STANFORD RESEARCH INSTITUTE
Menlo Park, California 94025

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Proposal for Research

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PERCEPTUAL AUGMENTATION TECHNIQUES

Part One--Technical Proposal

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I INTRODUCTION

Stanford Research Institute proposes to undertake a one-year research program to investigate, and develop techniques to enhance, human perceptual abilities.*

The perceptual abilities that we have been investigating for the past year are sometimes considered paranormal phenomena. However, our recent work leads us to consider them as, to a greater or lesser extent, latent in all people. The phenomena we have investigated most extensively pertain to the ability of certain individuals to view with great clarity distant scenes not presented to any known perceptual sense. In addition, we have performed more modest experiments with unselected subjects who have been found to exhibit direct physiological (EEG) evidence of perception of remote happenings. Our accumulated data make it appear that both gifted and ordinary persons can be assisted in developing remote perceptual abilities up to a level dictated by their individual potentialities. The purpose of the proposed research is to investigate the physical and psychological variables underlying these phenomena so that we may gain a greater understanding of this ability and a more complete grasp of its limits and applicability.

Section II of this proposal provides background material, detailing the evidence pertaining to remote viewing and other nonregular perceptual abilities. In this section we describe:

- Experiments with two gifted individuals who took part in double-blind experiments to perceive scenes at intercontinental distances.
- Brain wave experiments in which ordinary (not specially selected) subjects were asked to perceive whether or not a remote light was flashing--the EEG data from several of these subjects indicates objectively that they did perceive the presence of the light, even if only at a noncognitive level of their consciousness.

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*This proposal has been prepared at the request of the client.

- Carefully controlled remote perception experiments with Mr. Uri Geller, in which he, while located in an electrically shielded room, was able to reproduce target pictures drawn for the occasion at various SRI locations.

Section III describes the proposed program and presents a detailed work statement, along with the major program milestones.

Section IV outlines the experience, facilities, and personnel of Stanford Research Institute, and its Electronics and Bioengineering Laboratory that are available to contribute to the successful completion of this work.

A separate Part Two of this proposal covers contractual matters and costs.

II BACKGROUND

A. Exploratory Research in Remote Viewing

As a result of experimentation carried out in an eight-month program to investigate the abilities of a gifted subject, Ingo Swann, Swann expressed the opinion that the insights obtained had strengthened an ability that has been researched before he joined the SRI program; namely, the ability to view remote locations. To test Swann's assertion, SRI researchers set up a series of experimental protocols on a gradient scale of increasing difficulty.

The first step toward the proof that such an ability might exist in principle was completed in our laboratory in a series of experiments with another subject in which target pictures were successfully received where the subject was separated from the target material either by an electrically isolated shielded room or by the isolation provided by East-coast/West-coast distances. These data are presented in Part C of this section.

1. Global Targets--Training Mode

For the first experiment, considered to be a training mode, 100 targets on the earth's surface (ten per day for ten days) were chosen at random, often by different experimenters. For each ten-trial session, the experiment would begin with the subject (Swann) being given a target location by latitude and longitude only, for which he had to provide an immediate response of what he saw. Following his response, some brief indication was given as to whether any correspondence existed between his description and the target location. The next coordinate was then given until all ten coordinates were exhausted. A run of ten coordinates was always completed in less than 30 minutes.

The results obtained during the training mode are summarized in Figure 1, where a least-squares fit to the data is shown by the solid lines. Details for the final run (Run 10) are shown in Table 1.

The second coordinate in Run 10 (Table 1) affords a surprising example of precision that sometimes occurred. The experimenter chose

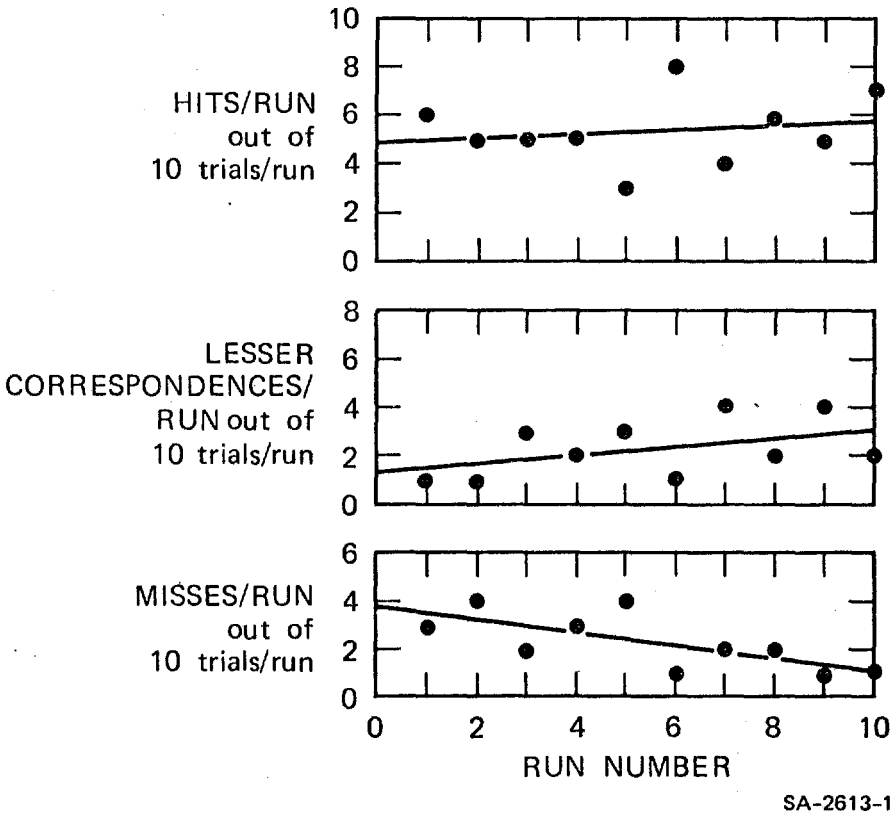

FIGURE 1 TRAINING RESULTS (SWANN)

Table 1

RESULTS OF GLOBAL TARGETS TRAINING--RUN 10

Target	Response	Evaluation*
45°N 150°W (ocean)	Ocean, beautiful blue-green waves, sun shining, ship toward north	H
2°S 34°E (eastern shore, Lake Victoria, Africa)	Sense of speeding over water, landing on land. Lake to west, high elevation	H
55°N 150°E (Sea of Okhotsk)	Not many trees, patches of snow, marsh?	M
64°N 19°W (20 miles ENE of Mt. Hekla volcano, Iceland)	Volcano to southwest. I think I'm over ocean.	H
55°N 130°E (Soviet Union)	Wind blowing there, night, telephone wires. Land, flat place with fields; Cold.	N
60°N 90°W (Hudson Bay)	Open water, stands of pine to north.	H
60°N 91°E (Soviet Union)	City, snow on ground, city to north-east, factory to south.	N
30°S 0° (ocean)	Ocean, Atlantic, deep blue water.	H
42°N 105° (Gobi)	Mountains	H
28°S 137°E (Lake Eyre, Australia)	Islands, Land mass to east, west. An open sea, night.	H

*H--Hit; good description of area in near vicinity of target.
N--Neutral; some possibility of correspondence.
M--Miss; clear lack of correspondence.

the coordinate from a world map to represent the middle of Lake Victoria, Africa. However, Swann insisted that the coordinate, when given, turned on a picture of land to the right of a large lake. Subsequent checking with a detailed map of the region indicated that his perception had been correct.

We must, of course, point out that the results of such a training mode can be taken as indicative only, since even under the carefully controlled experimental conditions in force,

- An individual could--in principle--obtain good results on the basis of eidetic memory.
- Given the hypothesis of extraordinary functioning an individual could--in principle--obtain the data subliminally from an experimenter who knows the target location.

Therefore, the rapid global targets training mode was followed up with a series of global targets supplied by Stanford Research Institute personnel on a double-blind basis in which detail was obtained on buildings, roads, bridges, and the like. The results were sufficiently accurate to lead us to propose the client-controlled demonstration-of-ability tests described in the following paragraphs. The final evaluation rests on the analysis of the double-blind targets used in the concluding demonstration-of-ability tests.

2. Demonstration-of-Ability Tests: Double-Blind Client-Supplied Coordinates

In order to subject the remote viewing phenomena to a rigorous test under control of the client, a request for coordinates was transmitted to the client. In response, SRI personnel received the first set of coordinates, hereafter referred to as the West Virginia Site.

a. West Virginia Site (Swann)

Date: 29 May 1973, 1634-1640, Menlo Park, California
Protocol: Coordinates 38°23' 45-48"N, 79°25' 00"W given by Dr. H. E. Puthoff to subject I. Swann to initiate experiment. No maps were permitted and the subject was asked to give an immediate response. The session was recorded on video tape.

Swann response:

> This seems to be some sort of mounds or rolling hills. There is a city to the north (I can see the taller buildings and some smog). This seems to be a strange place, somewhat like the lawns that one would find around a military base, but I get the impression that there are either some old bunkers around, or maybe this is a covered reservoir. There must be a flagpole, some highways to the west, possibly a river over to the far east, to the south more city.

The map of Figure 2 was drawn.

On the following morning, Swann submitted a written report of a second reading, dated 30 May 1973, 0735-0758, Mountain View, California.

> Cliffs to the east, fence to the north. There's a circular building (a tower?), buildings to the south. Is this a former Nike base or something like that? This is about as far as I could go without feedback, and perhaps guidance as to what was wanted. There is something strange about this area, but since I don't know particularly what to look for within the scope of the cloudy ability, it is extremely difficult to make decisions on what is there and what is not. Imagination seems to get in the way. (For example, I seem to get the impression of something underground, but I'm not sure.) However, it is apparent that on first sighting the general location was correctly spotted.

The map of Figure 3 was drawn.

b. West Virginia Site (Price)

As a back-up test, the coordinates were given to a second subject (Price) who appears to possess similar ability in casual testing. The task was presented to the second subject independently of the first, both to prevent collaboration and to prevent any sense of competition.

> Date: 1 June 1973, 1700, Menlo Park, California
> Protocol: Coordinates 38°23' 45-48"N, 79°25' 00"W given by Dr. H. E. Puthoff to subject Price by telephone to initiate experiment.

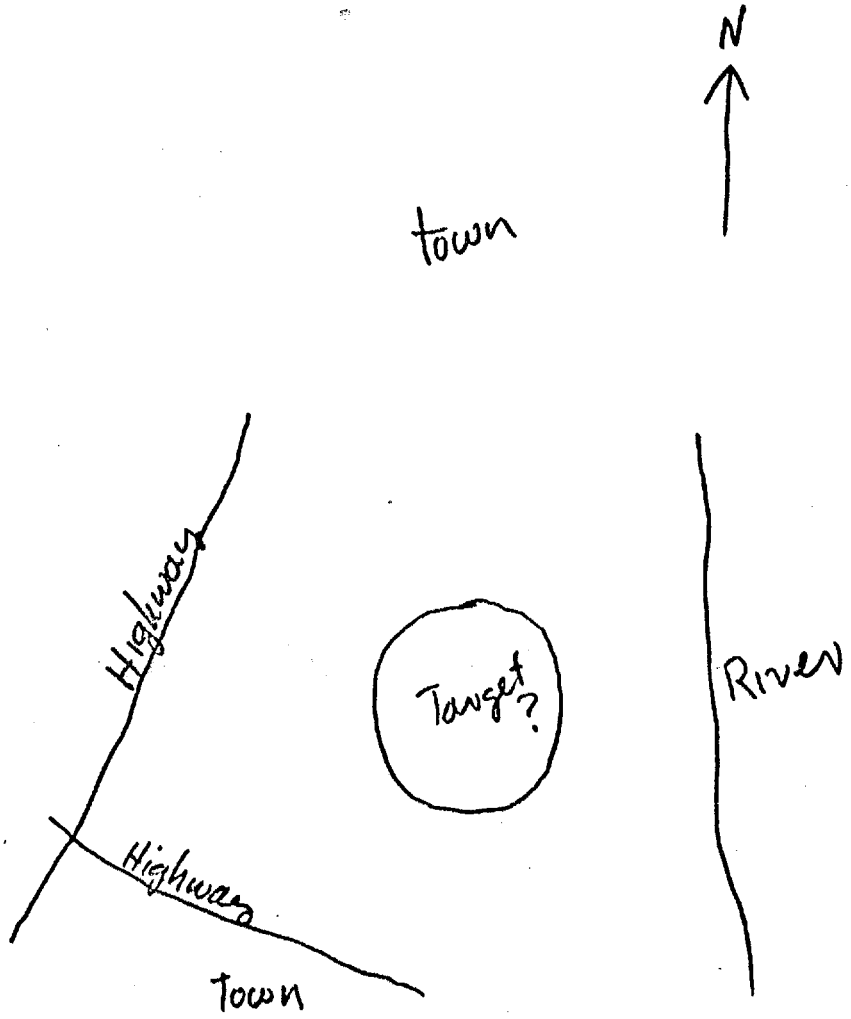

FIGURE 2 MAP NO. 1 OF WEST VIRGINIA SITE (SWANN)

