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PERCEPTUAL AUGMENTATION TECHNIQUES

by

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Client Private

I OBJECTIVE

The purpose of the program is to determine the characteristics of those perceptual modalities through which individuals obtain information about their environment, wherein such information is not presented to any known sense.

The program is divided into two categories of investigation of approximately equal effort, applied research and basic research. The purpose of the applied research effort is to explore experimentally the potential for applications of perceptual abilities of interest, with special attention given to accuracy and reliability. The purpose of the basic research effort is to identify the characteristics of individuals possessing such abilities, and to identify neurophysiological correlates and basic mechanisms involved in such functioning.

A. Applied Research

1. Remote Viewing

(a) Project Atlas Remote Viewing

A remote-viewing experiment has been carried out on a client-designated target of interest, a European R&D test facility. The experiment, carried out in three phases, had as its goal the determination of the utility of remote-viewing under operational conditions.

In phase I, map coordinates were furnished to the experimenters, the only additional information provided being the designation of the target as an R&D test facility. The experimenters then carried out a remote viewing experiment with Subject 1* [redacted]) on a double-blind basis. The results of the experiment were turned over to client representatives for data evaluation.

Figure 1 shows the level of detail for a sample early effort at building layout, and Figure 2 shows the subject's first effort at drawing a gantry crane he observed, both results being obtained on a double-blind basis before exposure to client-held information. An artist's conception of the site as known to the client (but not to contract personnel) prior to the experiment is shown in Figure 3.

Were the results not promising, the experiment would have stopped at this point. The results were judged to be of sufficiently good quality, however, that Phase II was entered in which the subject was made witting by client representatives.

A second round of experimentation ensued with participation

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* Numerical designations for subjects are discussed in Section B.

