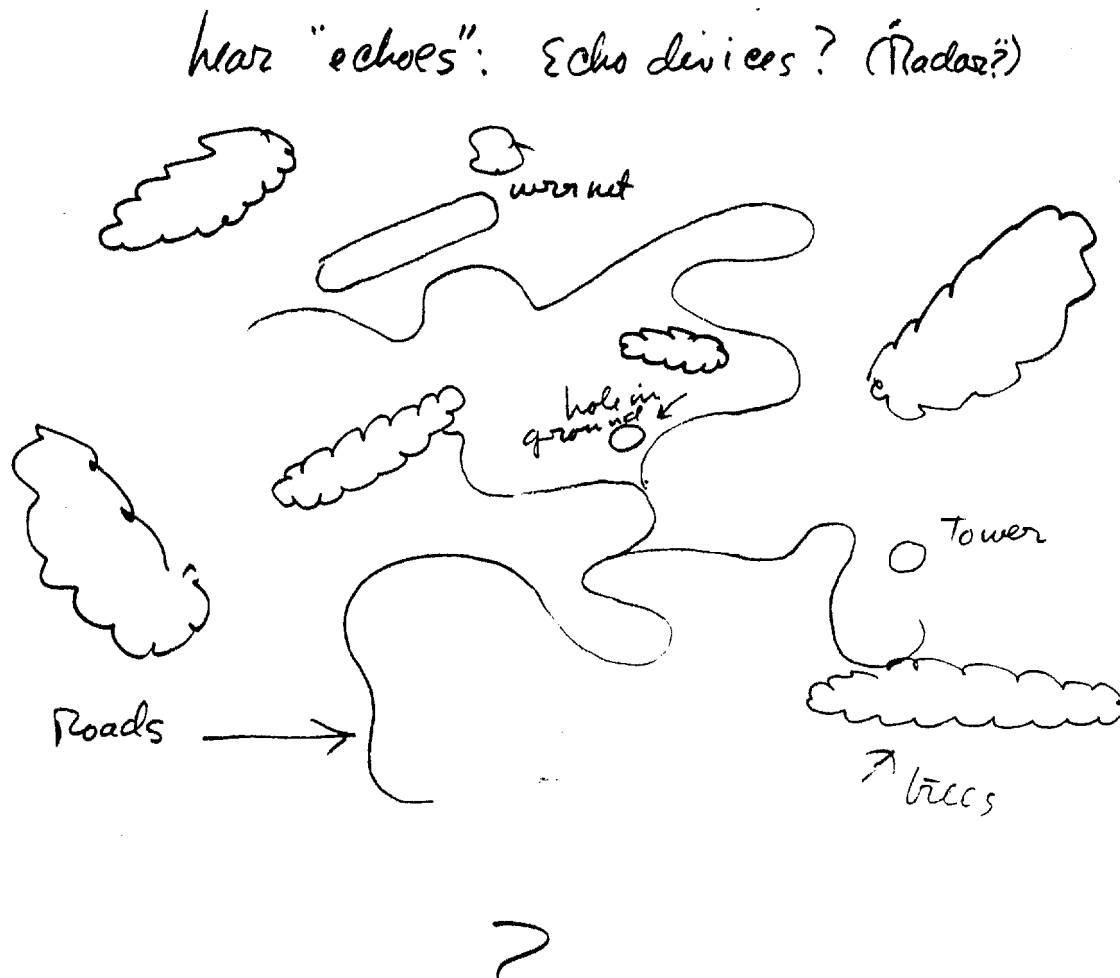
FIGURE 34 AIRPLANE VIEWED BY SUBJECT TO BE ON GROUND AT AIRPORT SITE (U)

subject's output is not simply geared to match the expectations of the experimenters, and (2) the subject does not simply conjure up what may reasonably be expected to be correct (an educated or "safe" guess), but in fact describes the area appropriate to the coordinates even though it may run counter even to the subject's own expectations. This experiment thus inadvertently provided a "null test" of the type useful in the testing of human abilities.

4. Ten-Site Scan

On the basis of the results obtained with scans of Sites A and B, it appeared there was justification for a commitment to carry out further scans. Therefore, the project monitor generated a list of ten additional sites to be scanned by the remote-viewing process. These sites have been scanned and the data turned over to the sponsor for evaluation.

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FIGURE 35 RURAL SOVIET SITE (S)

Following is an example (Site 2) that indicates the type of data being generated on a regular basis. Subjects E1 and I1 scanned the site independently on different dates. The experimenter carrying out the task (H.P.) was kept blind to the target as per standard protocol.

a. Subject E1 Scan of Site 2

The coordinates for Site 2 were SG1A read off to Subject E1 to begin the scan. The only information about the site held by the experimenter who acted as a monitor (H.P.) was that

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the target was a building 2 to 5 miles south of a lake. E1's comments were tape-recorded and a single drawing made during the course of the experiment was collected. As an example of the type of narratives generated during these experiments, we have included the entire unedited text of this experiment as Appendix A.