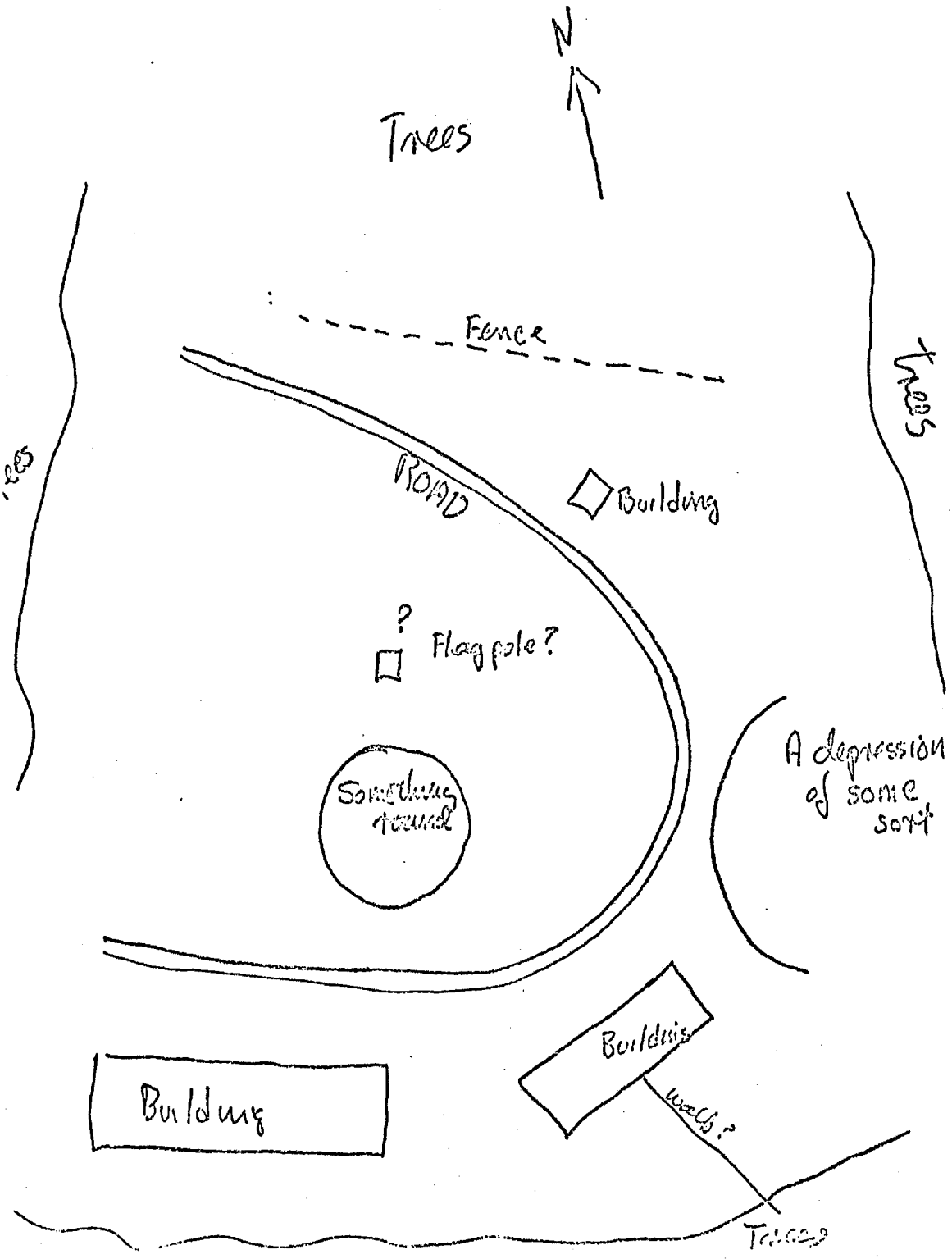

FIGURE 3 MAP NO. 2 OF WEST VIRGINIA SITE (DETAIL—SWANN)

On the morning of 4 June 1973 Price's written response (dated 2 June 1973, 1250-1350, Lake Tahoe, California) was received in the mail.

Looked at general area from altitude of about 1500' above highest terrain. On my left forward quadrant is a peak in a chain of mountains, elevation approximately 4996' above sea level. Slopes are greyish slate covered with variety of broad leaf trees, vines, shrubbery, and undergrowth. I am facing about 3°-5° west of north. Looking down the mountain to the right (east) side is a roadway, freeway country style--curves around base of mountain from S.W.--swings north for a few miles, then heads E.N.E. to a fairly large city about 30-40 miles distant. This area was a battleground in civil war--low rolling hills, creeks, few lakes or reservoirs. There is a smaller town a little S.E. about 15-20 miles distant with small settlements, village type, very rural, scattered around. Looking across the peak, 2500-3000' mountains stretch out for a hundred or so miles. Area is essentially wooded. Some of the westerly slopes are eroded and gully washed--looks like strip mining, coal mainly.

Weather at this time is cloudy, rainy. Temperature at my altitude about 54°--high cumulo nimbus clouds to about 25,000-30,000'. Clear area, but turbulent, between that level and some cirro stratus at 46,000'. Air mass in that strip moving W.N.W. to S.E.

1318 - Perceived that peak area has large underground storage areas. Road comes up back side of mountains (west slopes), fairly well concealed, looks deliberately so. It's cut under trees where possible--would be very hard to detect flying over area. Looks like former missile site--bases for launchers still there, but area now houses record storage area, microfilm, file cabinets; as you go into underground area through aluminum rolled up doors, first areas filled with records, etc. Rooms about 100' long, 40' wide, 20' ceilings with concrete supporting pilasters, flare-shaped. Temperature cool--fluorescent lighted. Personnel, Army 5th Corps Engineers. M/Sgt. Long on desk placard on grey steel desk--file cabinets security locked--combination locks, steel rods through eye bolts. Beyond these rooms, heading east, are several bays with computers, communication equipment, large maps, display type, overlays. Personnel, Army Signal Corps. Elevators.

1330 - Looked over general area from original location again--valleys quite hazy, lightning about 30 miles north along mountain ridge. Temperature drop about 6°, it's about 48°. Looking for other significances: see warm air mass moving in from S.W. colliding with cool air mass about 100 miles E.S.E. from my viewpoint. Air is very turbulent--tornado type; birds in my area seeking heavy cover. There is a fairly large river that I can see about 15-20 miles north and slightly west; runs N.E.; then curves in wide valley running S.W. to N.E.; river then runs S.E. Area to east, low rolling hills. Quite a few Civil War monuments. A marble colonnade type: "In this area was fought the battle of Lynchburg where many brave men of the Union and Confederate Armys (sic) fell. We dedicate this area to all peace loving people of the future--Daughters G.A.R."

On a later date Price was asked to return to the West Virginia site with the goal of obtaining codeword information, if possible. In response, Price supplied the following information:

Top of desk had papers labeled:
Flytrap
Minerva
File cabinet on north wall labeled:
Operation Pool --- (2nd word unreadable)
Folders inside cabinet labeled:
Cueball
14 Ball
4 Ball
8 Ball
Rackup
Name of site vaguely seems like Hayfork or Haystack. Personnel:
Col. R. J. Hamilton
Maj. Gen. George R. Nash
Major John C. Calhoun??

c. Urals Site (Price)

After obtaining a reading on the West Virginia site, Price volunteered that he scanned the other side of the globe for a Bloc equivalent, and found one in the Urals at 65°00'57"N, 59°59'59"E, described as follows.

Elevation, 6200'. Scrubby brush, tundra type ground hummocks, rocky outcroppings, mountains with fairly steep slopes. Facing

north, about 60 miles ground slopes to marshland. Mountain chain runs off to right about 35° east of north. Facing south, mountains run fairly north and south. Facing west, mountains drop down to foothills for 60 miles or so; some rivers running roughly north. Facing east, mountains are rather abrupt, dropping to rolling hills and to flat land. Area site underground, reinforced concrete, doorways of steel of the roll-up type. Unusually high ratio of women to men, at least at night. I see some helipads, concrete. Light rail tracks run from pads to another set of rails that parallel the doors into the mountain (see Figure 4). Thirty miles north (5° west of north) of the site is a radar installation with one large (165') dish and two small fast-track dishes.

The above reports were submitted to the client for evaluation. A second set of coordinates was requested and obtained, hereafter referred to as the Kerguelen Island Site.

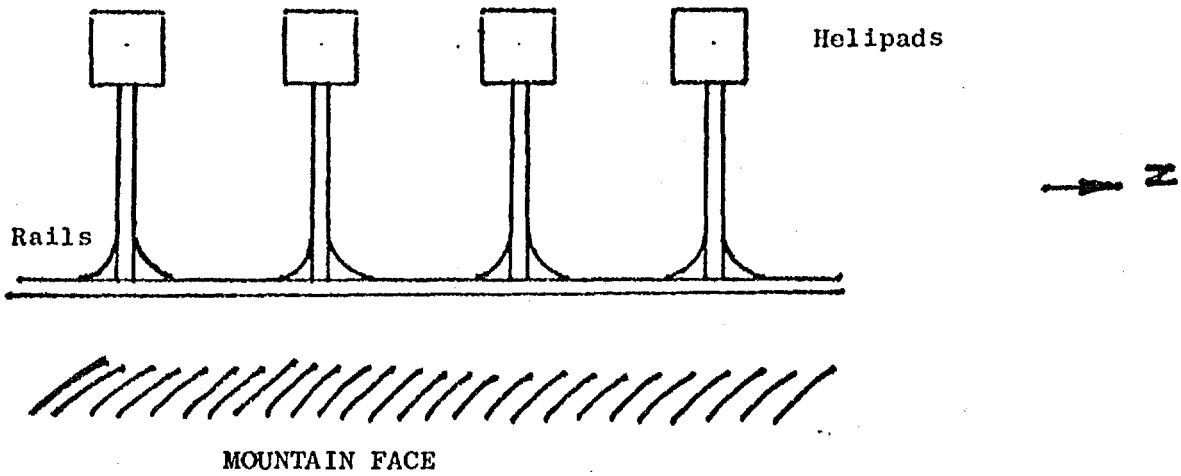

FIGURE 4 MAP OF URALS SITE (PRICE)

d. Kerguelen Island Site (Swann)

Date: 21 July 1973, 1708-1730, Menlo Park, California
Protocol: Coordinates 49°20'S, 70°14'E given by Dr. H. E. Puthoff to subject I. Swann to initiate experiment. No maps were permitted and the subject was asked to give an immediate response. The session was recorded on video tape.

Swann response:

My initial response is that it's an island, maybe a mountain sticking up through a cloud cover. (Experimenter checks, gives positive feedback.) Terrain seems rocky. Must be some sort of small plants growing there. Cloud bank to the west. Very cold. I see some buildings rather mathematically laid out. One of them is orange. There is something like a radar antenna, a round disc. (Subject draws map during report.) Two white cylindrical tanks, quite large. To the northwest a small airstrip. Wind is blowing. Must be two or three trucks in front of building. Behind, is that an outhouse? There's not much there. That's all, I think, for now.

Swann submits map, Figure 5.

On the following day, 1152-1215, the identical protocol was followed for a second reading. Again, no maps were permitted. During this reading, Swann described following the coastline of the island, drawing segments on 8-1/2" x 11" pieces of paper as he went, resulting in Figure 6 when the pieces were assembled.

It's not completely dark there, sort of orangish light. If I look to the west, hills; to the north flatlands and, I think, airstrip and ocean in the distance; to the east, rolling bumpy grasslands with bumps; to the south is -- I can't see anything to the south. I move north to the coastline and follow it around. That's point A (begins to draw map). Point B, rocks sticking up out of the ocean, breakers on them. Point C, little cluster of buildings with wharf, boats. Point D, jutty of land sticking out. Point F* is sand basin, river coming through,

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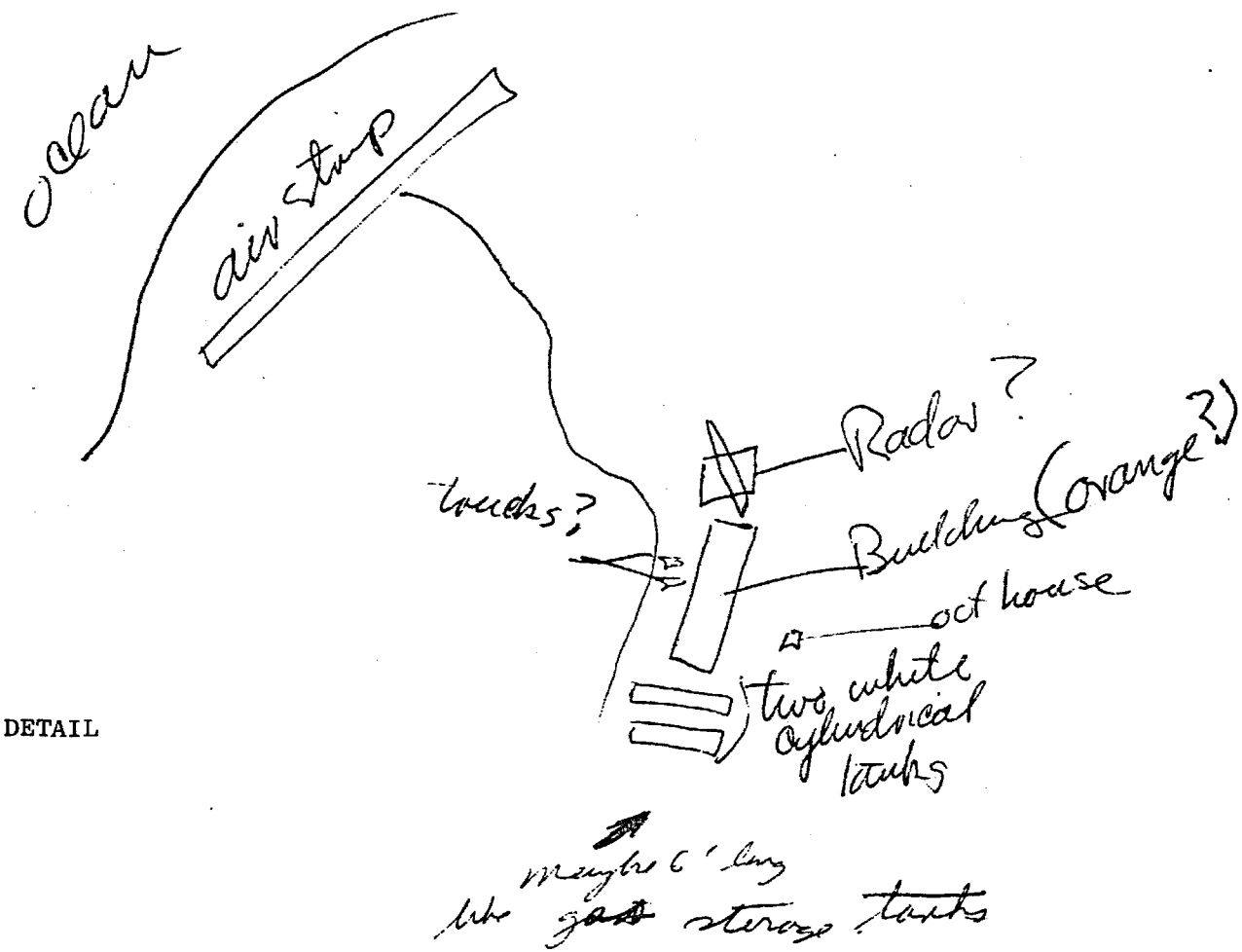
*Lettering out of order.