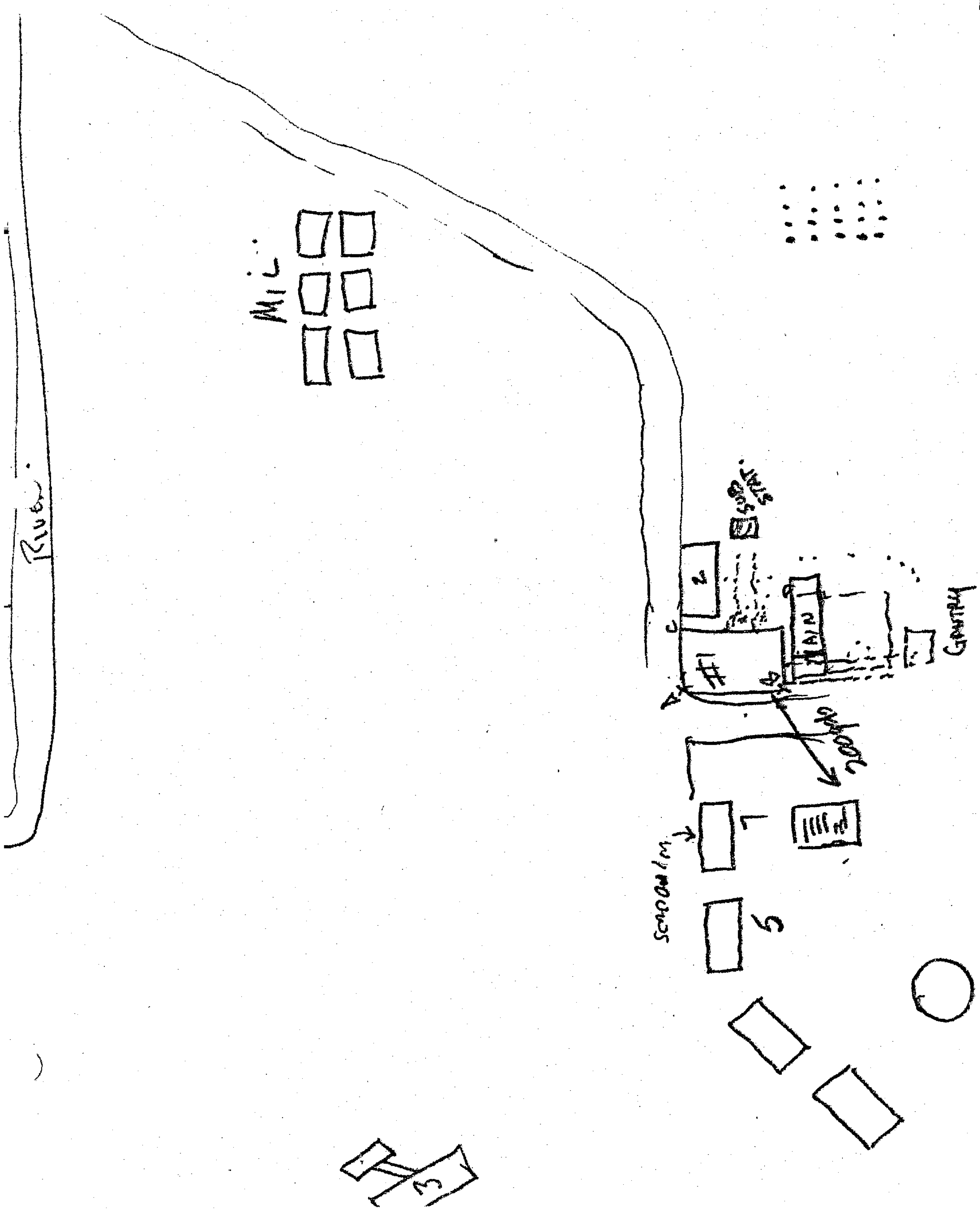

FIGURE 1 SUBJECT EFFORT AT BUILDING LAYOUT

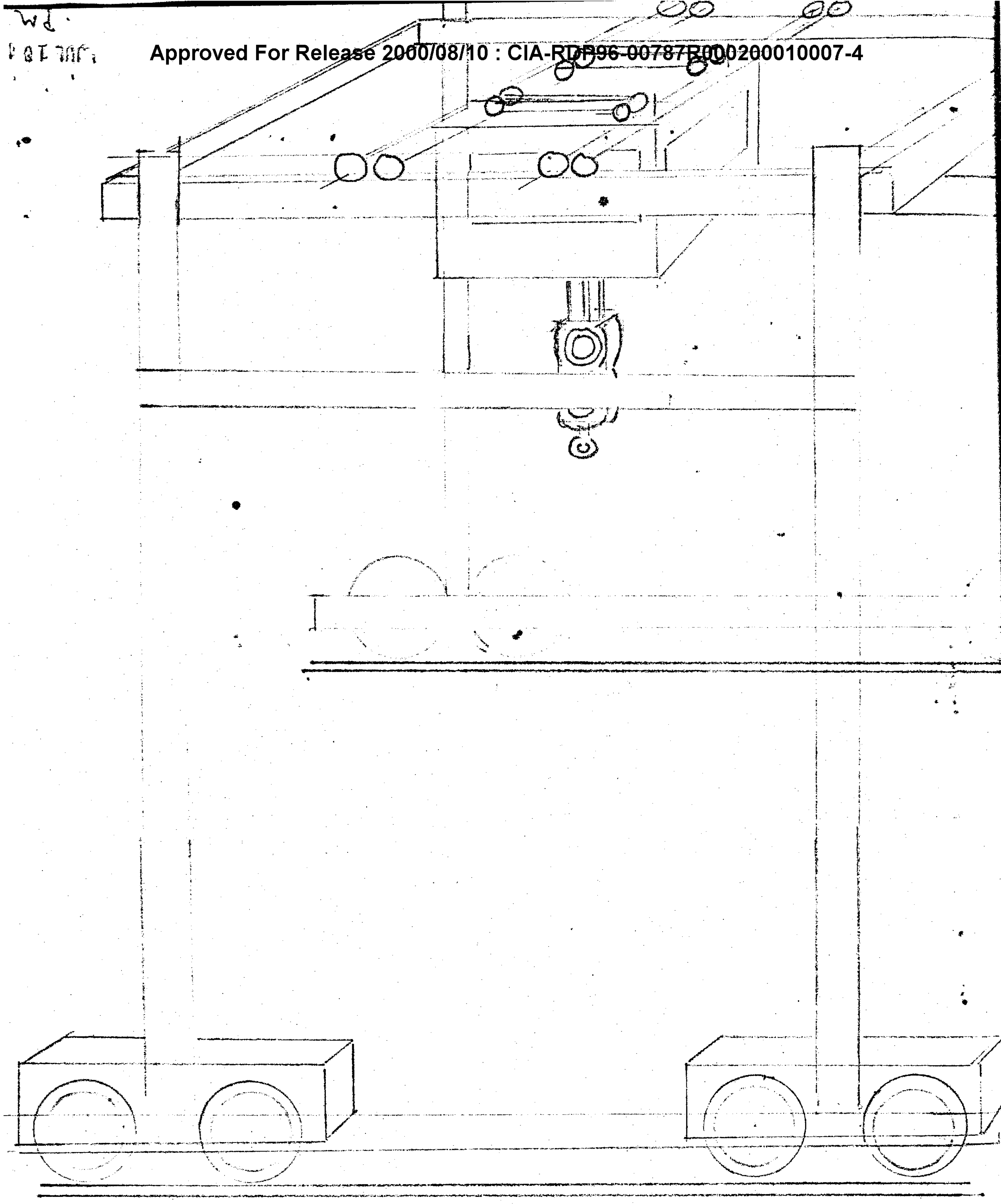

FIGURE 2 SUBJECT EFFORT AT CRANE CONSTRUCTION

of client representatives. The Phase II effort was focussed on the generation of physical data which could be client-verified, providing a calibration in the process. The end of Phase II gradually evolved into the first part of Phase III, the generation of unverifiable data not available to the client, but of interest nonetheless. Evaluation of the data by the client is underway.

(b) Costa Rica Remote Viewing Experiment

Subjects 1 and 4 participated in a long-distance experiment involving a Central American target series. In this experiment, one of the experimenters (Dr. Puthoff) spent a week traveling through Costa Rica on a combination business/pleasure trip. That is all that was known to the subjects about the traveler's itinerary. The experiment called for Dr. Puthoff to keep a detailed record of his location and activities, including photographs, each day at 1330 PDT. Six daily responses were obtained from Subject 1, five from Subject 4.