The text, along with the subject's sketch (Figure 36), indicated that the primary structure of interest was a long building, trapezoidal in cross section, ending in a "round igloo-like mound" whose function was clearly technological in nature (e.g., particle accelerator, laser?).

b. Subject I1 Scan of Site 2

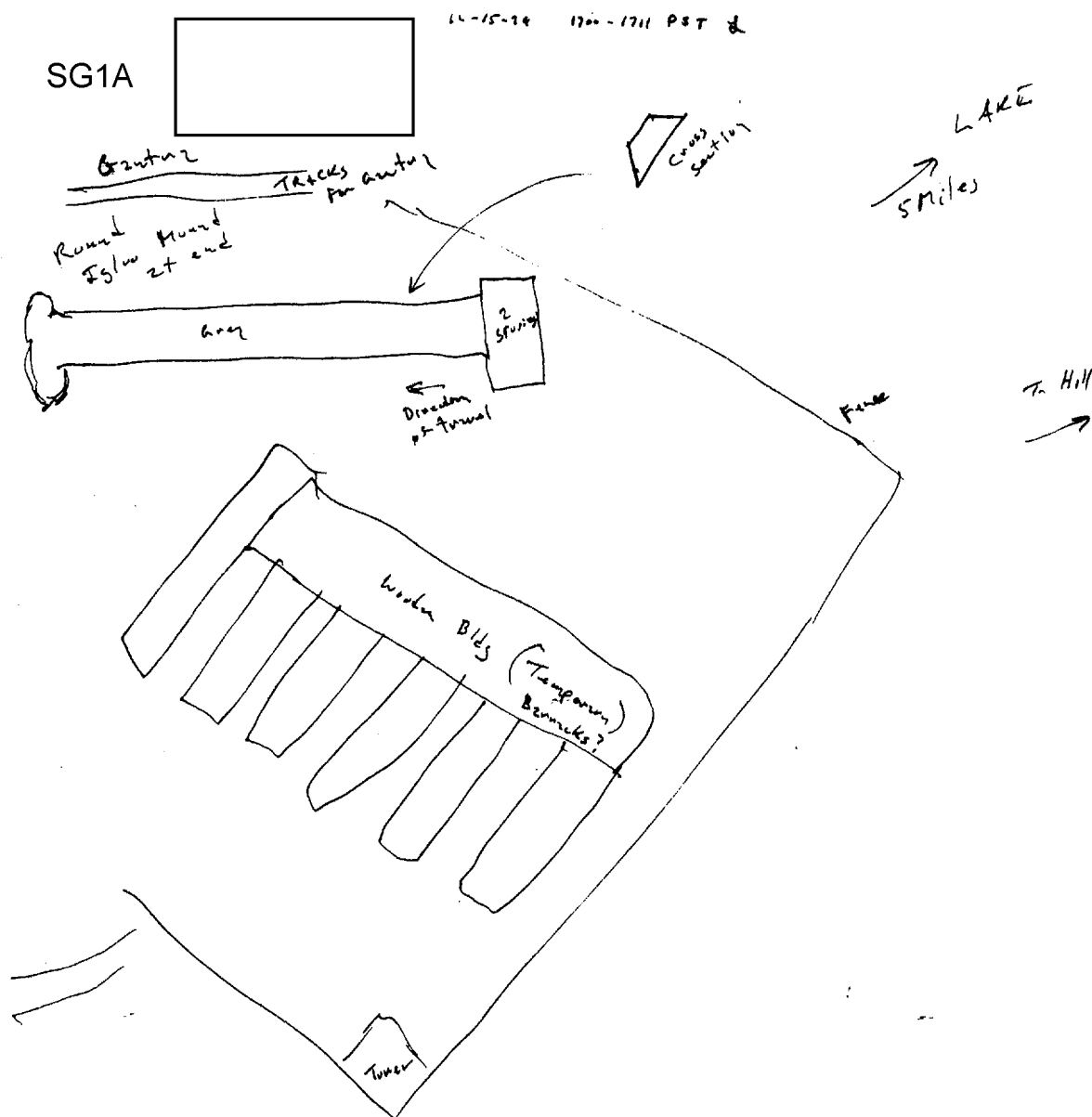
The coordinates for Sites 1 through 10 were read to Subject I1 in sequence during an initial quick-response scan of all of the sites (~ 3 minutes/site). During this sequence, the subject reported seeing a lake near Site No. 2 as part of his response.

After the contract monitor had evaluated the initial data set, he requested further information on Site 2 with a request that the subject concentrate on an area 2 to 5 miles south of the lake. In response, Subject I1 generated over 40 sketches of what he observed in the designated vicinity, including roads, towers, building complexes, and the like. (For example, see Figure 37.) He eventually concentrated on a structure not unlike that described by Subject E1 (of whom he was not aware)--namely, a rather long building with a rounded igloo-like structure at the end (see Figure 38). In one version, for which he made a clay model, there appeared to be two building wings of this nature, as shown in Figure 39. In the final drawings he concentrated on interior floor plans and technical detail which included a description of a long tunnel containing a high-technology structure.