SECTION L DETAIL

FIGURE 5 MAP NO. 1 OF KERGUELEN ISLAND SITE (DETAIL—SWANN)

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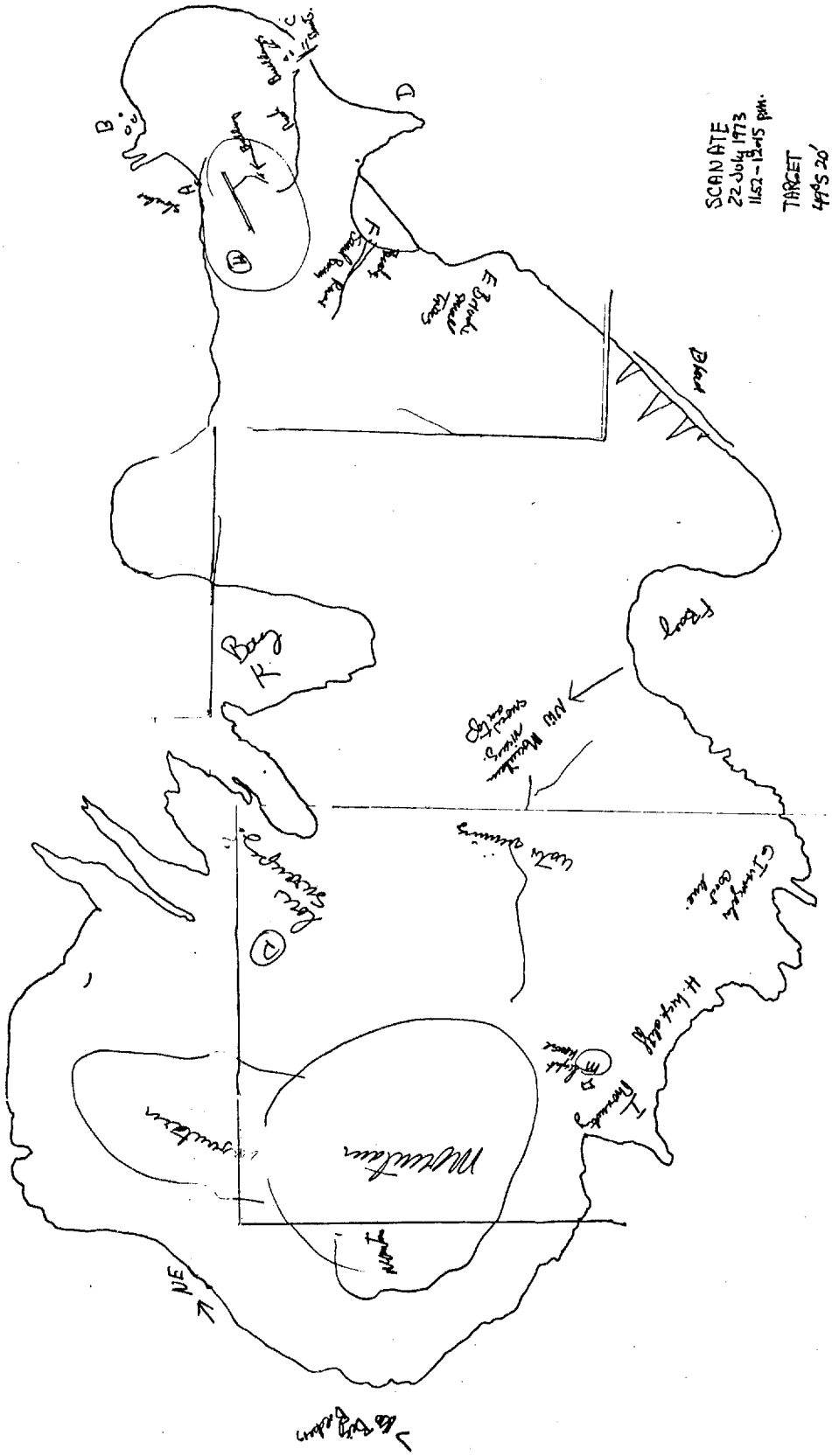


FIGURE 6 MAP NO. 2 OF KERGUELEN ISLAND SITE (SWANN)

lots of birds. Point E, brush of small trees. This is fun (laughs), first time I've ever done this. (Following E) almost a straight coastline, cuts in rocks, beach. Then curves back. I see to northwest a mountain rising, snow on top. Area G is irregular. Point H is a high cliff, Point I is a promontory. Point J has big breakers, K is a bay, L is area I drew yesterday (circles area, draws airstrip and buildings for orientation to previous map). That will do for today. May be a lighthouse (on tip?). I lacked courage going around Point G.

e. Kerguelen Island Site (Price)

Date: 20 July 1973, 1400, Menlo Park, California
Protocol: Coordinates 49°20'S, 70°14'E given by Dr. H. E. Puthoff to subject Price by telephone to initiate experiment.

Price Response:

On the morning of 21 July 1973 Price's written response (dated 20 July 1973, 2055-2232, Santa Clara, California) was received (hand carried).

Picked 15,000' altitude. Looking south, 4° east of south, see a site located on a cliff about 200' high above the ocean. Installation is a cluster of buildings and radar tracking station (see Figure 7). Radar is a segment concave type rather than circular dish type. Building #1 is the largest, L-shaped, front facing NW, two stories plus basement. Buildings #2 and #3 about 75'-100' east of main building, also two stories plus basement. Building #2 has recreation and dining facilities, building #3 contains living quarters. Building #4 is a shop and maintenance area. Buildings are all interconnected on the ground floor.

I see a dock area at the base of the cliff, and 1/4 to 1/2 mile from the buildings is an airstrip.

The installation has four functions:

1) Tracking (space)
2) Meteorological station
3) Monitoring equipment for radiation readings
4) Radio relay station.

I see a couple of other radar installations covered by geodesic domes. There are two small tracking radars interlinked with main radar.

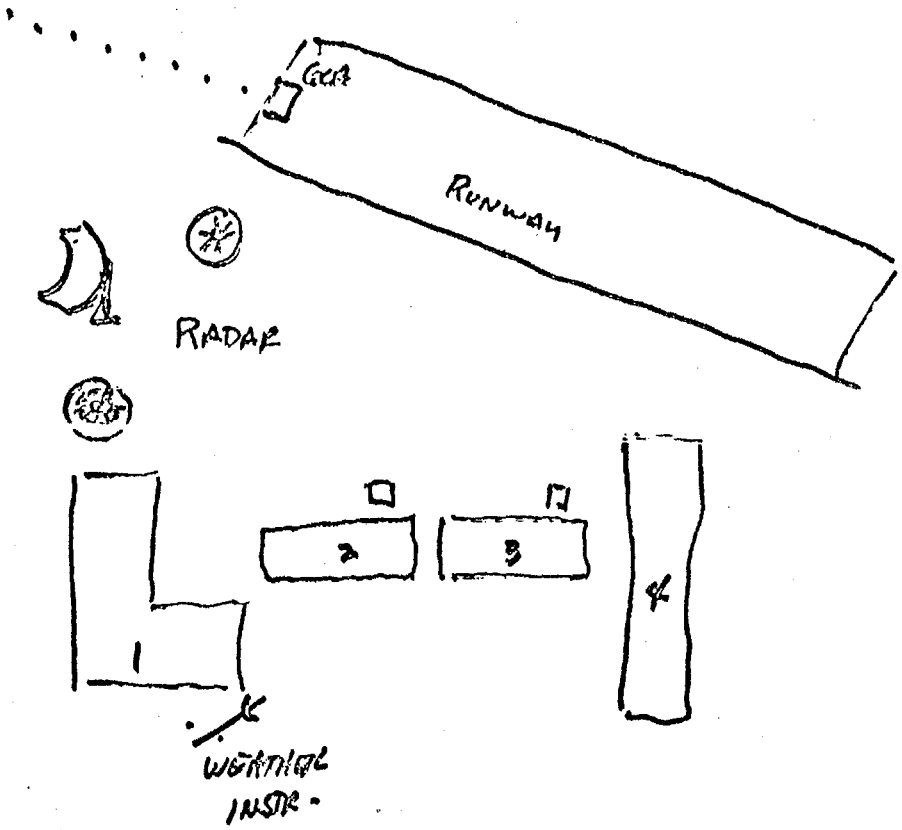


FIGURE 7 MAP NO. 3 OF KERGUELEN ISLAND SITE (PRICE)

I had the impression that the personnel (military and civilian) were French, but since I could understand what was being said I assume personnel are American.

f. Analysis of Results (Double-Blind Client Coordinates)

The results obtained with the double-blind client coordinates have been evaluated separately by the client. (See attached supplement.)

As an additional control with regard to the experimental protocol, SRI personnel have not been informed before, during, or afterward of any details of the target series parameters, including the hit-miss profile. However, SRI personnel have been informed that in each experiment there have been at least some categories of information in which the data exceed any possible bounds of coincidental correlation, and exceed any possible bounds of acquisition by known means. It has also been reported that some of the data possibly constitute "noise" in the signal, but it has usually been difficult to negate totally any information given by the subjects.

Therefore, we conclude from this portion of the study that:

- A channel exists whereby information about a remote location can be obtained in the manner described.
- As with all biological systems the information channel appears to be imperfect, containing some noise along with the signal.
- While a signal-to-noise ratio cannot as yet be determined by SRI personnel with regard to client-controlled targets, a semiquantitative signal-to-noise ratio might be determined with additional experimental effort.

B. EEG Experiments

One premise underlying our investigation is that paranormal functioning is distributed throughout the population in much the same manner as every other ability, and indeed in much the same way as intelligence

is distributed. We further conjecture that it is partially the "world view" of the times in which we live that prevents paranormal ability from surfacing to a greater extent.

Our EEG program was initiated in an effort to determine whether objective physiological measures of paranormal functioning exist and to relieve the subject from the burden of having to demonstrate volitionally any sort of paranormal functioning. We inform our subjects that a light is to be flashed from time to time in a distant room, and if they perceive that light it may be evident from changes in their EEG output. This experiment tests the hypothesis that perception may take place and be measurable at noncognitive levels of consciousness, even though not easily expressed verbally.

In our work with four female volunteer subjects, we have found evidence in three of their EEG spectra that they are influenced by the remote stimulus. Thus it appears from this exploratory work that we have a repeatable perception experiment that yields significant results even with unselected subjects.

The experimental protocol for the experiment is as follows: A subject is seated in a shielded EEG monitoring room in the Life Sciences Building of SRI. A friend of the subject is seated in a remote room with the stimulus generator, in this case a strobe light. The EEG output is recorded from the vertexes and occiputs (regions of the brain) simultaneously from both participants. On each trial, a tone burst precedes by one second a ten-second train of flashes presented to one of the subjects designated as the "sender." The subject who does not see the flashes is designated the "receiver;" this subject also hears the warning signal. This signal evokes a contingent negative variation (CNV) in each of the subjects as they anticipate the occurrence of the flashes. Thirty-six such trials are given, each consisting of 12 null trials, i.e., 0 flashes/second, 12 6-Hz flashes, and 12 16-Hz flashes intermixed in a random order. Each of the 36 trials consists of a ten-second EEG epoch. The EEG data are recorded on magnetic tape and digitized. The 12 data blocks associated with the 0, 6, and 16 Hz trials are averaged. A spectral analysis is then performed on the average.

This analysis has given two types of results. In two subjects we have evidence of actual modulation of the EEG output at the flash frequency. The other (more consistent) observation is that the dominant alpha production of the resting subjects is pulled to higher frequencies during the 6- and 16-Hz trials as compared with the 0 flashes/second trials.

In summary, the "receiver" subject knows when a trial period is beginning but does not know whether the light will be flashed nor what the flash frequency will be. However, from the accumulated EEG data, we tentatively conclude that there is evidence strongly suggesting that human subjects can directly--even though noncognitively--perceive remote stimuli not presented to any known perceptual sense, and the perception event can be recorded by an objective process.

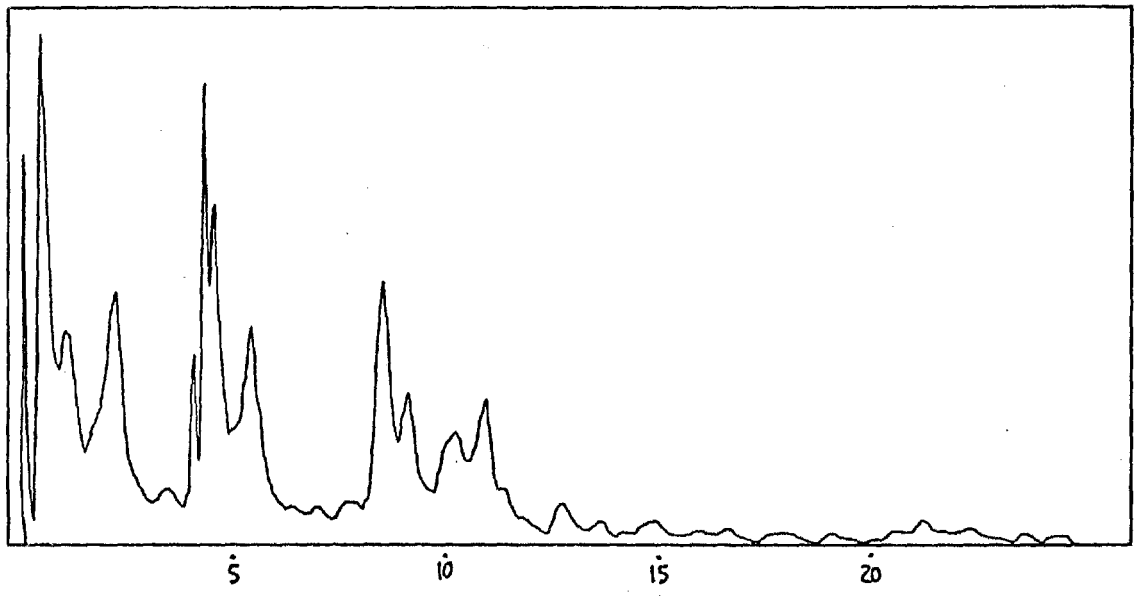
Figure 8 shows the averaged EEG for a subject attempting to perceive the remote stimulus. In this case the twelve averaged trials are for the 6- and 16-Hz light. The spectrum indicates a significant ($p = 0.05$) increase in the 16-Hz component during the 16-Hz period.

Figure 9(a) shows an overlay of the three averaged spectra for a different subject. Figure 9(b) shows the difference spectrum where the 0 trials data are electrically subtracted from the 6-Hz data. This difference curve shows a clear frequency shift in the dominant component of the subject's alpha (9-11 Hz) production. Of our four subjects, this subject had by far the most monochromatic EEG spectrum. Again the frequency shift obtained from comparing the stimulus versus nonstimulus trials was significant at the $p = 0.05$ level for the 6-Hz case and at the $p = 0.005$ level for the 16-Hz case.