The results were of high quality and are presently being evaluated in detail, containing as they did a large amount of material. Samples of that data are as follows.

Of the five daily responses obtained from Subject 4, two were in excellent agreement, two had elements in common but were not clear correspondences, and one was clearly a miss. In the first of the two matches, Dr. Puthoff was driving in rugged terrain at the base of a volcano (Figure 4) and the subject's response was "large bare table mountain, jungle below, dark cool moist atmosphere," a match both with regard to topography and ambience. In the second match the subject submitted that all she got was a "picture of Dr. Puthoff sitting in a beach chair by a pool," which was entirely correct.

During the course of the Central America experiment, on one occasion when the test subject was unavailable, an experimenter volunteered a drawing of an image he obtained at the beginning of one of the daily experiments. (The target for that day was an airport, an unexpected target associated with a side excursion at midpoint of the week's activity.) The match was good, as shown in Figures 5 and 6. The transcript data will be examined further to determine fine structure, resolution, etc.

(c) Local Targets with Feedback

In this series of experiments, designed to give immediate data to experimenters, a subject is asked to take part in a remote viewing experiment under the following conditions.

The subject and two experimenters (one of whom was R.T.) are in a first floor laboratory in building 30 at SRI. A second experimenter (H.P.) leaves the area and proceeds to a remote location of his choosing. None of the experimenters with the subject knew of the remote target location. H.P. and R.T. are in two-way radio communication via walkie-talkie, (a) to provide the experimenter at the target location real-time data and (b) to give the subject immediate feedback after he has made his assessment of the target.

FIGURE 4 TERRAIN AT BASE OF VOLCANO USED AS REMOTE VIEWING TARGET

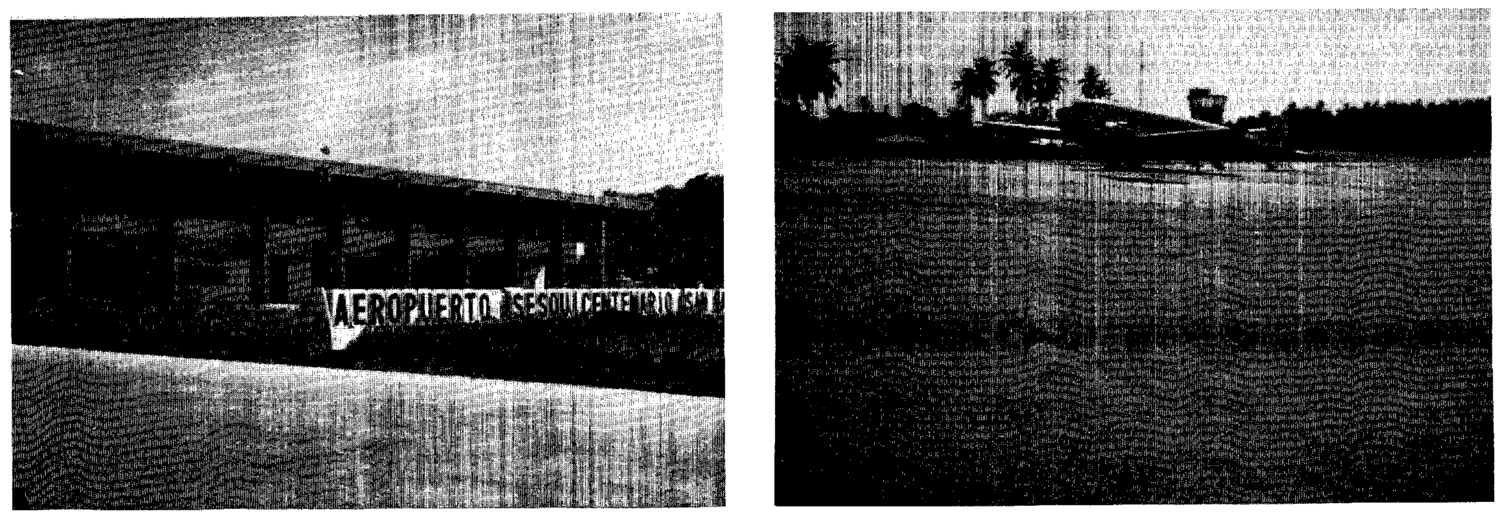

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FIGURE 5 AIRPORT IN SAN ANDRES, COLOMBIA, USED AS REMOTE VIEWING TARGET