The sum total of data on Soviet sites, submitted to the sponsor for evaluation, has been partially verified at the SECRET level. Details of the evaluation can be provided by the sponsor through special

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FIGURE 36 SKETCH GENERATED BY SUBJECT E1 (Site 2) (U)

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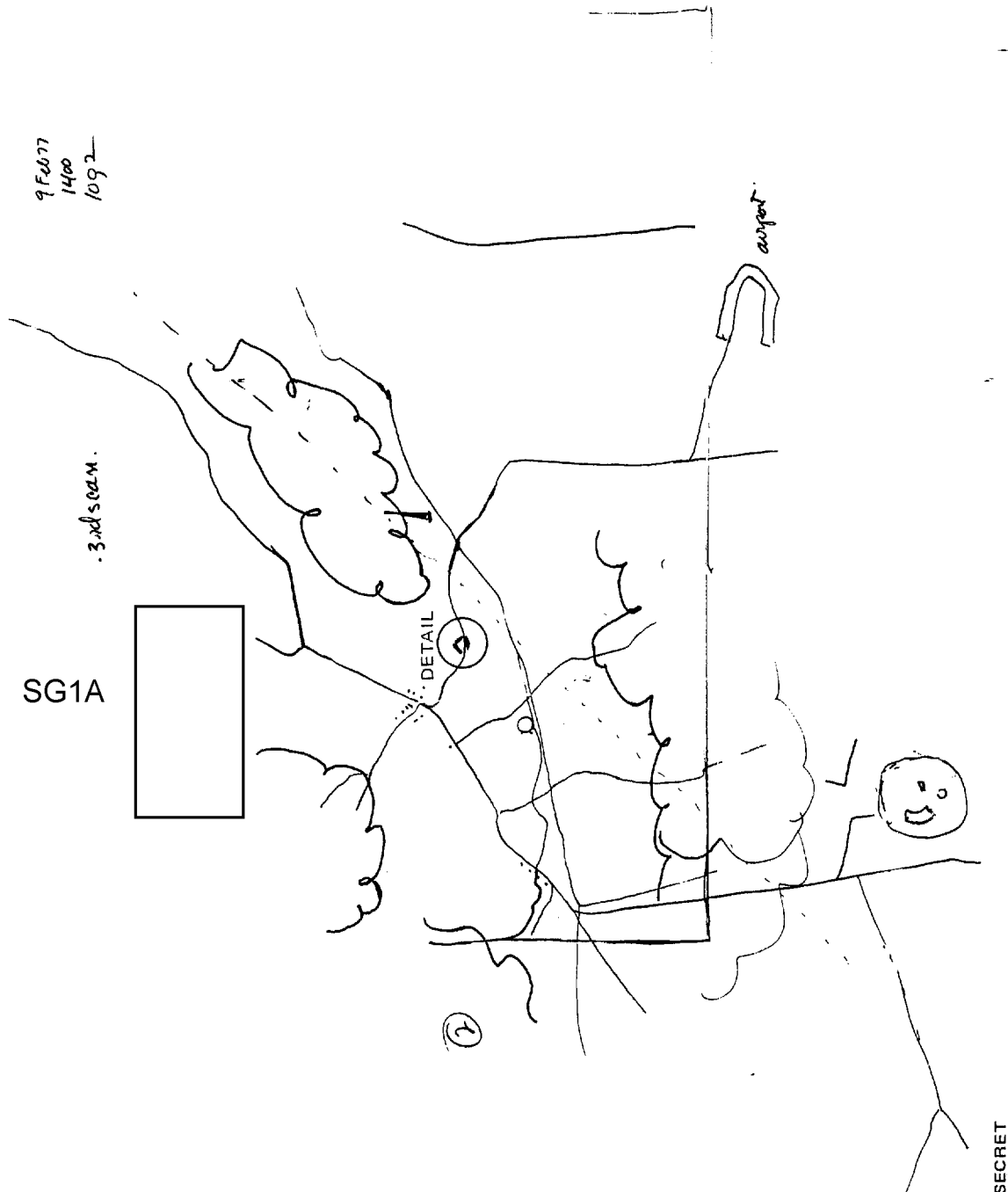
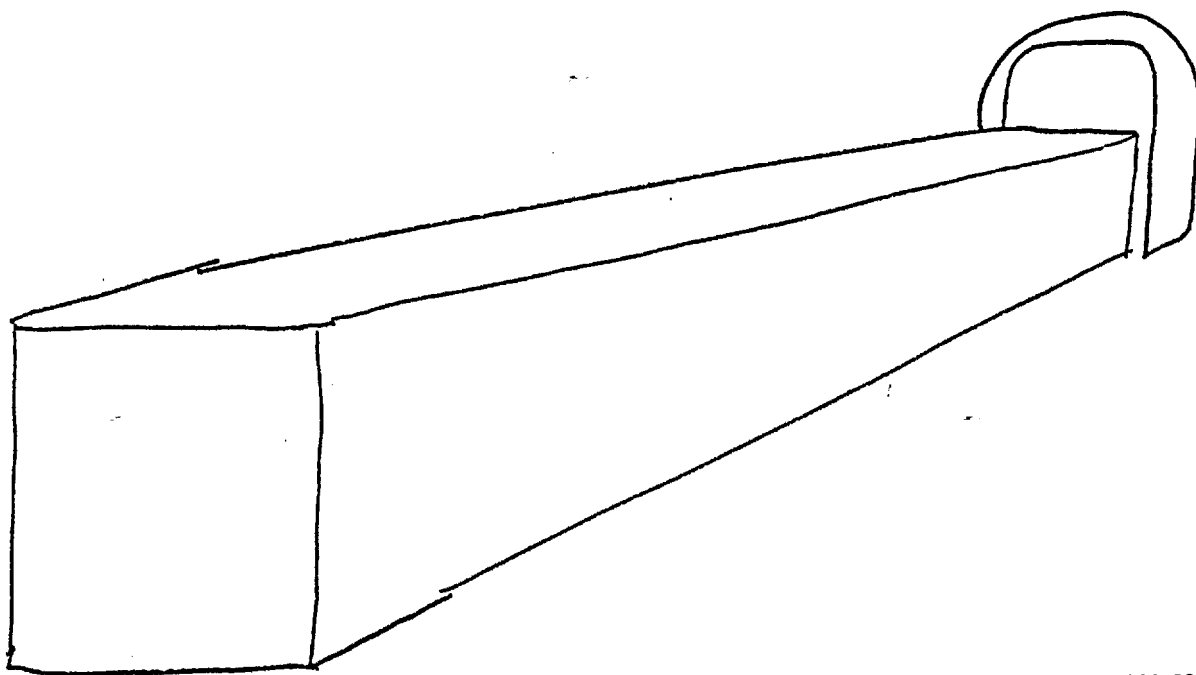
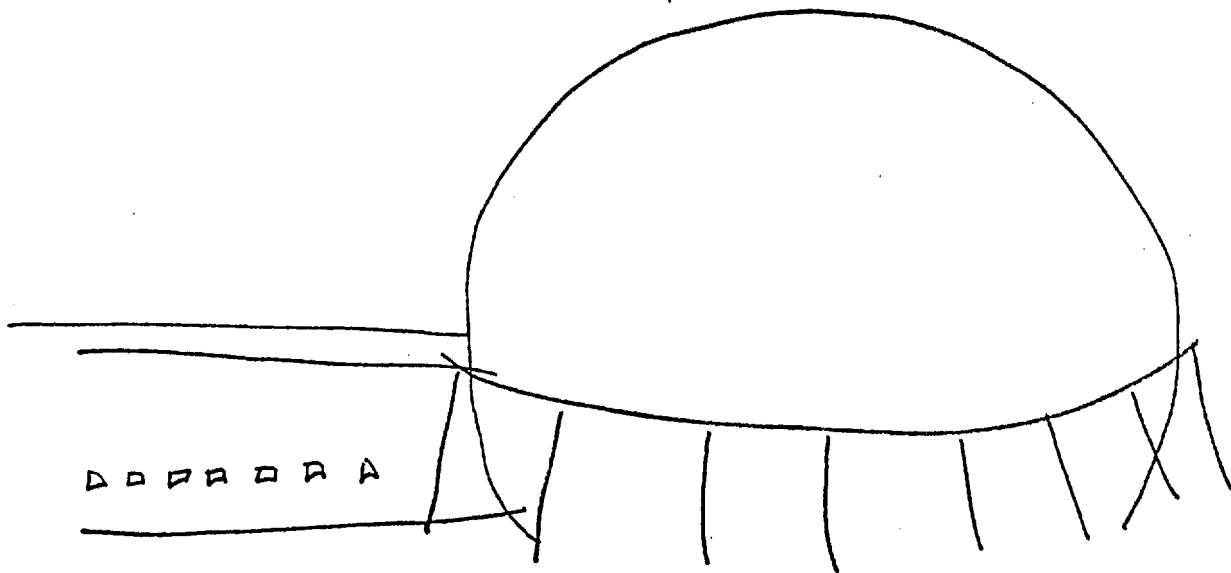