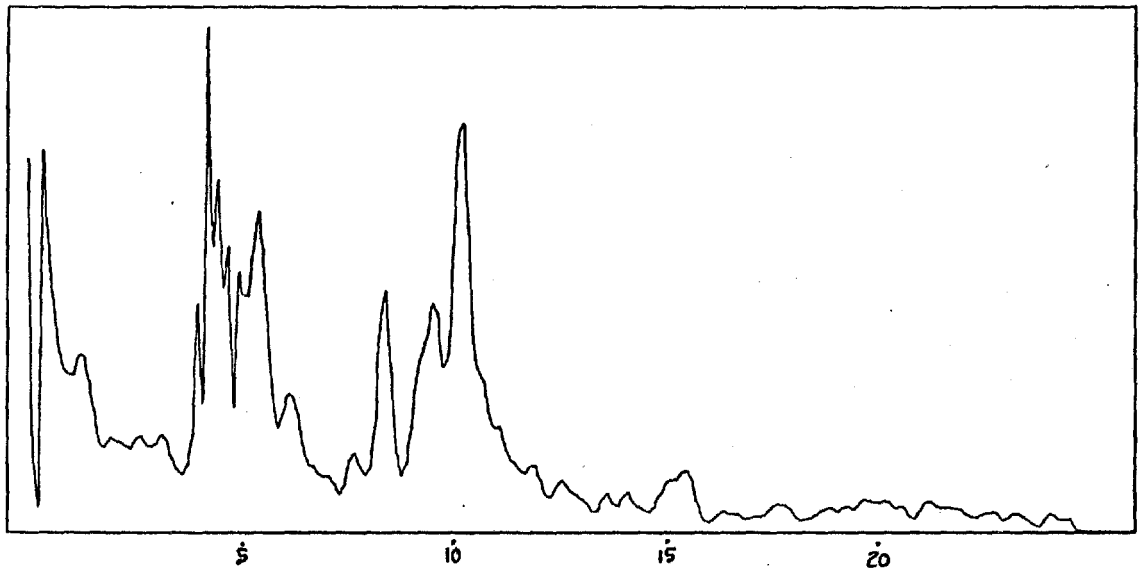
A second important use of the EEG technique is to allow a determination to be made of what confidence level to place on what a subject reports that he is perceiving during the course of his remote viewing experience.

Subjects taking part in these EEG experiments are asked to indicate their conscious feelings, on a trial-by-trial basis, as to which stimulus is being generated. They make their guess known to the experimenter via one-way telegraphic communication. An analysis of these guesses has shown a correlation between the correct calls and certain characteristic changes in EEG output. These changes vary from subject to subject but appear to be constant for any one subject. Having observed this apparent correlation in exploratory work, it is important to continue this study further to determine its constancy.

In experiments with Swann, the correlation took the form of a decrease in monochromaticity of his alpha production when his verbal responses to a stimulus condition were correct. (In this experiment Swann was asked to determine whether a remote helium-neon laser was on or off.) In the course of this experiment there was thus an apparent correlation between the accuracy of his perception and his EEG production, even though his overall task performance in this particular experiment did not differ significantly from chance expectation.

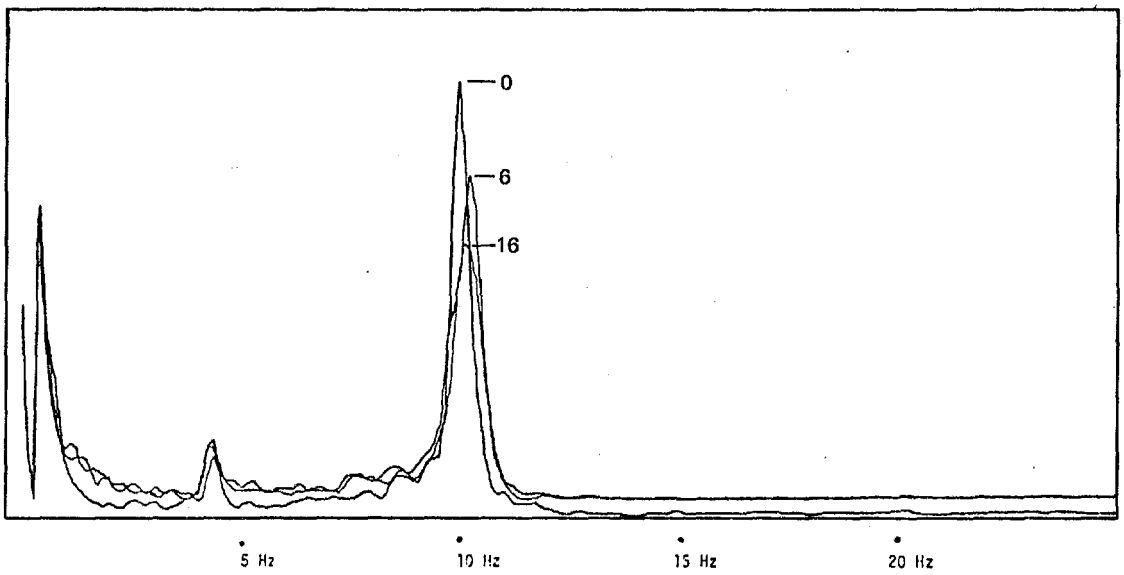


(a) SENDER STIMULATED WITH 6-Hz FLASHES

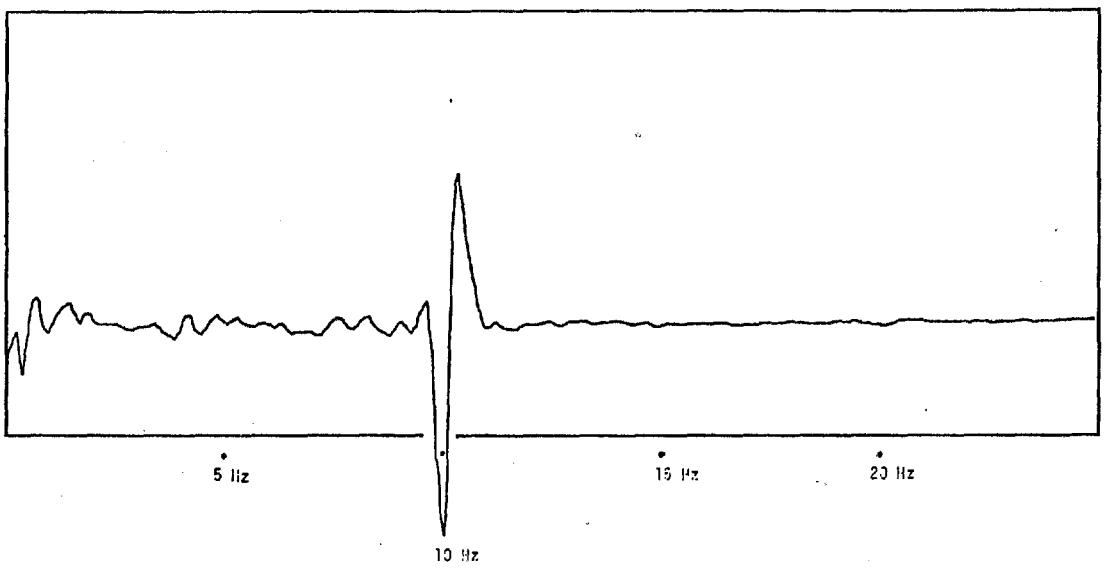


(b) SENDER STIMULATED WITH 16-Hz FLASHES

FIGURE 8 OCCIPITAL EEG FREQUENCY SPECTRA, 0 TO 25 Hz, OF JEAN MAYO, RECEIVER



(a) THREE CASES—0-, 6-, AND 16-Hz FLASHES (12-TRIAL AVERAGE)



(b) DIFFERENCE SPECTRA—6-Hz MINUS 0-Hz

FIGURE 9 OCCIPITAL EEG FREQUENCY SPECTRA, 0 TO 25 Hz, OF HELLA HAMMID, RECEIVER

In other work with Swann at the American Society for Psychical Research, Dr. Karlis Osis has reported that when Swann attempted to reproduce pictorially the contents of a hidden container, his EEG output would consistently shift from lower to higher frequencies. Swann was highly successful (eight out of eight) in this series of perception experiments.

It therefore appears that monitoring of the EEG may prove to be a good indicator as to the measure of confidence that should be placed in a subject's report about his perception of a remote scene.

C. Remote Perception of Graphic Material

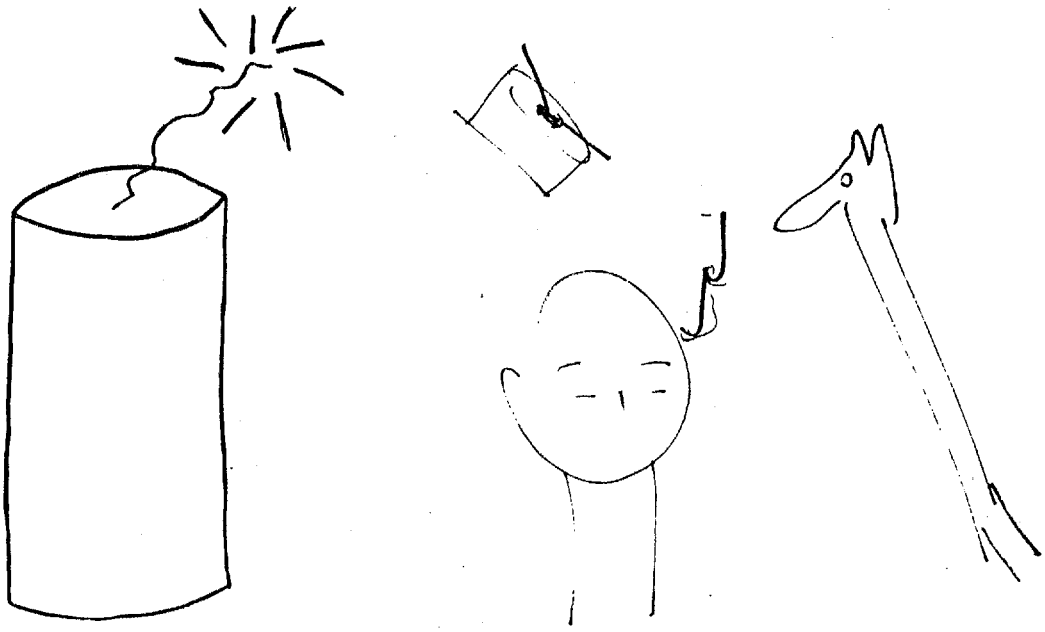
The objective of this group of experimental sessions was to investigate the apparent paranormal perception ability of gifted subject Uri Geller under carefully controlled conditions with the goal of understanding the physical and psychological variables underlying such ability.

On each day of an eight-day experimental period, picture drawing experiments were carried out. In these experiments, Geller was separated from the target material either by an electrically isolated, shielded room or by the isolation provided by having the targets drawn on the East Coast. As a result of Geller's success in this experimental period, we consider that he has demonstrated his paranormal perceptual ability in a convincing and unambiguous manner.

Saturday, 4 August--Two drawing experiments were conducted this day. In both of these, Geller was closeted in an opaque, acoustically and electrically shielded room. This room is the double-walled shielded room used for EEG research in the Life Sciences Division of SRI. It is locked by means of an inner and outer door, each of which is secured with a refrigerator-type locking mechanism, as shown in Figure 10.

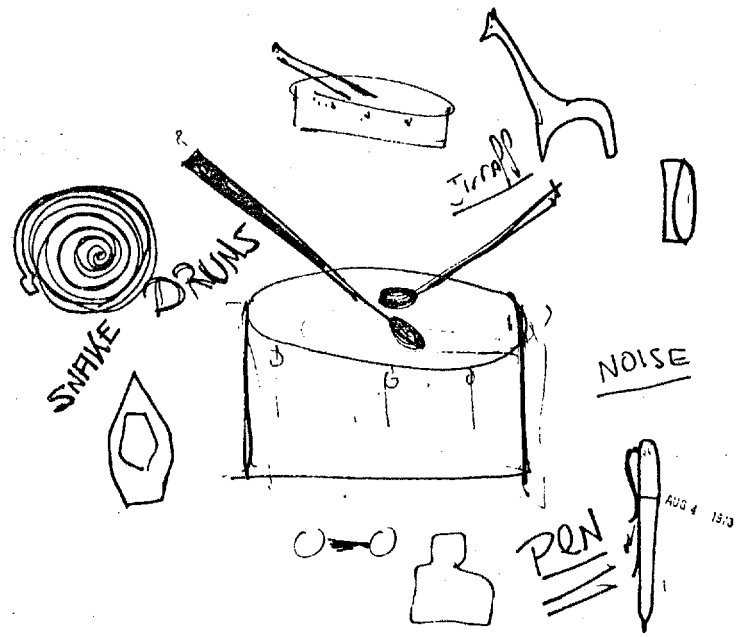
The two drawings used in this experiment were selected by randomly opening a large college dictionary and selecting the first word that could reasonably be drawn. The first word obtained in this manner was "fuse" and the object drawn was firecracker [Figure 11(a)]. All target selection and picture drawing was done with Geller already in the shielded room. Geller was notified via intercom when the target picture was drawn and taped to the wall outside his enclosure. He was continuously monitored by a one-way audio circuit.

FIGURE 10 SHIELDED ROOM USED FOR EEG EXPERIMENTS



(a) TARGET

(b) RESPONSE 1



(c) RESPONSE 2

FIGURE 11 TARGET 1 (FIRECRACKER) AND GELLER'S RESPONSES

Geller's almost immediate response was that he saw "a cylinder with noise coming out of it." His drawing representing his response to the target was a drum, along with a number of other cylindrical-looking objects [Figures 11(b) and 11(c)].

The second word selected was "bunch," and the target was a bunch of grapes. Geller's immediate response was that he saw "drops of water coming out of the picture." He then talked about "purple circles." Finally, he said that he was quite sure that he had the picture. His drawing was indeed a bunch of grapes. Both the target picture and Geller's rendition had 24 grapes in the bunch (Figure 12).