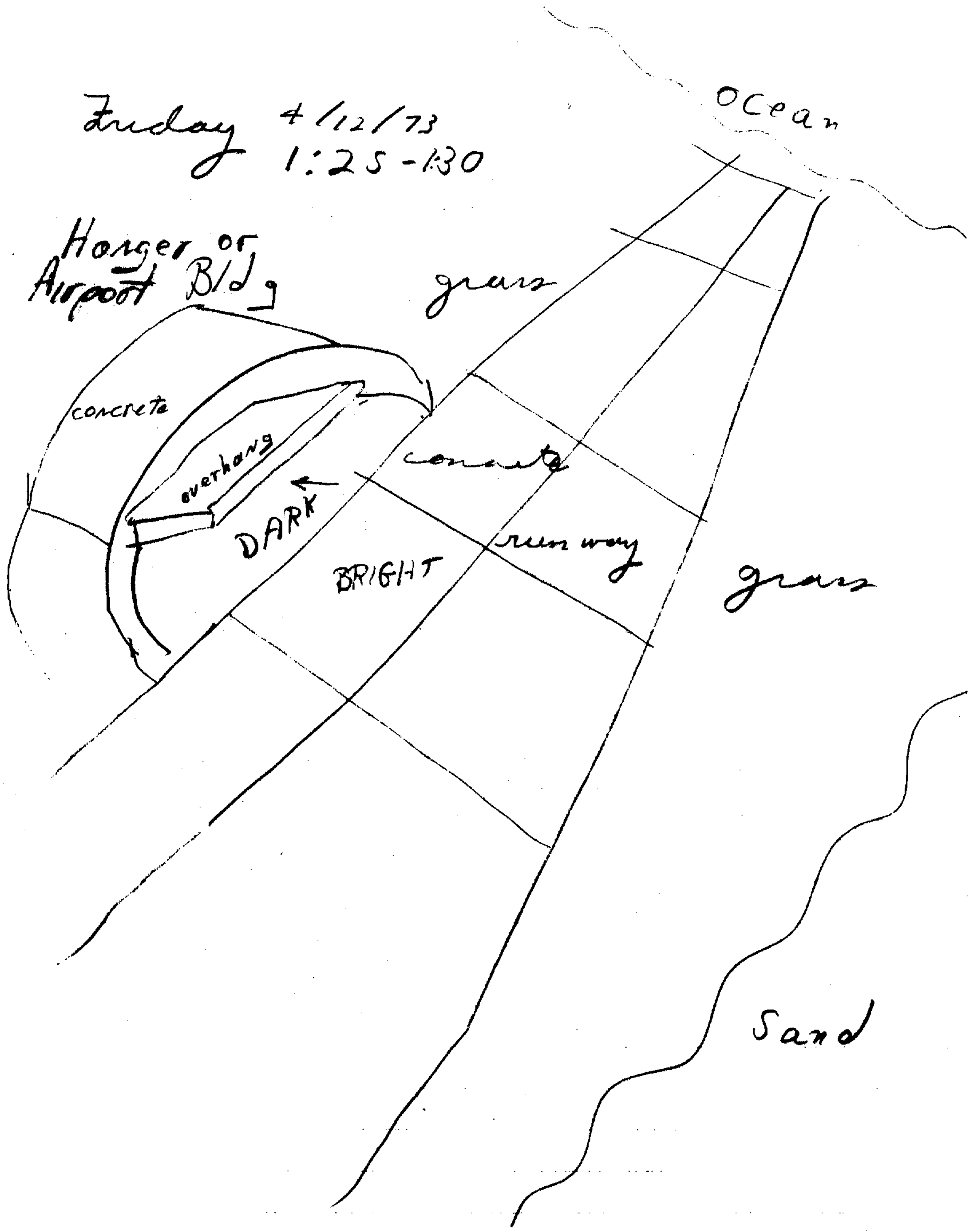

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FIGURE 6 SKETCH PRODUCED BY SUBJECT FROM SAN ANDRES, COLOMBIA, AIRPORT USED AS REMOTE VIEWING TARGET

By this means the subject has an opportunity to learn to separate real from imagined images. This is not considered to be a demonstration-of-ability test, but rather a training step on a gradient scale of ability. In many of these experiments we monitor physiological correlates as discussed in Section B.3 (b). (Nine of these experiments have been completed to date, seven with the measurements of physiological correlates.)

The following is a sample of an experiment with Subject 4. In this experiment we monitored physiolocial correlates of the remote viewing activity.

As is apparent in the following text, the subject initially had only a fragmentary picture of the remote site, but with what we judge to be a small amount of feedback, the subject was able to put images together into a correct description. Accompanying the verbal description presented below is a photograph of the actual scene at the remote location (Fig. 7). The experimenter with the subject (R.T.) was, as always, kept ignorant of the target location to prevent guidance in the questioning. The capital letters signify walkie-talkie communication.

R.T.: It is now 12:35.

S-4: ....very strong diagonal....like a zigzag that goes this way, vertically.

R.T.: S-4's FIRST IMPRESSION IS OF A VERY STRONG DIAGONAL ZIGZAG THAT'S GOING VERTICALLY. OVER. (Talking on walkie talkie to H.P.)

H.P.: THERE IS A STRONG ZIGZAG AT MY PLACE, BUT IT IS NOT VERTICAL BUT RATHER HORIZONTAL; BUT IF SHE IS LOOKING FROM THE AIR, THAT'S EXACTLY WHAT IT WOULD LOOK LIKE. OVER.

R.T.: Can you tell what the zigzag is attached to? Whether it's part of a building or a fence on the ground?

FIGURE 7

R.T.: It's 12:41.

S-4: My head gets in the way now that he's said that it's horizontal. I usually think of a fence.

R.T.: Why don't you go up and look down and view the whole thing from above and see if you can get the whole gestalt of where he is.

S-4: .....definitely a non-vegetation...almost no vegetation around. It's mostly concrete and whatever that zigzag is--either water or steel--shiny, zigzag,..definitely shiny.