FIGURE 37 SUBJECT I1's OVERVIEW OF SITE 2 (U)

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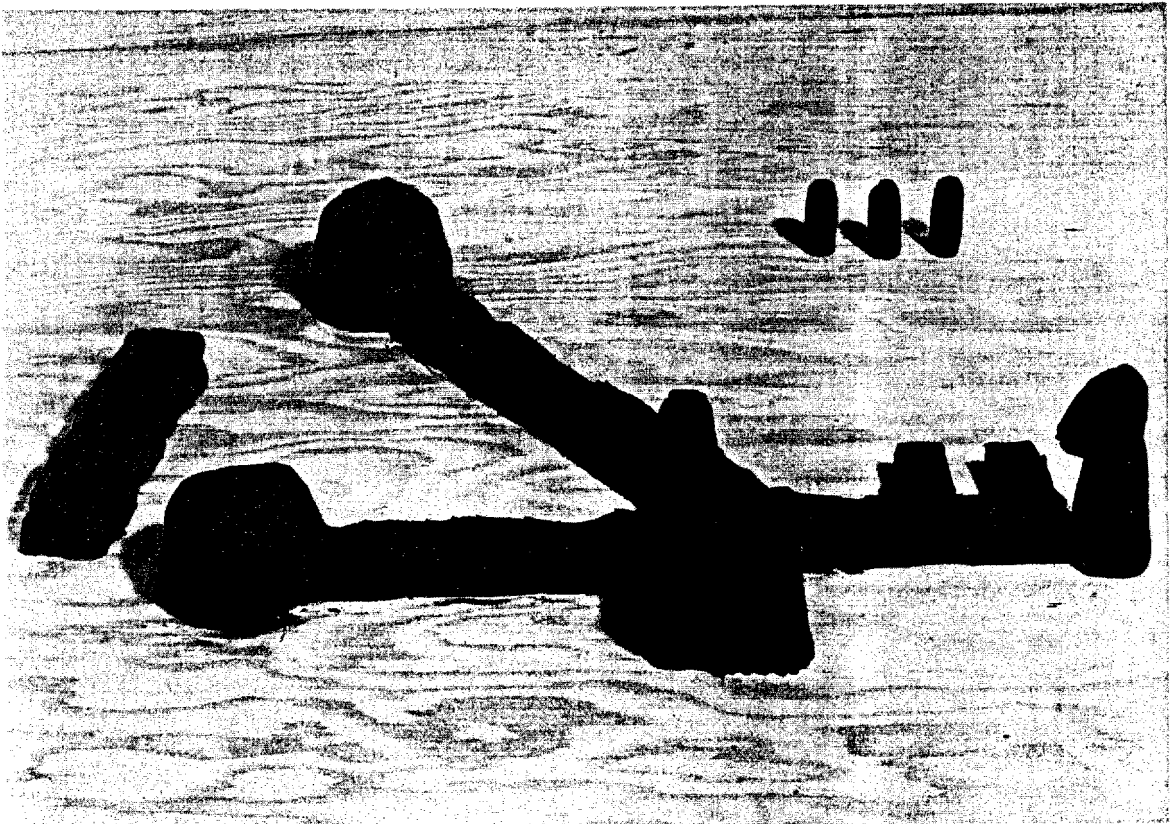
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FIGURE 38 SKETCHES GENERATED BY SUBJECT I1 (Site 2) (U)

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FIGURE 39 CLAY MODEL GENERATED BY SUBJECT I1 (Site 2) (U)

access channels. In general, the results indicate that the state of the art is sufficiently advanced to constitute a useful supplementary data collection technology.

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VII CONCLUSIONS

The purpose of this program was to provide a basis for assessing the possibility that psychoenergetic processes representing an advanced threat technology could be under development in the USSR. This study was to determine the state of the art and to evaluate application feasibility.

To carry out this task, SRI concentrated on the evaluation of a particular human perceptual capability--a perceptual process called "remote viewing." This process, discovered and developed in an earlier SRI program,^{2,3} pertains to the ability of certain individuals to access and describe, by mental means, information blocked by distance or shielding from ordinary acquisition, and thereby thought to be secure against such access.

In particular, the phenomenon we have investigated most extensively is the ability of a subject to view remote geographical locations, even at intercontinental distances, given only geographical coordinates or a person on whom to target. Several individuals' remote viewing abilities have been developed sufficiently to allow them to describe often in great detail--geographical or technical material such as natural formations, buildings, roads, interior laboratory apparatus, and the like.

The results of this investigation can be summarized as follows:

- Continuing demonstrations in this program, by replications in other laboratories,¹⁸⁻²³ show that the capability known as "remote viewing," is a reproducible human perceptual ability.
- Analysis of remote-viewing transcripts indicates that for a given target site 66% of the subject-generated material constitutes an accurate description of the site, while only about 37% of the data matches other target sites.
- No degradation in accuracy or resolution as a function of distance was observed in carefully controlled trans-continental experiments (up to 5000 km).