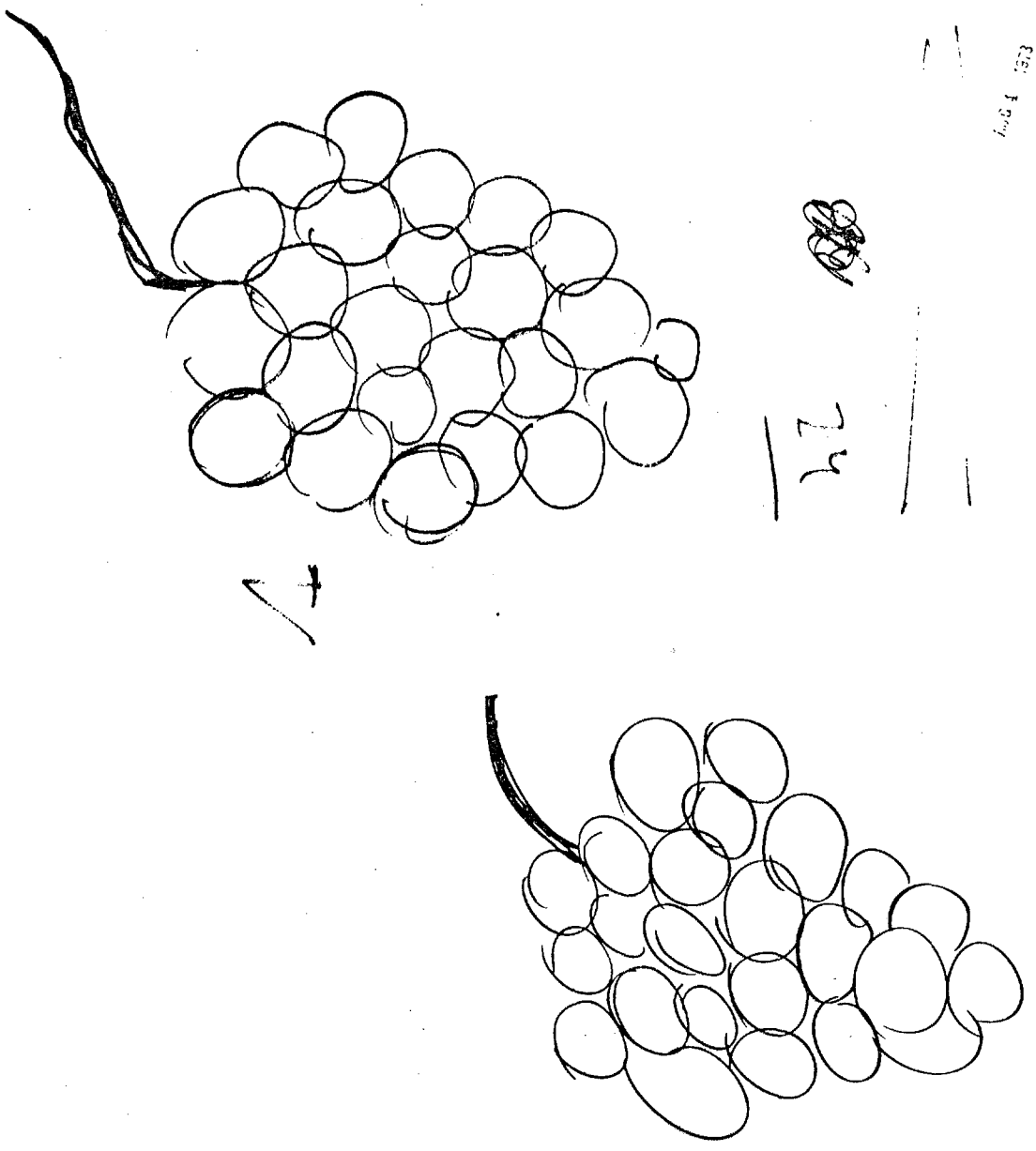
In this work the target picture is never discussed by the experimenters after the picture is drawn or brought near the shielded room. The intercom operates only from the inside of the room to the outside, except when the push-to-talk switch is depressed on the outside of the room. In our detailed examination of the shielded room and the protocol used in these experiments no sensory leakage has been found, nor has any defect in the protocol been brought to our attention.

Sunday, 5 August--Geller is locked in the shielded room with one experimenter outside as a monitor while the target is drawn in the other experimenter's office about a half mile away. The target selected from the dictionary was an outline drawing of a man, which evolved through the drawing process into a devil with a trident [Figure 13(a)]. To start the experiment, Puthoff, who was with Geller, called Targ, who was with the drawing. Geller spent almost a half-hour working on the drawing before "passing," as he felt unable to get the drawing. We include his efforts nonetheless for the insight into the process that they provide.

His drawings [Figures 13(b)-13(d)] were as follows:

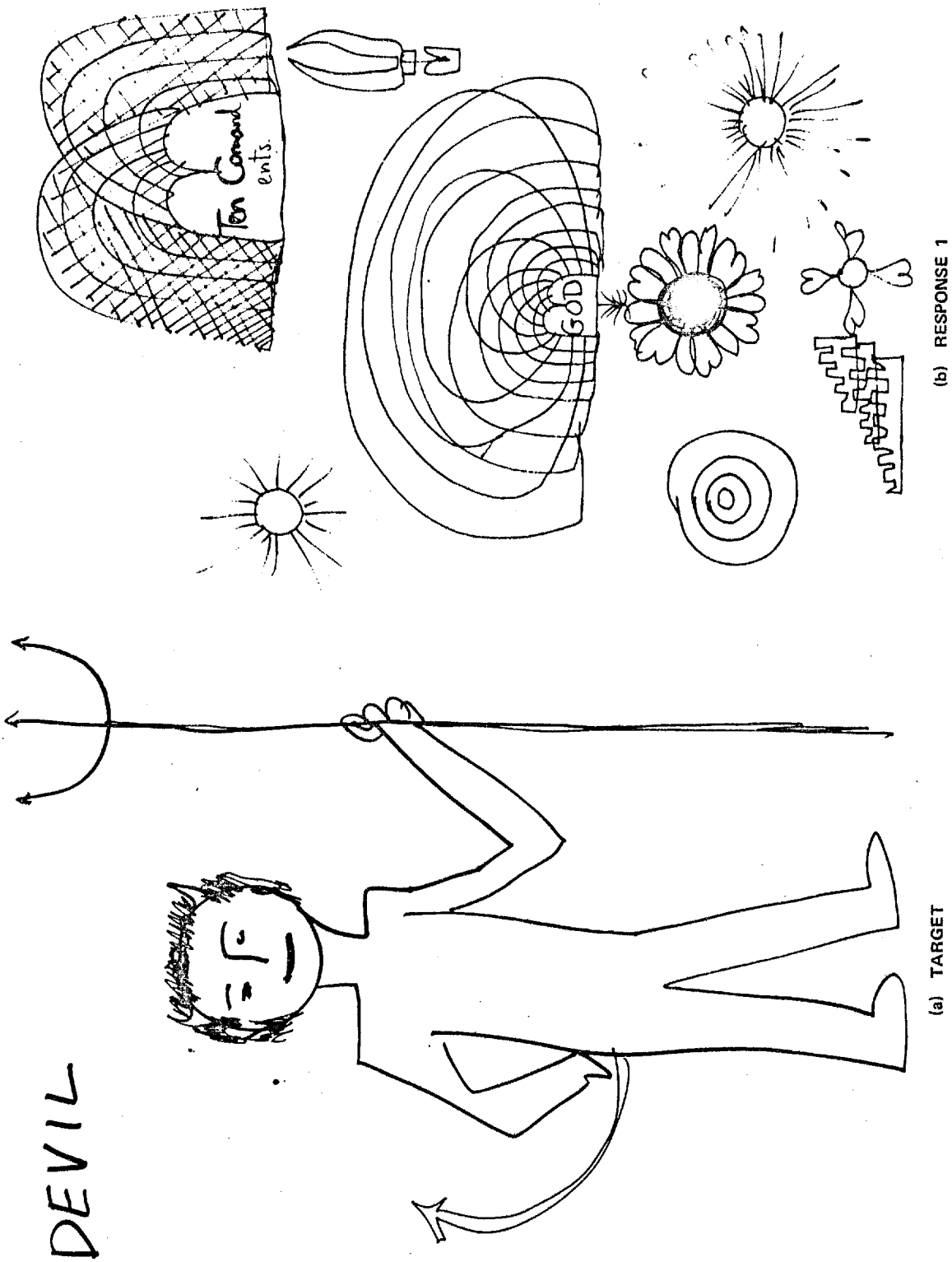
- "Moses' Tablets," i.e., Ten Commandments.
- Apple with a worm coming out of it, a snake was in the same picture, and the Tablets symbolism of the first drawing.
- Composite picture with the Ten Commandments on top of the world and the trident on the outside, along with a neatly drawn leaf.

One is led to speculate that the Biblical representation in these three drawings is perhaps associational material triggered by the target. The inability on Geller's part to draw the devil may be culturally induced.



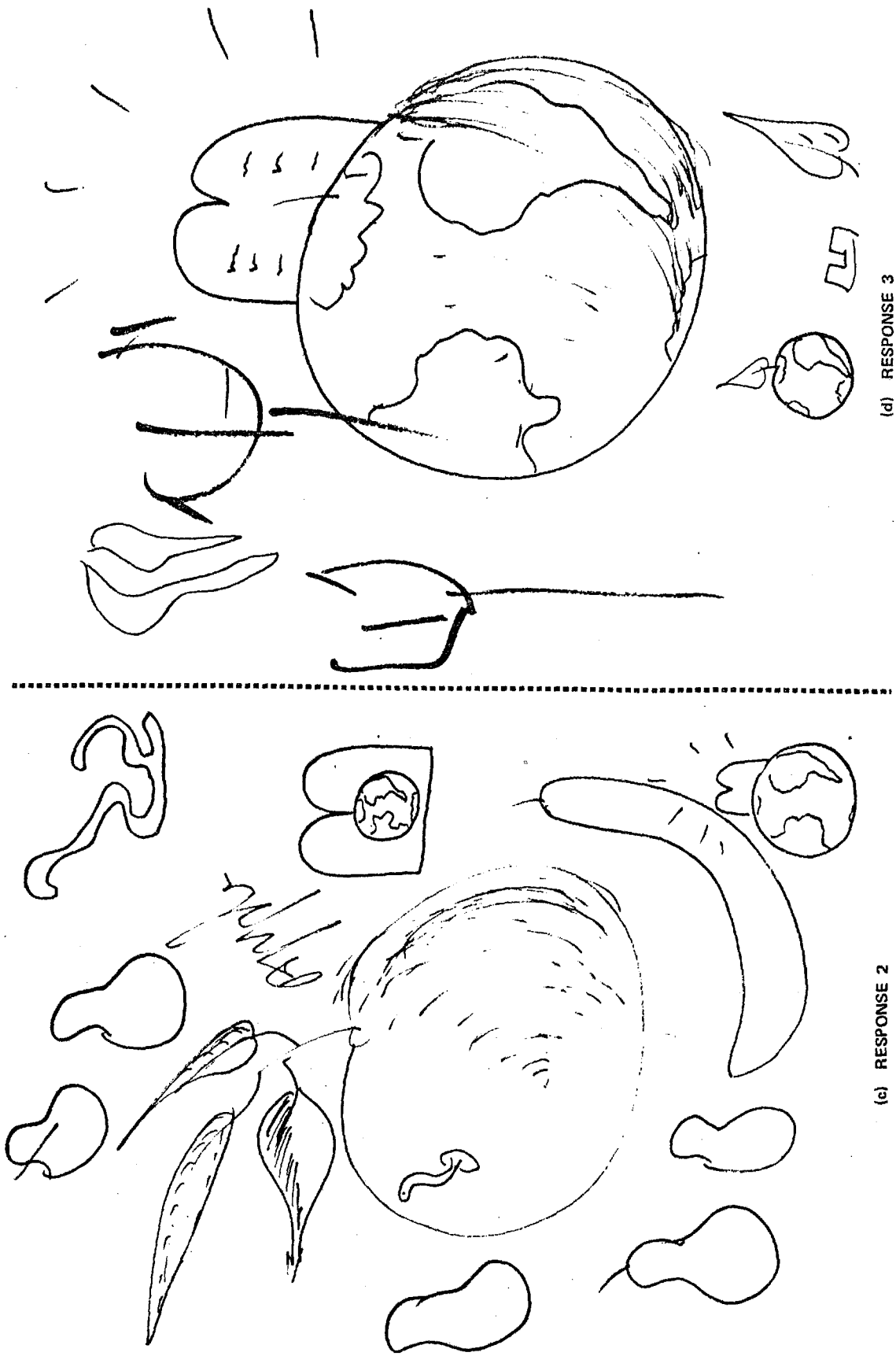
(a) TARGET (b) RESPONSE

FIGURE 12 TARGET 2 (GRAPES) AND GELLER'S RESPONSE



(a) TARGET (b) RESPONSE 1

FIGURE 13 TARGET 3 (DEVIL) AND GELLER'S RESPONSES



(c) RESPONSE 2

(d) RESPONSE 3

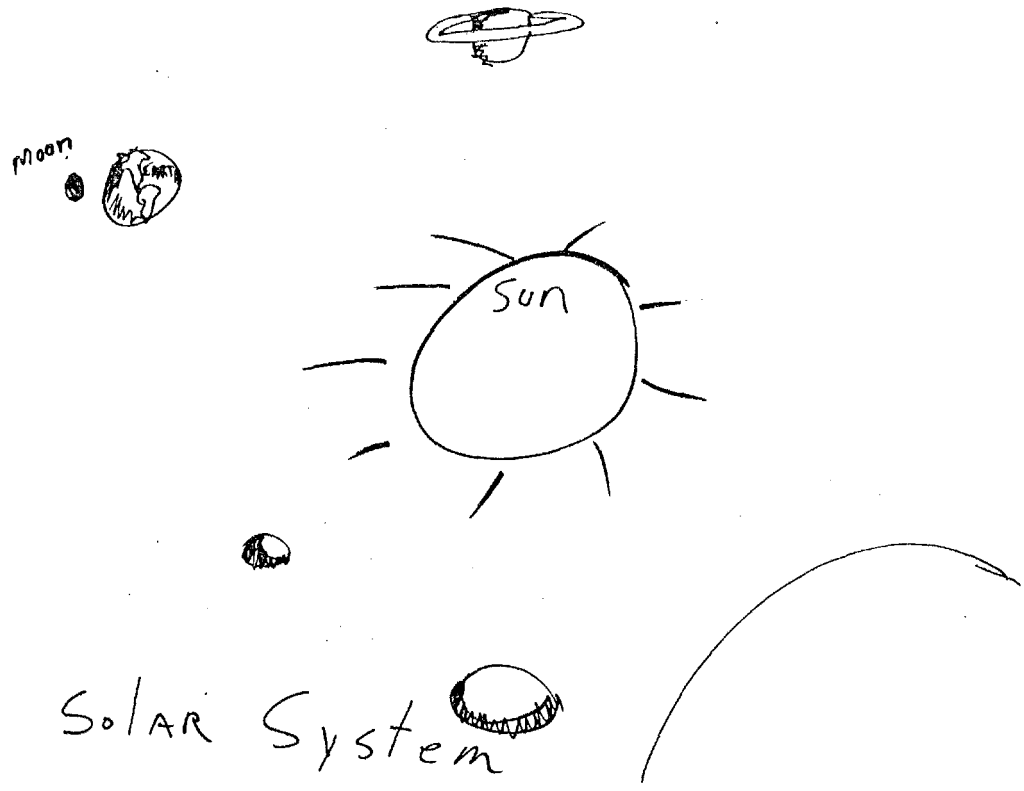
FIGURE 13 TARGET 3 (DEVIL) AND GELLER'S RESPONSES (Concluded)

With regard to the target picture, Geller did draw the trident from the target picture, but he did not draw the man who was holding it. From this it seems clear that Geller does not simply copy lines from the target picture, but rather he apparently performs some mental processing before drawing them.