R.T.: 7267, THE ZIGZAG IS A SHINY THING WHETHER IT'S STEEL OR

S-4: Water..

R.T.: WATER, WE CAN'T TELL. IT'S SHINY AND THERE'S VERY LITTLE VEGETATION--NO VEGETATION AROUND:...

S-4: Mostly concrete. . .

R.T.: IT'S MOSTLY CONCRETE...

S-4: He's standing on concrete....

R.T.: YOU'RE STANDING ON CONCRETE. OVER.

H.P.: IT CERTAINLY IS TRUE THAT THIS IS SHINY AND IN MY NEAR VICINITY IT IS BARREN AND CONCRETE OR CONCRETE-COLORED EARTH. SHE SAID THAT IT LOOKED LIKE STEEL OR WATER. CAN SHE MAKE THE DIFFERENTIATION BETWEEN THE TWO?

R.T.: He wants to know whether it looks more like steel or water.

S-4: It seems to have movement--that's why I would deduce that it's water.

R.T.: What if you try to look at the whole thing.

S-4: I'm trying to get an eagle's eye view. That's a waterworks.

R.T.: Why does it look like a waterworks? In what way?

S-4: There seems to be a man-made layout of channels and connections to conduct it.

R.T.: S-4 SEES MOVEMENT IN THE ZIGZAG THING, SO SHE THINKS THAT IT'S WATER, AND A KIND OF LAYOUT OF CHANNELS AS THOUGH IT WAS A MAN-MADE WATERWORKS WITH WATER RUNNING IN ZIGZAG CHANNELS. OVER.

H.P. THAT IS PRECISELY CORRECT. IT IS A ZIGZAG MAN-MADE WATER CHANNEL WITH CONCRETE SIDES. OVER.

S-4: I can't believe it.

The above is an excerpt from an early experiment, and is typical, rather than a sample of exceptionally good quality. That experiment continued with four more site descriptions, three of which were of equal quality.

One experiment of this nature has been carried out with Subject 1, one with Subject 2, two with Subject 3, and five with Subject 4. A number of descriptions were essentially free of error and with no feedback other than verification following the remote viewer's description.

A complete analysis is to be carried out on these transcripts following more experimentation. To date it appears that the viewing is weak in the following areas: (a) perspective and dimension are often distorted (an eight foot tower is taken to be 50 feet tall, a 20 foot separation between buildings may appear to be 100 feet, etc.) and, (b) written material generally cannot be read.

(d) Local Targets with Azimuth Bearing

In two remote viewing experiments, the second of which was clearly correct from a descriptive standpoint, an effort was made to determine whether in driving the subject around the area it would be possible to determine the location of the target team by triangulation with a bearing compass. The triangulation lines were essentially uncorrelated with each other and with the target location, and therefore provided a null result.

B. Basic Research

In addition to the testing of individuals under conditions which yield data indicating the feasibility of the application of paranormal abilities to operational needs, fifty percent of the effort is devoted to:

1. Identification of measurable characteristics possessed by gifted individuals (20%);
2. Identification of neurophysiological correlates which relate to paranormal activities (20%);
3. Identification of the nature of paranormal phenomena and energy (10%).

To meet these objectives four specific requirements must be fulfilled during the course of experimentation: 1) establish and apply criteria to differentiate between those for whom paranormal ability is considered to be functional and those for whom it is not; 2) obtain sufficient medical and psychological data to establish baseline profiles against which (a) one individual may be compared with another, and (b) an individual may be compared to himself at different times to determine whether paranormal functioning occurs in an altered neurophysiological state, 3) specific validation experiments must be conducted with sufficient control to ensure that all conventional communication paths are blocked, and with outcomes sufficiently unambiguous to determine whether paranormal functioning occurred; 4) obtain neurophysicological data during experimentation to determine those correlates, if any, which relate to paranormal activity.

In the following paragraphs, each of these items is considered in turn and the progress to date reported. The milestone chart for the basic research program is shown in Table 1. The work is progressing in accordance with the schedule prepared for this program, and the remaining time and funds are sufficient to meet all program objectives.

1. Criteria for the Determination of Gifted Individuals

One of the key issues in the program is the establishment of criteria capable of differentiating individuals apparently gifted in paranormal functioning from those who are not.

Three experimental paradigms were chosen to act as screening tests on the basis that these tests had been useful for such purposes prior to this program (in the sense that certain apparently gifted individuals did exceedingly well on at least one of the tests, whereas the results of unselected volunteers did not differ significantly from chance expectation). The tests are (a) remote viewing of natural targets, (b) reproduction of simple line drawings hidden from the subject but viewed by an experimenter, and (c) determination of the state of a four-state electronic random stimulus generator.