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- Real-time activities at the target site are often perceived; experiments have included successful real-time remote viewing of Minuteman and Poseidon static test firings in the western United States (differentiation between successful firings and scrubs, timing to within ten seconds, descriptions of sounds, melting, dust clouds, and the like).
- Alphabet letters at a remote location have been identified to a statistically significant degree, indicating a potential for access to written material via the remote-viewing process.
- Redundancy, whereby more than one individual attempts to collect data on a given target, improves reliability by reducing the effect of the biases of individual subjects.
- Abstract targeting procedures (for example, targeting by geographical coordinates), yield results comparable to those obtained by experiments in which a person known to the subject is used as a target. This observation offers further evidence for goal-oriented as opposed to means-oriented interpretation of the "laws" that appear to govern psychoenergetic functioning.
- Remote viewing, through the use of geographical coordinates as target designators, has provided descriptions of Soviet military facilities designated as targets by the sponsor, with detail comparable to that obtained and verified during local and coast-to-coast experimentation. The data, submitted to the sponsor for evaluation, has been partially verified in the large at the SECRET level; further details of the evaluation are available from the sponsor through special access channels.
- Observation that new and untrained subjects can perform remote viewing and that they improve with practice indicates that reliance on the availability of special subjects may not be necessary.
- The remote viewing information channel is imperfect, and is therefore best utilized in conjunction with other resources. Nevertheless, the data generated by this process exceed any reasonable bounds of chance correlation or acquisition by ordinary means, and therefore the remote viewing process constitutes a valuable information source.
- It is known that workers in the Soviet Union have pursued work in the psychoenergetics field for the past 40 years. We therefore believe that they have achieved a level of proficiency similar to that reported here.

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Appendix A

SUBJECT E1 SCAN OF SOVIET SITE 2 (S)

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Appendix A

SUBJECT E1 SCAN OF SOVIET SITE 2 (S)

Following is the entire unedited transcript of a remote-viewing scan of a site in the USSR generated by Subject E1 in response to being given the site's geographical coordinates. A sketch of the site generated during the scan is given in Figure 36. As in our standard protocol, the experimenter (H.P.) with the subject was kept ignorant of the specifics of the target, having been told only that it was a building 2 to 5 miles south of a lake.

PUTHOFF: Today is December 15, 1976. This is a remote viewing experiment. Hal Puthoff is the monitor. E1 is the viewer. This is in Project 10Q, Site No. 2. I have the coordinates which I'll read off. What I'd like, if it's possible, is to start out with a fairly high view, because I know something about the topology of the region. And if you find a certain thing then I can direct you to the right building. It's basically a building. The coordinates are SG1A

SG1A

E1: OK. I get some snow on the ground, a forest. The large thing that rises up over here is apparently a natural formation, like a large hill, it's over that way. I pick up something that makes it look like it's about sunrise. Picking up nice red highlights. Over to the left from the hill is a compound, fairly large compound, fenced. Several buildings. Strange sort of shape to the building in that it's a typical, American temporary-type building. Where you've got a long building with little arms coming off of it. A feeling of temporariness to it. It isn't a permanent site; that part of it isn't a permanent site. That's basically a one-story building. At the corner of the fence there's a two-story building, almost like a guard tower. Over beyond that, further over, we get into a concrete structure of some sort. Again, the first impression that I get is

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that it's long. Not very high, not very wide, but long. I haven't got anything to compare it to for a feel of how long it is. Like you'll sometimes get the impression of bigness, this is an impression of longness. It isn't quite square.

PUTHOFF: The whole compound you mean?

E1: Well, the long building. It isn't rectangular, it's more trapezoidal in cross section. I can sketch that for you. It looks like it might be something out of an energy physics compound where you've got a long tunnel that you're shooting down or accelerating particles down. Or it might even be something as massive as something that you are launching a test vehicle down, firing a rocket down. That kind of dense, long, small cross section.

PUTHOFF: Do you think you can sketch that, or would you rather just continue looking around?

E1: I'll try to sketch that. At the end of the long building there's a round igloo-like mound. It seems to terminate here. Here's the cross section for this and this is two stories here. And this thing seems to have six wings sticking out of it. I don't know why there seems like there's six there, but there seems to be six. It seems significant that there's six. And the tower is just in this corner. I don't see a tower over in this corner. And the hill that caught my eye is over here someplace, off the page.

PUTHOFF: Why don't you draw an arrow point in that direction.

E1: I get some sort of a forest over here. There's a road. You have to look down.

PUTHOFF: When you go up and look down, any additional landmark type things?

E1: Yes, some sort of a gantry over here someplace.

PUTHOFF: When we go out to the side we can scotch tape sheets side by side.

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E1: It's a gantry or a crane or something on wheels and there's track that runs along there. It seems to parallel the direction that that building runs. The building is running in a strange direction compared to the way everything else is laid out.

PUTHOFF: When you go way up in the air do you see any water around?

E1: I get an impression of a lake over this way someplace. Just a flash of the sunlight off the water. I can't see this and the water at the same time. Sort of flash back and forth. Either I can see the water over here, or I can see this.

PUTHOFF: Do you get an idea of how much distance there might be between these two?

E1: A number of 5 miles.

PUTHOFF: OK, sounds like this is the right place. Do you want to take a specific part maybe and get more detail. There's plenty to start with if we want to run this through verification, and if this is correct, probably over the phone he can just ask you to look further. If you can get any detail, in these experiments we're trying to see what kind of detail. But whatever feels natural like looking in a building, getting more detail on the outside of the building.

E1: This structure is massive. It's got that strange trapezoidal cross section. There's some instrumentation down on this end.

PUTHOFF: Is that the igloo end or the other end?