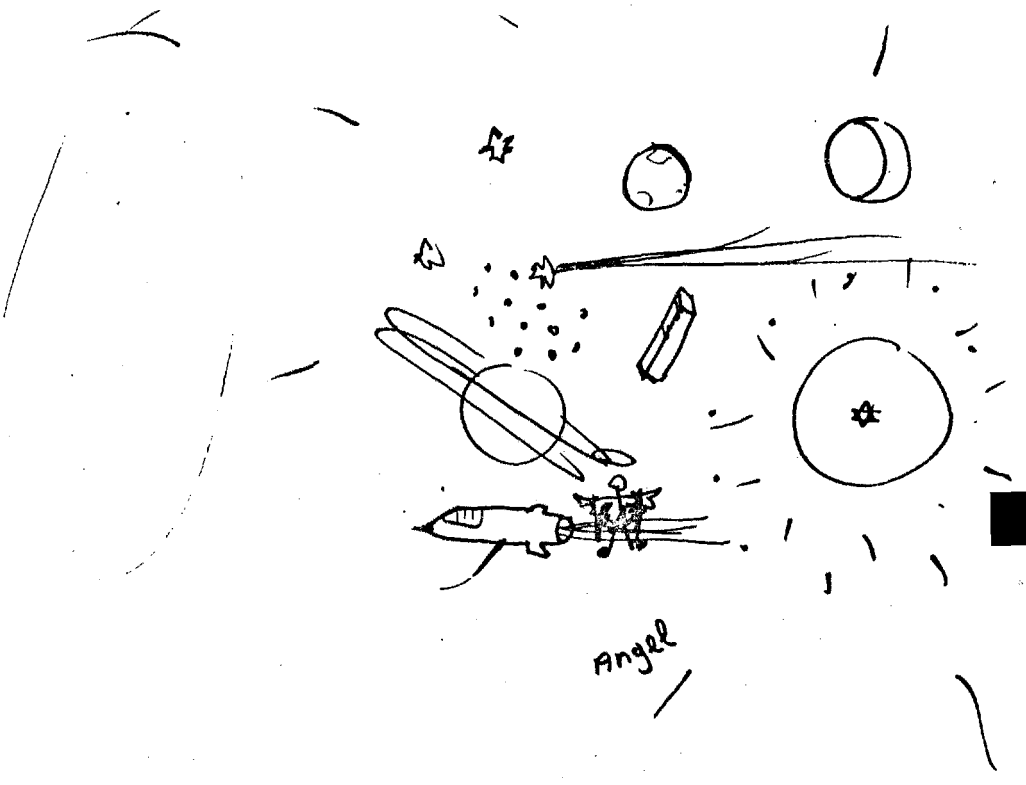
The second target picture was drawn by an experimenter while he was inside the shielded room with Geller outside the room with another experimenter. In this case the target [Figure 14(a)] was a representation of the solar system. His immediate verbal reaction before drawing was one of "space." Geller's drawn response to the target while outside the room [Figure 14(b)] coincides well with the target drawing. The block in the center of Geller's picture, according to his statement, was his afterthought suggested by the movie 2001 and was drawn as an addition just before comparing target with response.

Monday, 6 August--The experiment to be done this day was a pure clairvoyance task. A picture was drawn by a scientist outside the usual experimental group. The picture was locked in the shielded room before Geller's arrival at SRI. Geller was then led by the experimenters to the shielded room, and asked to draw the picture inside the room. He drew a number of pictures, all of which he rejected as not being applicable. He said that he got no clear impression and passed. The target was a rabbit, and nothing Geller drew in any way resembled a rabbit. It should be added that the picture was drawn by a scientist of whom Geller is not fond, and Geller asked at the outset if this was the case. The experimenters said that this was not the case, since they did not know who had drawn the picture. Geller felt vindicated to some extent when he found out that his initial guess as to the artist had been correct.

Tuesday, 7 August--This day two target pictures were attempted with Geller in the shielded room. He was connected to an EEG apparatus to allow measurement of his brain waves at the time that he was attempting to perceive a hidden picture. The two target pictures were a tree and an envelope. He experienced difficulty, did not make a drawing that corresponded to either drawing, and passed. Also, he found it very difficult to hold adequately still to make good EEG records. The same skeptical experimenter who drew the rabbit was the EEG operator on this second unsuccessful day.



(a) TARGET



SG1A

[redacted]

(b) RESPONSE

FIGURE 14 TARGET 4 (SOLAR SYSTEM) AND GELLER'S RESPONSE

Wednesday, 8 August--Three targets were drawn during the course of this day's work. In the first, the experimenters closed the outer door of the laboratory in which the shielded room is located (in addition to the inner double doors) and worked in an adjoining room. The target picture in this case was a camel. Geller felt unsure and passed, but his first choice drawing was a horse (see Figure 15).

The experimenters then returned to the room outside the shielded room and drew the second picture, which was the Golden Gate Bridge [Figure 16(a)]. Geller inside the shielded room drew some curved lines with some squares underneath [Figure 16(b)]. He said that he didn't know what the picture was and passed.

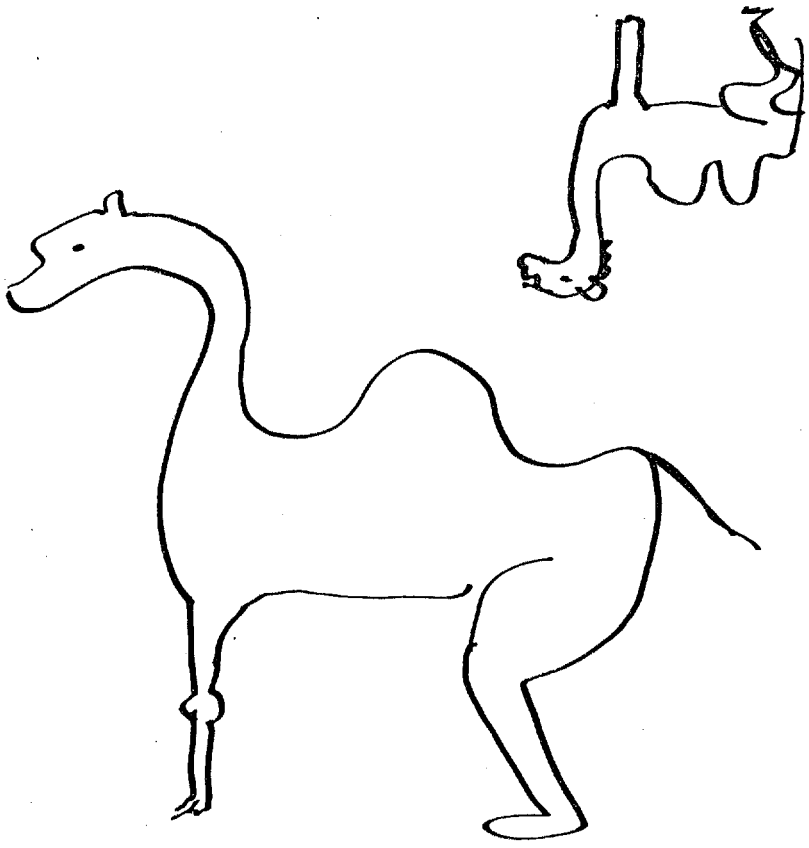
The third picture was a flying seagull. Geller said almost immediately that he saw a flying swan over a hill. He drew several birds and said that he was sure that his drawing was correct, which it was (Figure 17).

Experiments were conducted in the shielded room for six days; good results were obtained on four of the days when there was no openly skeptical observer present.

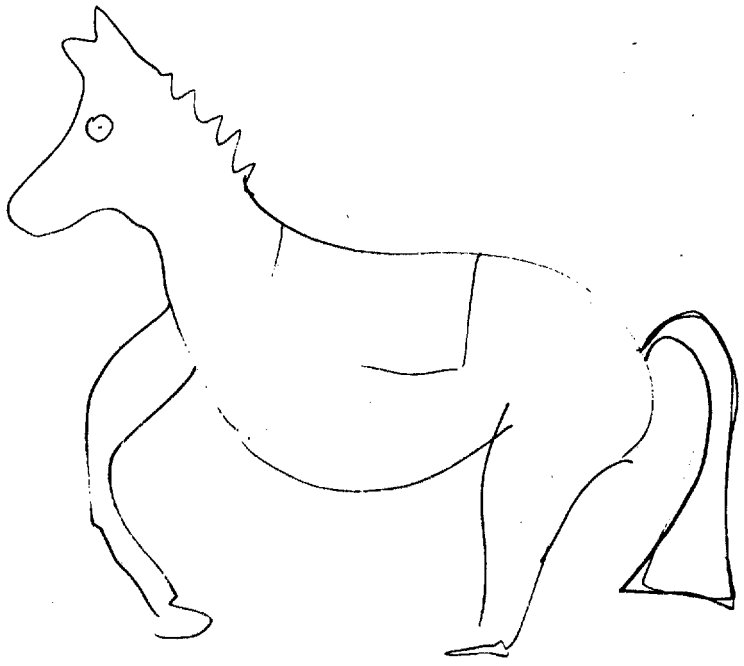
Thursday, 9 August--The experiments were moved to SRI's Engineering Building in order to make use of the computer facilities available. After Geller was secured in a shielded room about 150 feet down the hall and around a corner from the computer room and placed under continuous monitoring, a picture of a kite was drawn on the face of the TV screen driven by the computer's graphics program. Shortly after Geller was notified that the picture had been drawn, he had the computer room called to determine if the target picture was a geometric picture or an object. By talking to an intermediary, who was ignorant of the target picture, we told him that it was an object. Geller's first drawing in this case was a square with the diagonals drawn in. He then also drew some triangular airplanes and passed. His first drawing was a good representation of the actual target picture (Figure 18).

Friday, 10 August--Two pictures were drawn and stored in the computer memory so that no visible evidence was available in the computer room after the picture was drawn.

The first picture was a church. The picture was drawn and stored in the memory of the computer. Geller's responses are shown in the attached collection of drawings (Figure 19). It appears that both of