The first test constitutes a so-called "free-response" paradigm in which the subject originates freely about contents of his awareness; furthermore, the channel in general may involve both direct perception of the remote site and perception of the mental contents of an observer

TABLE 1

PROGRAM SCHEDULE - II

MONTHS

	F 1	M 2	A 3	M 4	J 5	J 6	A 7	S 8	O 9	N 10	D 11	J 12	F 13
1. Set up neurophysiological lab with computer processing debugged.	▽	▽											
2. W.A.I.S. testing of subjects by client	▽	—	▽										
3. Measure neurophysiological correlates during paranormal experimentation													
a) paranormal EEG experiments		▽	▽										
b) other paranormal experimentation						▽	—	—	—	—	▽		
4. Work to determine nature of energies involved (gradiometer, etc.)				▽	—	—	—	—	—	—	▽		
5. Medical testing, including special testing					▽	—	—	▽					
6. Neuropsychological testing						▽	—	▽					
7. Psychological testing, including in-depth interview							▽	—	—	▽			
8. Correlate data and consider theoretical models												▽	▽
9. Prepare final report													▽ ▽

at the site. The second test is more constrained than the first in that the target information is more analytical or abstract, being associated with a graphical representation of an item of interest rather than the item itself. The third test is the most constrained in that the target is blind to all participants in the experiment and the subject's choice is precisely constrained. The details of these tests are given below.

For the purpose of screening the criteria as to what constitutes a paranormal result was chosen arbitrarily, viz:

> For the purpose of screening a result is to be considered paranormal if the a priori probability for the occurrence of the result by chance, under the null hypothesis, is $p < 10^{-6}$.

Although the above requirement is exceedingly strict by usual psychophysiological standards, it is chosen here (a) because the controversial nature of the subject requires strict handling, and (b) in our work and elsewhere, a bimodal distribution has been observed empirically in which a subset of individuals participating in paranormal research produce results at a level of statistical significance $p \leq 10^{-6}$ in comparison with the bulk of individuals who cluster about the mean as expected. Therefore, we base our criteria on an observable natural division into clearly functional and non-functional categories.

Six subjects have been chosen for the study to date, subjects 1 -3 considered gifted, subjects 4 - 6 acting as learners or controls.*

Subject 1 qualifies as a gifted subject on the basis of remote viewing; subject 2 qualifies as gifted on the basis of the random generator test; subject 3 is tentatively classed as gifted in remote viewing, although not yet completing the screening series, based on client evaluation of highly successful remote-viewing experiments carried out for the client in the previous program, and also on the basis of meeting the $p < 10^{-6}$ criterion in experimentation at another laboratory.

Subject 5 (learner/control), a male, age 54, is paired with gifted subject 1, a male, age 55. Learner/control subject 6, a female, age 34, is by age, background, and temperament paired with gifted subject 2, a male, age 31. Learner subject 4 (female, age 53) and gifted subject 3 (male, age 41) are paired on the basis of artistic occupations (professional photographer and painter, respectively) and similar emotional and psychological makeup.

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* Earlier in the program nine subjects were to be placed in three categories, three subjects each; gifted subjects, learners, and controls. However, experience in the early part of the program indicated that (a) a best effort would require spending more time with fewer people, and (b) the distinction between learners and controls was arbitrary in comparison with the distinction between these categories and that of gifted subjects as defined above.

(a) Remote Viewing of Natural Targets

The first screening test is based on previous SRI research results which indicate that it is possible for a subject to describe randomly-chosen geographical sites located several miles from the subject's position and demarcated by some appropriate means.

This experiment consists of a series of double-blind tests involving local targets in the San Francisco Bay area which can be documented by independent judging. Target locations within thirty minutes driving time from SRI are randomly chosen from a list of targets kept blind to subject and experimenters and used without replacement.

To begin an experiment, an experimenter is closeted with a subject at SRI to wait 30 minutes to begin a narrative description of the remote location. A second experimenter obtains a target location from the target pool and proceeds directly to the target without communicating with the subject or experimenter remaining behind. The second experimenter remains at the target site for an agreed-upon thirty-minute period following the thirty minutes allotted for travel. During the observation period, the remote viewing subject is asked to describe his impressions of the target site into a tape recorder. A comparison is made when the experimenter returns.

Following a series of nine experiments, the results are subjected to independent judging on a blind basis by five SRI scientists not otherwise associated with the research. The judges are asked to blind

RS 18

match locations, independently visited, against typed manuscripts of tape-recorded narratives of the remote viewer. A given narrative can be assigned to more than one target location. A correct match requires that a transcript of a given date be associated with the target of that date. Probability calculations are on the basis of the _a priori_ probability of the obtained series of matches by chance, conservatively assuming assignment without replacement on the part of the judges.

As indicated in Report # 1 , Subject 1 has completed this series, obtaining a result significant at the $p = 8 \times 10^{-10}$ level. Experimentation is in progress with Subjects 2 and 4, two transcripts having been obtained from each to date.

(b) Line Drawings

A pool of fifty simple line drawings of everyday objects has been drawn, randomized, and placed in a secure location.

During experimentation, experimenters and subject are separated by either an experimenter or subject entering a shielded room so that from that time forward the subject is at all times visually, acoustically, and electrically shielded from personnel and material at the target location.

Following isolation a target is chosen by means of the universal randomization protocol technique described in Section 4(a), used in this case to generate a two-digit number modulo 50. The subject's task is then to reproduce with pen on paper the line drawing now displayed at the target location.