E1: No, the rectangular end, two-story rectangular end. I can't get a feeling at all for what it is. Maybe I'm trying to be too rational about it. The first thing that comes to mind is that it's particle physics of some sort. The reason I can't pin it down is that I don't recognize the test setup. I've got nothing to compare it to.

PUTHOFF: Can you say which end is the starting end and which end is the stopping end?

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E1: Well, I think it starts at this end and they shoot in that direction. I also get the impression that this thing is evacuated.

PUTHOFF: So on your diagram they shoot from the right toward the left. In other words, from the two-story building toward the igloo.

E1: Yes, toward the igloo and the chamber down through this strange trapezoid shape is evacuated. They shoot in a vacuum. I don't know what they're shooting or what they're trying to do.

PUTHOFF: I'll leave it up to you if you want to probe further, or that's plenty of information to start with.

E1: I imagine I can take a crack at it.

PUTHOFF: The time is now 1711, West Coast time, and that's it.

E1: There was relatively new snow. I didn't see anybody but I thought I heard people walking around because I heard the crunching of the snow. Without thinking too much about it I get the feeling that it was very early in the morning and that's about right, time wise. It's about a twelve hour difference between here and there I would imagine.

PUTHOFF: I figure this out everytime, but I don't remember.

E1: From Washington to Hong Kong is 12 hours, so if this is three hours...

PUTHOFF: What's Greenwich to Moscow?

E1: Three hours. And we're nine to Greenwich?

PUTHOFF: We're eight.

E1: So it's 11 hours.

PUTHOFF: It's 11 hours to there. OK I can check here, I'm not even sure what part it's in. Anyway, do you want to go with what you... So basically maybe before people begin showing up.

E1: Yes. I heard the crunch in the snow, and that made me think that we probably had a guard walking around here. That was the nature of the crunching in the snow. I've got to learn to look for

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people, because I didn't see him. It was pretty. It was quiet, because it was white. You could see the sun bouncing off the snow giving it sort of a red tinge. It's interesting. I always tend to see colors very vividly, and the building here is relatively drab. Colorless and this is all grey in nature.

PUTHOFF: So the one that's grey is the one with the igloo and the two story.

E1: Yes, it's just blah. It doesn't have any bright colors, so I don't get an impression of a color. It's just very calm and peaceful at that time, or this time. I also noted that this uses a lot of electricity. There are some rather heavy power transformers over here on the side someplace. I can't locate them right now. In thinking when I said grey here, I jumped over to the grey transformers, dark-colored transformers too. Set, they're not high on poles, they're set like transformer housing distribution stations, right down low. So apparently it uses a lot of power, whatever it is. No quick match as to what it is. It's not something that I recognize, that I can put a name to. And since I've never messed around with high energy physics or what have you, I wouldn't recognize it. Early when you were talking about the rocket motor test business, that all conjures up good pictures because I've been, 10-12 years ago, out to watch all of the early Polaris motors being fired at Aerojet, so I've seen both their vertical and their horizontal test facilities. I don't think it's that. It does not look like any rocket motor test facility that I've ever seen. It looks more like something along the lines of high energy physics. Conceivably, an idea just crossed my mind and I'll come out with for whatever it's worth, some form of a laser weapon test facility. Particularly a laser that is earmarked for anti-satellite use. No reason for it, no logic for it. I was just sitting here talking and this thought flashed across my mind so I'll come out with it.

PUTHOFF: OK, I shall send it along.

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Appendix B

PRINCIPLES OF PHYSICS POTENTIALLY APPLICABLE TO PSYCHOENERGETICS

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Appendix B

PRINCIPLES OF PHYSICS POTENTIALLY APPLICABLE TO PSYCHOENERGETICS

One of the common objections to the existence of so-called para-normal functioning is that it seems to be in conflict with the laws of physics. Our investigations, however, have led us to the contrary view that the data can in all probability be accounted for either within the framework of physics as presently understood, or within the framework of extrapolations that have been proposed to account for other (non-psi) data. In fact, we anticipate that not only can we use physical principles to help us understand psi phenomena, but the psi data base will probably shed light on some of the current problems in physics--e.g., with regard to the foundations of quantum theory, and for geometrical models of space-time events such as exist in relativity theory. In this section we outline how we are making use of our experimental data base to deduce the relevant physical principles and laws that govern psi functioning.

In addition to attempting to determine whether psi phenomena are generally compatible with the laws and content of physics as presently codified, we are also examining the limits of specific physical theories in modeling psi phenomena. The ideas in modern physics we have under consideration as potentially relevant to modeling psi phenomena include: (1) the possibility that remote viewing is mediated by extremely low-frequency (ELF) electromagnetic waves,^{6-9,24,25} (2) the possible significance, for remote viewing, of Bell's theorem²⁶ and the Einstein-Podolsky-Rosen (EPR) paradox²⁷ of quantum theory which emphasize that "no theory of reality compatible with quantum theory can require spatially separated events to be independent,"²⁸ but must permit interconnectedness of distant events in a manner that is contrary to ordinary experience^{29,30} (experimentally confirmed at the microscopic level);^{31,32} (3) the proper interpretation of the effect of an observer (consciousness) on

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experimental measurement,^{33,34} of possible significance in psychokinesis; (4) the possibility that the causality-reversing tachyon³⁵ or advanced-potential solutions of physics may play a role in precognition;³⁶⁻³⁸ and (5) the potential relevance (for a general theory of psi phenomena) of theories based on geometries that provide for a more extended structure of the space-time metric.* To indicate the tenor of our approach, let us consider briefly two examples from this list.