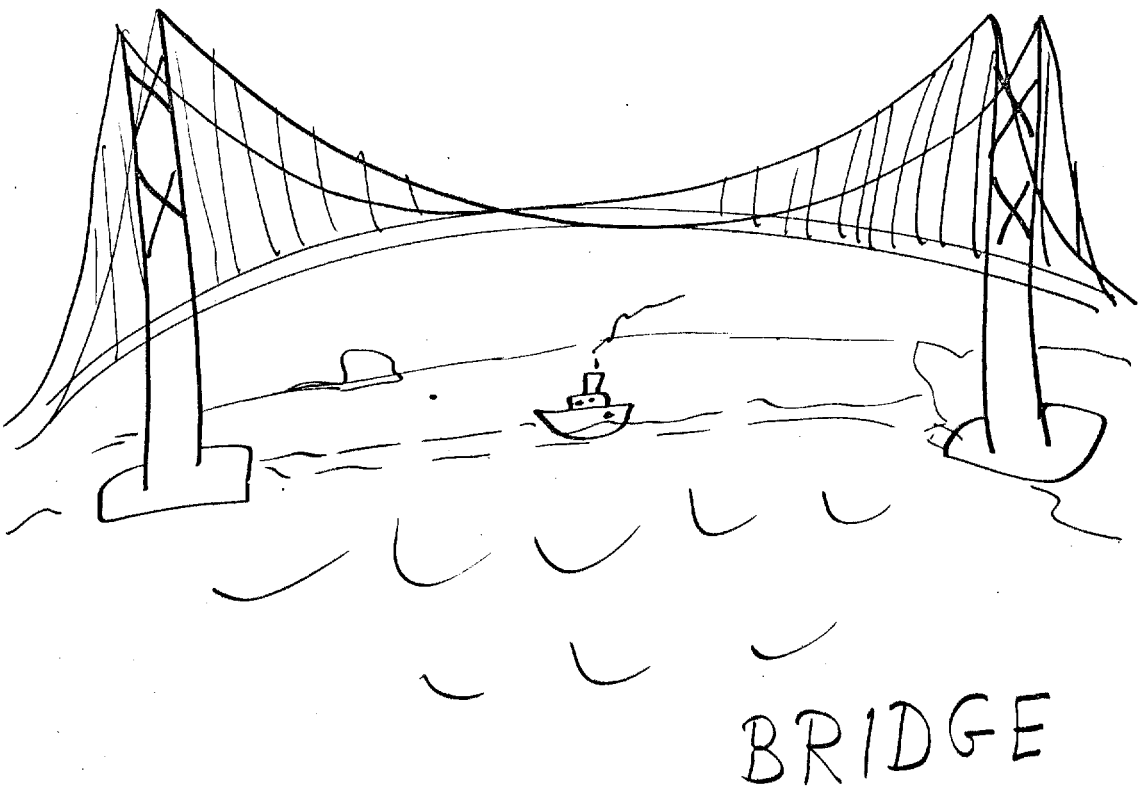


(a) TARGET

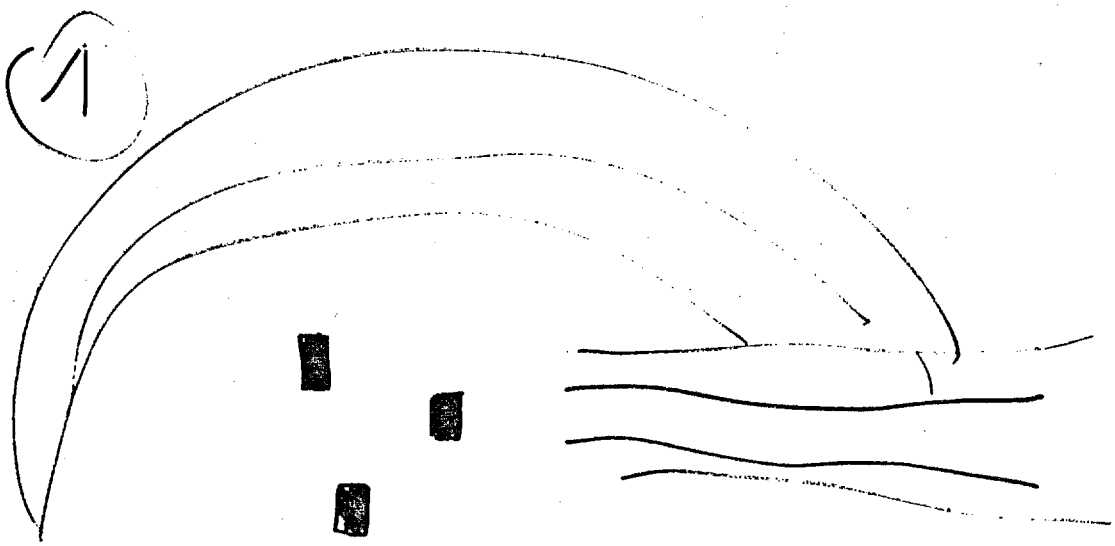


(b) RESPONSE

FIGURE 15 TARGET 5 (CAMEL) AND GELLER'S RESPONSE

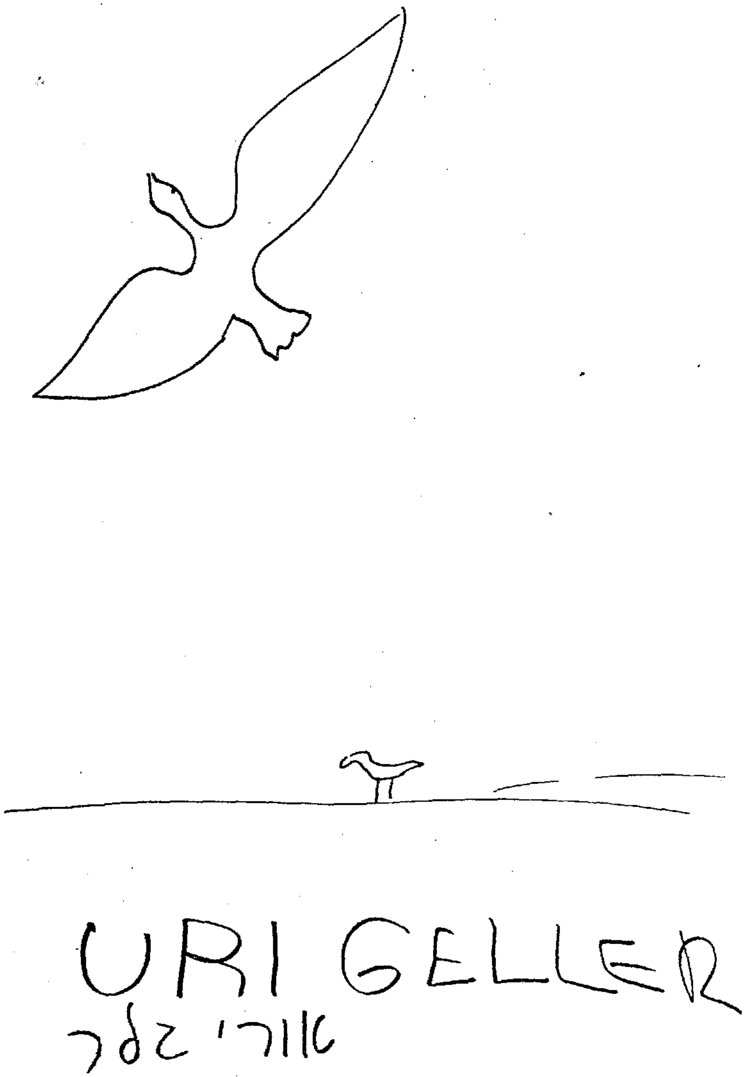


(a) TARGET

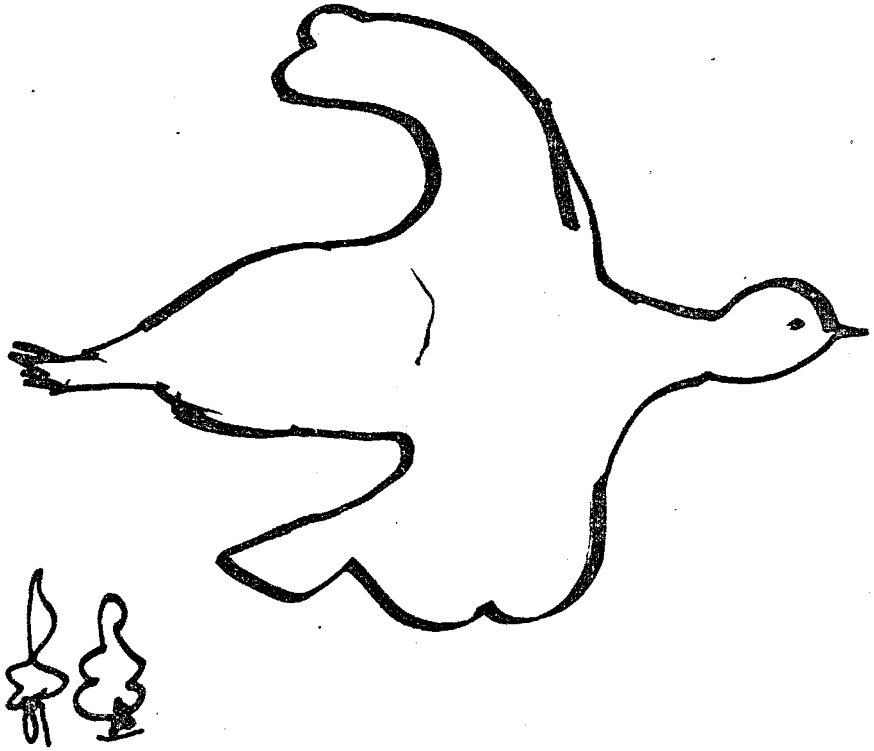


(b) RESPONSE

FIGURE 16 TARGET 6 (GOLDEN GATE BRIDGE) AND GELLER'S RESPONSE



(a) TARGET



(b) RESPONSE

FIGURE 17 TARGET 7 (SEAGULL FLYING) AND GELLER'S RESPONSE

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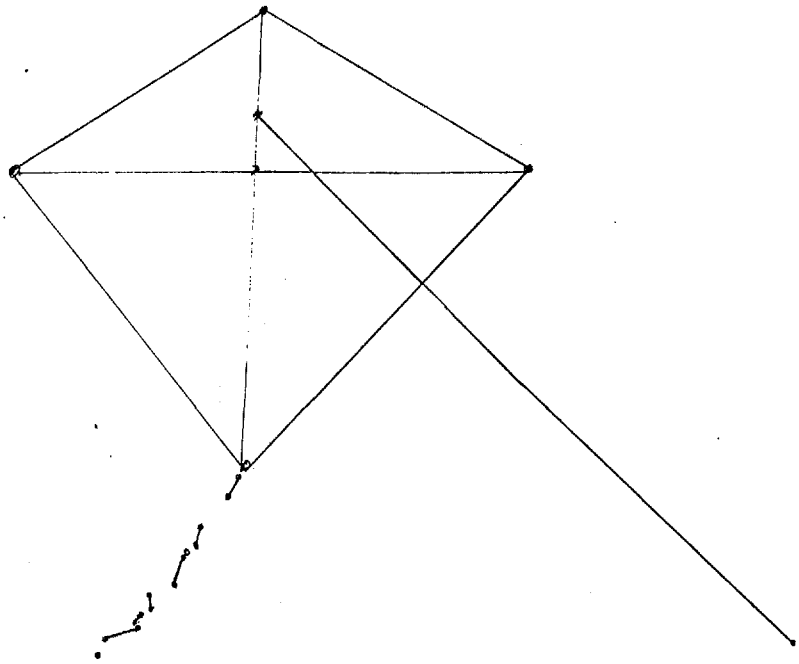
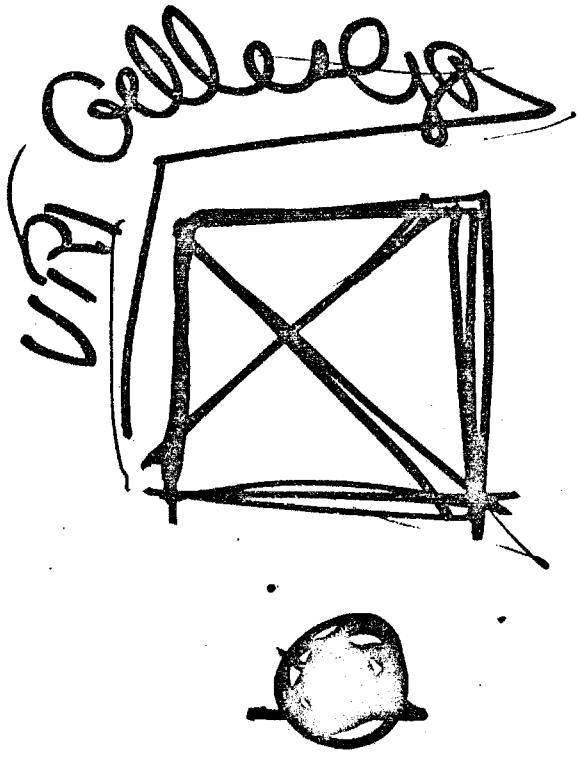
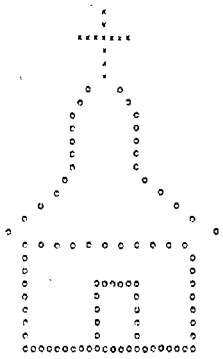


(a) TARGET

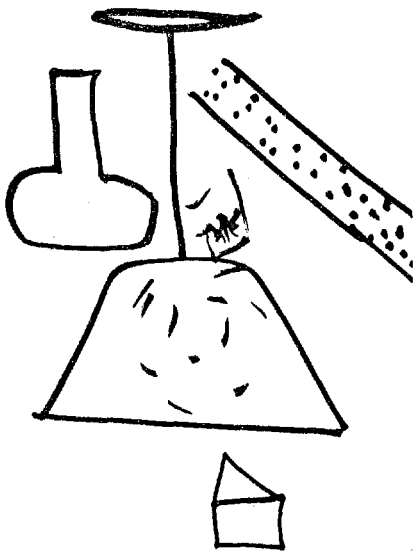


(b) RESPONSE

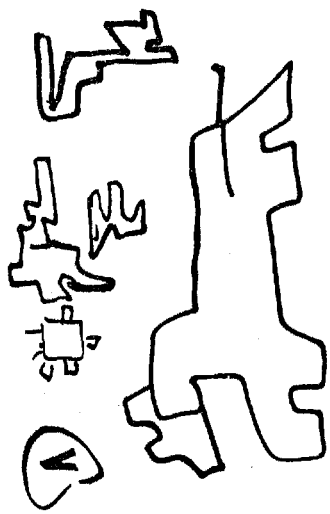
FIGURE 18 TARGET 8 (KITE ON CRT DISPLAY) AND GELLER'S RESPONSE



(a) TARGET



(b) RESPONSE 1



(c) RESPONSE 2

FIGURE 19 TARGET 9 (CHURCH, STORED IN MEMORY OF TEXT-EDITING COMPUTER) AND GELLER'S RESPONSES

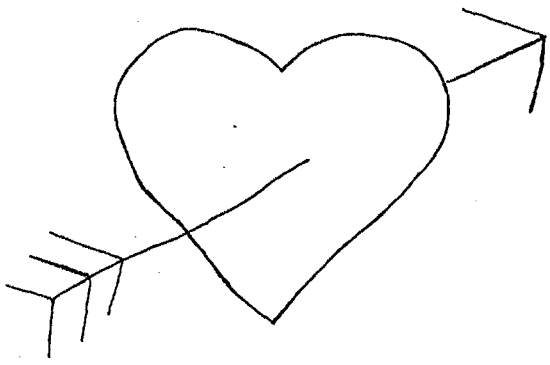
his attempts have some elements in common with the target drawing, but he had no idea that it was a church and he passed.

The second target picture was stored on the face of the TV tube with the intensity turned off so that no picture was visible with the room lights turned on. Geller immediately drew an arrow under a rounded brick and then drew another arrow inside a suitcase. We consider the arrow in the suitcase similar to the target, which was an arrow through a heart (Figure 20).

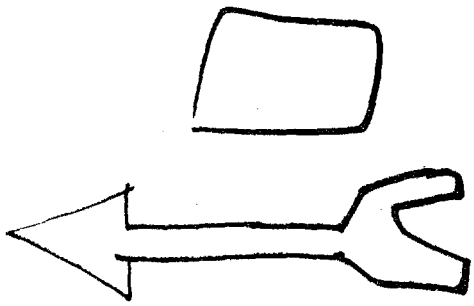
These latter two experiments admit to at least two hypotheses, which will require further work to differentiate:

- Perception of information stored in the computer.
- Perception of mental contents, since there were several people in the computer room, all of whom knew the nature of the target that was stored.

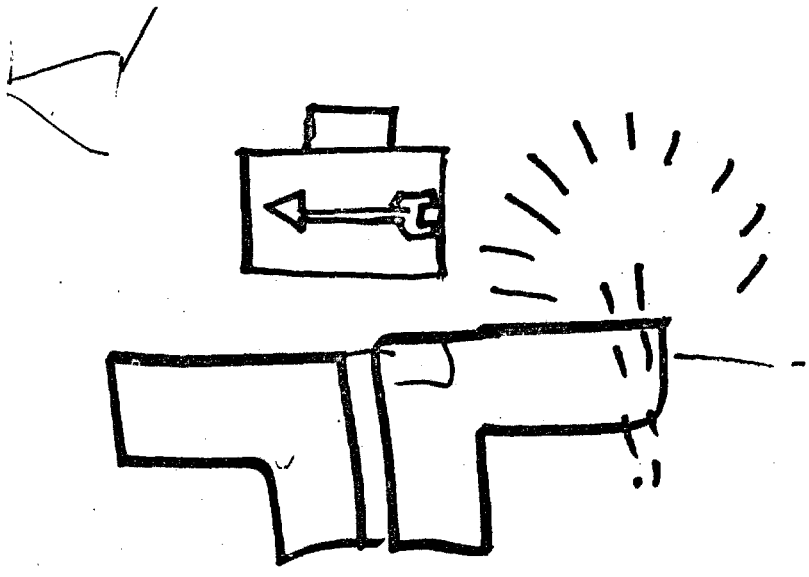
A long-distance telepathy experiment was also done on 10 August. An East Coast scientist was called and asked to draw a simple representational object for Geller to copy. [Following the experiment he indicated that he drew two peaked mountains with a sun in the upper right.] Geller drew two arches side by side with a circle in the upper right. Geller's picture also had a train-like object running through it. We consider this to be suggestive of communication but not conclusive. Further work along these lines is indicated.