Following a period of effort not to exceed half an hour, the subject may either pass (when he does not feel confident) or indicate he is ready to submit a drawing to the experimenters, in which case the drawing is collected by an experimenter before the subject is permitted to see the target. The experiment is then repeated with replacement until ten drawings have been obtained from the subject.

To obtain an independent evaluation of the correlation between target and response data, the experimenters submit the data for judging on a blind basis by two SRI scientists not otherwise associated with the research. The judges are asked to match the response data with the corresponding target data (without replacement).

Such experimentation is presently in progress, a number of drawings having been obtained from several of the subjects but not yet submitted for judging.

(c) Four-State Electronic Random Stimulus Generator

The determination of the state of a four-state electronic random stimulus generator comprises the third screening test. The target is in the form of one of four art slides chosen randomly ($p = \frac{1}{4}$) by an electronic random generator. The generator does not indicate its choice until the subject indicates his choice to the machine by pressing a button (See Figure 8). As soon as the subject indicates his choice, the target slide 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 remain ignorant of the machine's choice, so the experiment is of the double-blind type. Five legends at the top of the machine face are illuminated one at a time with increasing correct choices (6,8, 10, ...) to provide additional reinforcement. The machine choice, subject choice, cumulative trial number, and cumulative hit number are recorded automatically on a printer. Following 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, and neither a hit nor a trial is scored by the machine, which then goes on to make its next selection. Thus the subject does not have to guess at targets when he does not feel that he has an idea as to which to choose.

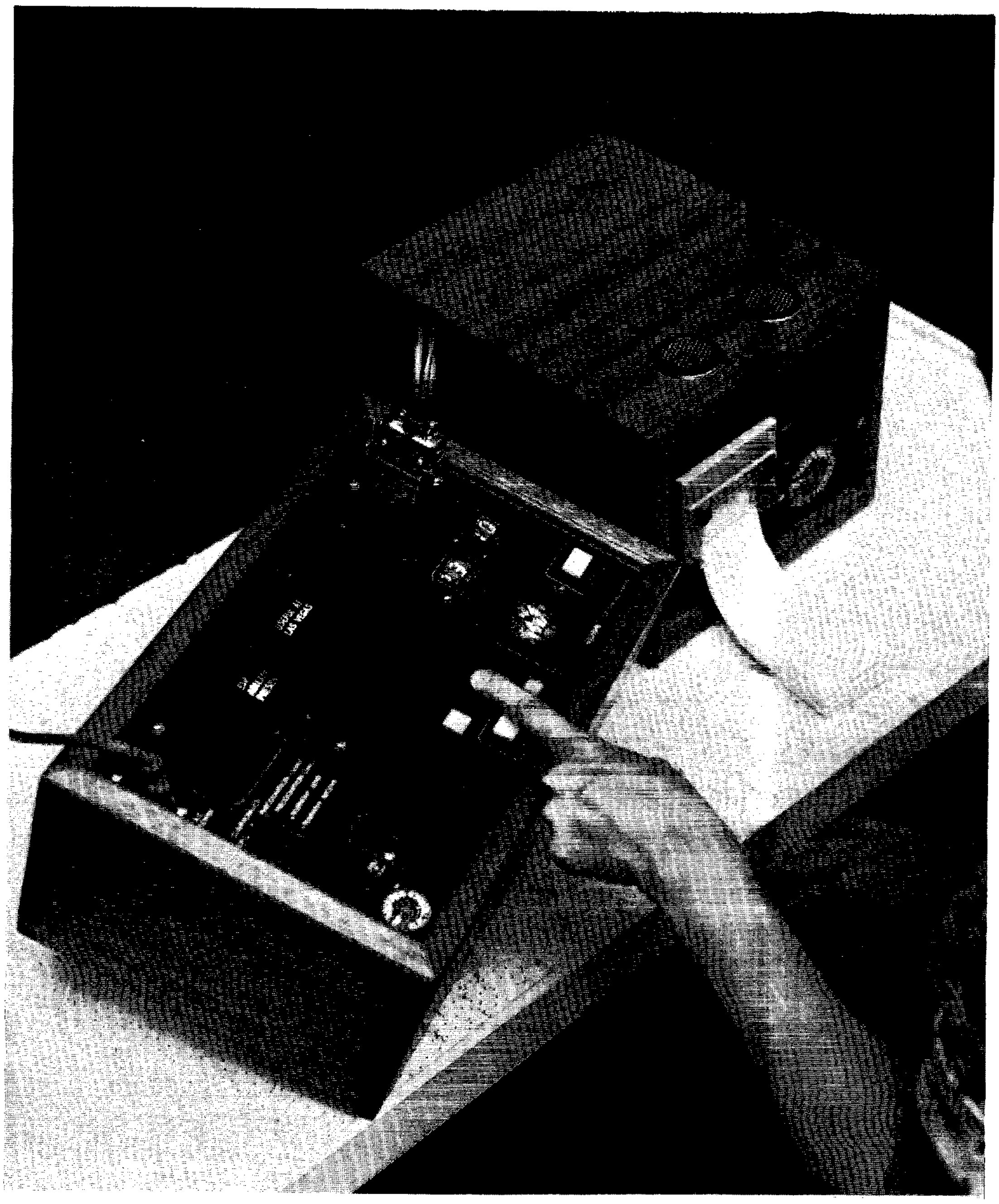


Figure 8. ESP Teaching Machine used in this experiment. An incorrect choice of target is indicated. Two of the five "encouragement lights" at the top of the machine are illuminated. The printer to the right of the machine records data on fan-fold paper tape.