A reasonable first hypothesis is that remote viewing is mediated by extremely low-frequency (ELF) electromagnetic waves, a hypothesis that does not seem to be ruled out by any obvious physical or biological facts.

This hypothesis, put forward by I.M. Kogan of the Soviet Union, suggests that information transfer under conditions of sensory shielding is mediated by ELF waves with wavelengths in the 300-to-1000-km region.⁶⁻⁹ Experimental support for the hypothesis is claimed on the basis of: (1) less than inverse square attenuation with distance, compatible both with earth-ionosphere-waveguide-mode trapping, with source-to-percipient distances lying in the induction-field range as opposed to the radiation-field range; (2) observed low bit rates (0.005-0.1 bits/s) compatible with the information carrying capacity of ELF waves; (3) apparent ineffectiveness of ordinary electromagnetic shielding as an attenuator; and (4) standard antenna calculations entailing biologically generated currents yielding results compatible with observed signal-to-noise ratios.

On the negative side with regard to a straightforward ELF interpretation as a blanket hypothesis are: (1) apparent high-resolution, real-time descriptions of remote activities in sufficient detail to require a channel capacity in all probability greater than that allowed by a conventional modulation of an ELF signal; (2) lack of a proposed mechanism for coding (and decoding) the information onto the proposed

* We wish to acknowledge the technical contributions of Elizabeth A. Rauscher, a consultant to SRI on leave from Lawrence Berkeley Laboratory, who has done extensive research on physical theories relevant to psi functioning--in particular, work on multidimensional geometries.

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ELF carrier; and (3) apparent precognition data. The hypothesis must nonetheless remain open at this stage of research, since it is conceivable that counterindication (1) may eventually be circumvented on the basis that the apparent high resolution and high bit rate results from a mixture of low bit rate input and high bit rate "filling in the blanks" from imagination; counterindication (2) is common to a number of normal perceptual tasks and may therefore simply reflect a lack of sophistication on our part with regard to perceptual functioning;³⁹ and counterindication (3) may be accommodated by an ELF hypothesis if advanced waves as well as retarded waves are admitted.^{37,40}

Experimentation to determine whether the ELF hypothesis is valid can be carried out by the use of ELF sources as targets, by the study of parametric dependence on propagational directions and diurnal timing, by experimentation under unusual conditions of shielding (e.g., in a submarine), and by the exploration of interference effects caused by creation of a high-intensity ELF environment during experimentation. All of these are under consideration in our laboratory and elsewhere.

Because of the apparent difficulties with the ELF hypothesis, especially in accounting for the relatively high resolution and data rate of paranormal perception, serious consideration is being given to alternative mechanisms. A more speculative, but promising, hypothesis, which could in principle account for both remote viewing and precognition, was developed in conjunction with Gerald Feinberg of Columbia University. It is proposed that the ordinary Minkowski 4-space (one temporal, three spatial) might simply be the real part of an eight-dimensional complex space-time. For this generalized coordinate model we let the spatial coordinates be represented by $x \rightarrow x + ix'$, and similarly for time, $t \rightarrow t + it'$. Analogous to the expression for the distance between two points in Minkowski 4-space,

$$\Delta s^2 = \Delta x^2 - c^2 \Delta t^2 \quad .$$

We take the corresponding expression in the complex 8-space to be

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$$\Delta s^2 \equiv \Delta s \Delta s^* = \Delta x^2 + \Delta x'^2 - c^2 \Delta t^2 - c^2 \Delta t'^2 .$$

With regard to modeling remote viewing in real time ($\Delta t = 0$), we can construct situations in which the remaining first, second, and fourth terms in the above equation add to zero ($\Delta s = 0$). Therefore, even though there is an ordinary (3-space) separation Δx between the two points, the distance in the complex 8-space is reduced to zero. Under the hypothesis that the imaginary (primed) coordinates are accessible to consciousness, reduction of the 8-space separation to zero could in principle provide for a coupling between remote viewer and target site. Given the additional geometrical channels provided by this model, a similar argument can be mounted to account for precognition ($\Delta s = 0$ for $\Delta t < 0$). We thus have the possibility of a geometrical interpretation of the "Quantum Interconnectedness" principle by which events remote in space-time are nonetheless connected by non-local correlations,³⁰⁻³² or, in this interpretation, by the nature of the fabric of space-time itself.

We are presently pursuing the implications of these and other models. Our goal in these investigations is to develop a theoretical structure to account for the data at hand, and to predict new, testable experimental outcomes.

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