(a) TARGET



(b) RESPONSE 1



(c) RESPONSE 2

FIGURE 20 TARGET 10 (ARROW THROUGH HEART, STORED IN COMPUTER GRAPHICS PROGRAM) AND GELLER'S RESPONSES

III PROPOSED PROGRAM

A. Objective

The objective of the proposed program is to investigate and develop techniques to enhance human perception of remote stimuli. Independent measures, such as EEG correlates, will be used wherever appropriate as an aid in performance evaluation and enhancement.

B. Technical Approach

Our past year's research has yielded considerable evidence that certain individuals have developed the ability to perceive accurately distant objects and scenes. In addition, it appears that ordinary subjects (not specially selected) can also perceive remote stimuli at a level of awareness sufficient to at least provide direct physiological output as to the nature of the stimulus.

Therefore, SRI proposes to center a research program around gifted subjects who have successfully participated in our research to date, but also including unselected subjects. With these we shall endeavor to define possible limitations with regard to remote viewing. We shall be particularly attentive to the physical, physiological, and psychological parameters governing the phenomenon. We will use a variety of physiological measurements to help both subject and experimenter to measure the accuracy and reliability of the subjects' descriptions. The overall goal of such a program is to make possible the separation of signal (veridical material corresponding to a given remote location) from noise (false internal information) so as to result in an ability that can be usefully applied.

A detailed description of the "method of approach" to be used in this research has been described in Section II of this proposal. The investigation that we propose here is an extension of the work just described, which we have been pursuing for the past year. We plan to continue to employ those methods and techniques that have yielded the greatest success in this recently completed research.

C. Statement of Work

(1) By working with gifted subjects and SRI-generated target materials, SRI will measure the accuracy of remote viewing as a function of such variables as length of viewing time, target distance, and target complexity. Based on the data accumulated, SRI will attempt to define the characteristics of the information channel in terms of bit rate, resolution, and other parameters of interest. In order to determine the limits of the remote viewing ability, both pictorial and geographic target material will be used.

(2) In order to discriminate against the possibility of an unknown experimenter/subject leakage channel, for some experiments the client will provide geographical targets unknown to the experimenters to ensure that the subject uses only a remote viewing channel in his determination of the nature of the target.

(3) Following a lead provided by work at another laboratory in which a subject could identify pictorial material even if the picture was only "mentally projected" onto a card in a sealed envelope, SRI will study the use of pictorial target material with a decreasing density scale from clearly visible to invisible in order to measure the accuracy of perception as a function of target density.

(4) The EEG portion of the program will be directed toward the determination of physiological correlates of accurate remote viewing. Based on previous work, SRI will investigate in detail the possibility that the frequency shift in the alpha peak can be used as a measure to gauge the reliability of perception of a remote stimulus. This and other measures that may become available during the course of study will be made available as feedback to the subject to determine whether such information can be used to enhance discrimination between correct viewing of a remote scene and false information.

(5) SRI will continue and expand our study with subjects whose EEG patterns show direct frequency correlations with the flicker frequency of a remote stimulus. We will determine whether such a (generally unconscious) perception channel has sufficient reliability to serve as a possible communication channel. If continuing positive results accrue, we will determine the effects of shielding and distance on the efficiency of this channel.

(6) The effects of the introduction of persons at the remotely viewed target locations will be investigated to determine possible enhancement or degradation of signal-to-noise ratio.

(7) In view of the exploratory nature of the program, 15 percent of the effort will be set aside to explore, with the client's cognizance, avenues of research other than those listed and that may surface during the course of the program.

SRI proposes to provide approximately 28 man-months of professional effort with appropriate support toward accomplishment of the foregoing.

D. Reporting Schedule

Brief monthly progress letters will be delivered the tenth day of each contract month, following the previous month's activity.

A final technical report will be delivered 13 months after the commencement date of the contract.

Throughout this program the investigators plan to remain in close telephonic communication with the client.

IV QUALIFICATIONS OF STANFORD RESEARCH INSTITUTE

Stanford Research Institute is an independent, nonprofit organization performing a broad spectrum of research under contract to business, industry, and government. The Institute, which was formerly affiliated with Stanford University, was founded in 1946. Its operations include the physical and life sciences, industrial and development economics, management systems, engineering systems, electronics and radio sciences, information science, urban and social systems, and various combinations of disciplines within these fields.

Stanford Research Institute has no endowment; payments by clients under research contracts and grants amount to approximately $70 million annually and are used to cover all operating costs. Such revenue also helps the Institute maintain the excellence of its research capabilities.

SRI's facilities include more than one million square feet of office and laboratory space and incorporate the most advanced scientific equipment, including unique instrumentation developed by the staff. The bulk of these facilities and most of the research staff are located at the Institute's headquarters in Menlo Park, California. Regional office locations include Washington, D.C.; New York City; Chicago; Houston; and Los Angeles.

Of SRI's total staff of 2600, approximately one-half are in professional and technical categories. Some 400 members of the professional staff have Ph.D. or equivalent degrees; 600 others have their Master's degree.

The project leader and other research personnel who would be active in the proposed work are members of the Electronics and Bioengineering Laboratory. This group currently occupies 40,000 square feet of laboratory space, divided into many separate laboratory rooms, technicians' work areas, a machine shop, and a computer room housing a LINC-8 and related terminals and equipment. In addition, a well-equipped computation center is available.

The Electronics and Bioengineering Laboratory employs a number of technicians and engineering assistants and has available electronics material and test equipment useful in the development and testing of

the teaching machines. Especially suited to the work described in the proposal are a number of shielded rooms with various instrumentation available.

Finally, a backup team of psychologists and statisticians can be brought into the project on an internal counsulting basis.

The proposed research will be conducted by SRI staff members within the Electronics and Bioengineering Laboratory under the management of its director, Mr. Earle Jones. The principal investigator will be Dr. Harold Puthoff. Mr. Russell Targ, of the Electronics and Bioengineering Laboratory and Dr. Charles Rebert, a neuro-physiologist in SRI's Life Sciences Division will be co-investigators. Professor Gerold Feinberg of Columbia University and Professor Charles Tart of the University of California may be called upon to act as consultants throughout this program.

In addition to the scientific personnel directly engaged in the research aspects of this investigation, Stanford Research Institute has established an internal technical advisory board. This board consists of several directors of SRI's operating divisions, together with our legal counsel, all under the chairmanship of the senior vice president for research. It is the function of this advisory board not only to make recommendations and approve or disapprove every new direction taken by the Institute in this research area but to monitor related ongoing projects as well.

EARLE D. JONES, DIRECTOR
ELECTRONICS AND BIOENGINEERING LABORATORY
INFORMATION SCIENCE AND ENGINEERING DIVISION

Specialized professional competence

- Analysis and design of electronic-optical systems; design of television systems; facsimile systems, including bandwidth compression; electrostatic printing

Representative research assignments at SRI (since 1956)

- Character generator for high-speed electrostatic printer
- Delay line scanning techniques
- High-density photographic recording of television information
- Bandwidth reduction study for satellite cloud photographs
- Design of bandwidth reduction system for facsimile
- Development of communication line equalization system using automatic transversal filters
- Color facsimile systems with electrostatic printing
- Design of a new frequency synthesizer

Other professional experience

- Student engineer, Boeing Company; microwave airborne radar
- Designer, Square D. Company; electrical equipment design

Academic background

- B.S. in electrical engineering (1956), Georgia Institute of Technology; M.S. in electrical engineering (1958), Stanford University

Publications and patents

- "A Versatile Character Generator with Digital Input," 1959 IRE WESCON Conv. Rec.
- "Character Generator for Digital Computers," *Electronics* (February 1960)
- Six patents in electronic circuitry, character generators, frequency synthesizers, and electrostatic printing systems

Professional associations and honors

- Institute of Electrical and Electronics Engineers
- Optical Society of America
- Society for Motion Picture and Television Engineers
- Eta Kappa Nu
- Phi Kappa Phi
- Tau Beta Pi
- Phi Eta Sigma

HAROLD E. PUTHOFF, SENIOR RESEARCH ENGINEER
ELECTRONICS AND BIOENGINEERING LABORATORY
INFORMATION SCIENCE AND ENGINEERING DIVISION

Specialized professional competence

- Tunable laser research and development; quantum electronics; electron beam devices; biofeedback and biomeasurement research

Representative research assignments

- Development of tunable ultraviolet laser source for pollution studies and medical research
- Development of high-power tunable infrared laser source (50-250 microns) for materials research
- Assessment of potential of fiber optics and lasers for use in optical computers
- Development of biofeedback monitors (GSR) for use in educational computers and other man-machine links
- Research and development in biofield measurements

Other professional experience

- Research associate, Hansen Laboratories of Physics and lecturer, Department of Electrical Engineering, Stanford University (1967-71); teaching, textbook author, and research supervisor of Ph.D. candidates in the area of lasers and nonlinear optics
- Consultant on application of lasers to industrial and medical problems and research assistant, Stanford University (1963-67)
- Lt., USNR (1960-63); in-house research and contract monitoring on DoD (NSA) contracts concerned with the development of ultra high-speed (GHz) computers
- Research engineer, Sperry Electronic Tube Division and Sperry Fellow, University of Florida (1958-60); design and testing of electron beam focusing systems for use in microwave tubes

Academic background

- B.E.E. (1958) and M.S.E. (1960), University of Florida; Ph.D. in electrical engineering (1967), Stanford University

Publications and patents

- Coauthor of textbook, *Fundamentals of Quantum Electronics*, Wiley; 2 reference book contributions; 23 papers in professional journals; 14 national symposium papers; numerous technical reports
- 2 patents

Professional associations and honors

- Institute of Electrical and Electronics Engineers; Sigma Tau; Phi Kappa Phi; Phi Eta Sigma; Sigma Xi

PUBLICATIONS OF HAROLD E. PUTHOFF

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PHYLLIS M. COLE, RESEARCH ANALYST
INFORMATION SCIENCE LABORATORY
INFORMATION SCIENCE AND ENGINEERING DIVISION

Specialized professional competence

- Author of mathematics textbooks; curricula developer and author of computer-assisted instruction courses

Representative research assignments at SRI

- Survey and analysis of instructional technology for ARPA
- Development of curricula for Educational Laboratory at SRI
- Organized a continuing regional seminar on computer-assisted instruction

Other professional experience

- Mathematics teacher for secondary school students, elementary school students, and teachers
- Participated in development of elementary school mathematics textbook series *Sets and Numbers*
- Writer-in-chief for computer-assisted instruction project to teach mathematics at Brentwood (elementary) School
- Project leader, curriculum author of project to teach computer programming to ghetto high school students via computer-assisted instruction
- Research associate, Institute for Mathematical Studies in the Social Science, Stanford University (1963-71)

Academic background

- B.A. in mathematics (1962), Middlebury College; M.A.T. in secondary mathematics education (1963), Harvard University

Publications

- Coauthor, junior-high school textbook series *Sets, Numbers, and Systems*; "CAI for Elementary Computer Programming: SIMPER, LOGO, and BASIC," Technical Report, Stanford University; coauthor of several SRI reports

CHARLES S. REBERT, PROJECT SUPERVISOR
NEUROPHYSIOLOGY PROGRAM
LIFE SCIENCES DIVISION

Specialized professional competence

- Physiological psychology, especially the relationships between electrophysiology and behavior; DC potentials; single and multiple units; animal behavior; electrical and chemical brain stimulation; experimental design and statistics

Representative research assignments at SRI (since 1968)

- Development of human EEG laboratory
- Development of mosquito olfaction laboratory
- Studies on DC potentials in humans, monkeys, and cats
- Spreading depression in the brain
- Olfactory-trigeminal interactions
- DC and multiple unit responses
- Electrophysiology of paranormal perception

Other professional experience

- Research assistant, Division of EEG and Neurophysiology, Department of Psychiatry, The University of Iowa
- Instructor, University of California Extension; courses included Introductory Psychology; The Electrical Activity of the Brain; Man and His Brain: A Survey

Academic background

- A.B. (1961) and M.A. (1964) in psychology, San Diego State College; Ph.D. in physiological psychology (1968), the University of Iowa

Publications

- Author of 22 scientific publications

Professional associations

- American EEG Society
- Neuroscience Society

PUBLICATIONS OF CHARLES REBERT

D. A. Irwin, J. R. Knott, D. W. McAdam, and C. S. Rebert, "Motivational Determinants of the 'Contingent Negative Variation," Electroenceph. Clin. Neurophysiol., Vol. 21, pp.538-543 (1966).

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RUSSELL TARG, SENIOR RESEARCH PHYSICIST
ELECTRONICS AND BIOENGINEERING LABORATORY
INFORMATION SCIENCE AND ENGINEERING DIVISION

Specialized professional competence

- Development of new gas lasers; FM laser and supermode laser techniques; laser noise reduction; optical modulation and demodulation; experiments in new gaseous laser media; microwave diagnostic techniques; microwave generation from plasmas

Professional experience

- Sylvania Corporation (1962-72); investigation of techniques for development of new gas lasers, making use of his research with compact, self-contained multi-kilowatt CO_2 lasers
- Technical Research Group (1959-62); experiments in new gaseous laser media
- Polytechnic Institute of Brooklyn; assisted in the establishment of the Electron Beam Laboratory
- Sperry Gyroscope Company, Electron Tube Division (1956-59); experimental work in microwave generation from plasmas; early work in the technology of ultrahigh-vacuum and ion-pump design

Academic background

- B.S. in physics (1954), Queens College, New York; graduate work in physics (1954-56), Columbia University, New York

Publications and inventions

- Author of "Optical Heterodyne Detection of Microwave-Modulated Light," *Proc. IEEE* (1964); coauthor of numerous articles on lasers and plasma oscillations
- Invention of the tunable plasma oscillator at microwave frequencies

Professional associations and honors

- IEEE; American Physical Society; The Optical Society of America
- Awarded the position of research associate with the Polytechnic Institute of Brooklyn

PUBLICATIONS OF RUSSELL TARG

R. Targ and L. P. Levine, "Backward-Wave Oscillations in a System Composed of an Electron Beam and a Hydrogen Gas Plasma," J. of Appl. Phys., Vol. 32, No. 4, pp. 731-737 (April 1961).

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R. Targ and J. M. Yarborough, "Mode-Locked Quieting of the He-Ne and Argon Lasers," Appl. Phys. Letters, Vol. 12, No. 1, pp. 3-4 (1 January 1968).

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R. Targ, J. M. Yarborough, and J. M. French, "Frequency Stabilization and Noise Suppression in the Argon FM Laser," IEEE J. of Quant. Elect., Vol. QE-4, pp. 644-648 (October 1968).

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