Under the null hypothesis of random binomial choices with probability $\frac{1}{4}$ and no learning, the probability of observing $\geq$ k successes in n trials is approximated by the probability of a normal distribution value

$$\geq \left(k - \frac{n}{4} - \frac{1}{2}\right) \Big/ \sqrt{3n/16}$$

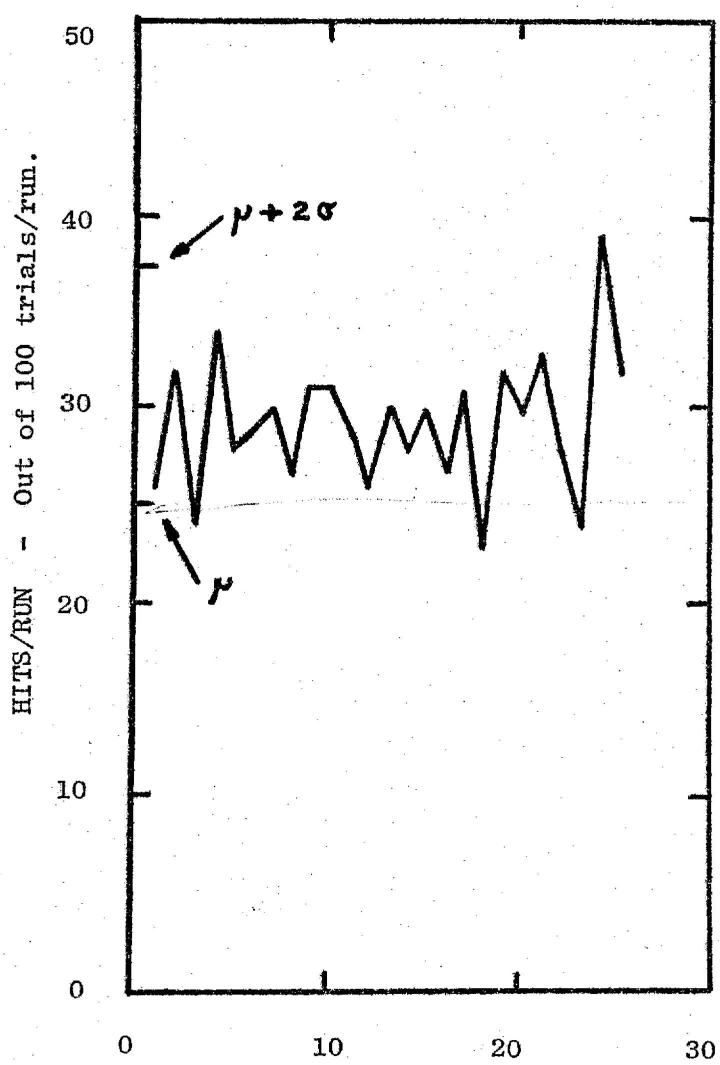
For the purpose of screening, each subject is required to complete 100 25-trial runs (i.e., a total of 2500 trials). To date, subjects 1, 2, and 6 have completed this phase of the screening program, and their results are tabulated in Table 2. Subject 4 has completed 2100 trials with mean scores of 25.71 (p = 0.20).

Table 2

Screening Data: Four-state Electronic Random Stimulus Generator

Subject	Mean Score/100 Trials Over 2500 Trials	Binomial Probability
1	25.76	0.22
2	29.36	3×10^{-7}
6	25.40	0.33

On the basis of this test Subject 2, whose scores are plotted in Fig. 9, qualifies as a gifted individual, having satisfied the criterion of producing a result whose a priori probability under the null hypothesis is $p < 10^{-6}$. Of further interest are this subject's personal observations of subjective experiences during the screening test, presented in Appendix 2.



RUN NUMBER - 100 Trials/Run

p = $\frac{1}{4}$ per trial

FIGURE 9 DATA SUMMARY FOR SUBJECT 2

2. Identification of Measurable Characteristics Possessed by Gifted Subjects (20%).

a) Medical Evaluation

The medical evaluation of program participants has been assigned to the Palo Alto Medical Clinic. Coordination of the program is being handled by Dr. Robert Armbruster, Director of the Clinic's Department of Environmental Medicine. The Clinic, in turn, has subcontracted certain special tests to the Stanford Medical Center, Stanford University. One visual sensitivity test is being administered by the Bioengineering Group of the Electronics and Bioengineering Laboratory of SRI.

The testing procedures, outlined in Table 3, fall into seven categories:

1) General physical examination, including complete medical and family history;

2) Laboratory examinations, including SMA-12 panel blood chemistries, protein electrophoresis, blood lipid profile, urinalyses, serology, blood type and factor, pulmonary function screening, and 12-lead electrocardiogram;

3) Neurological examination, including comprehensive and electroencephalogram (sleeping and routine);

4) Audiometric examination, including comprehensive, Bekesy bone conduction, speech discrimination, and impedance bridge test;

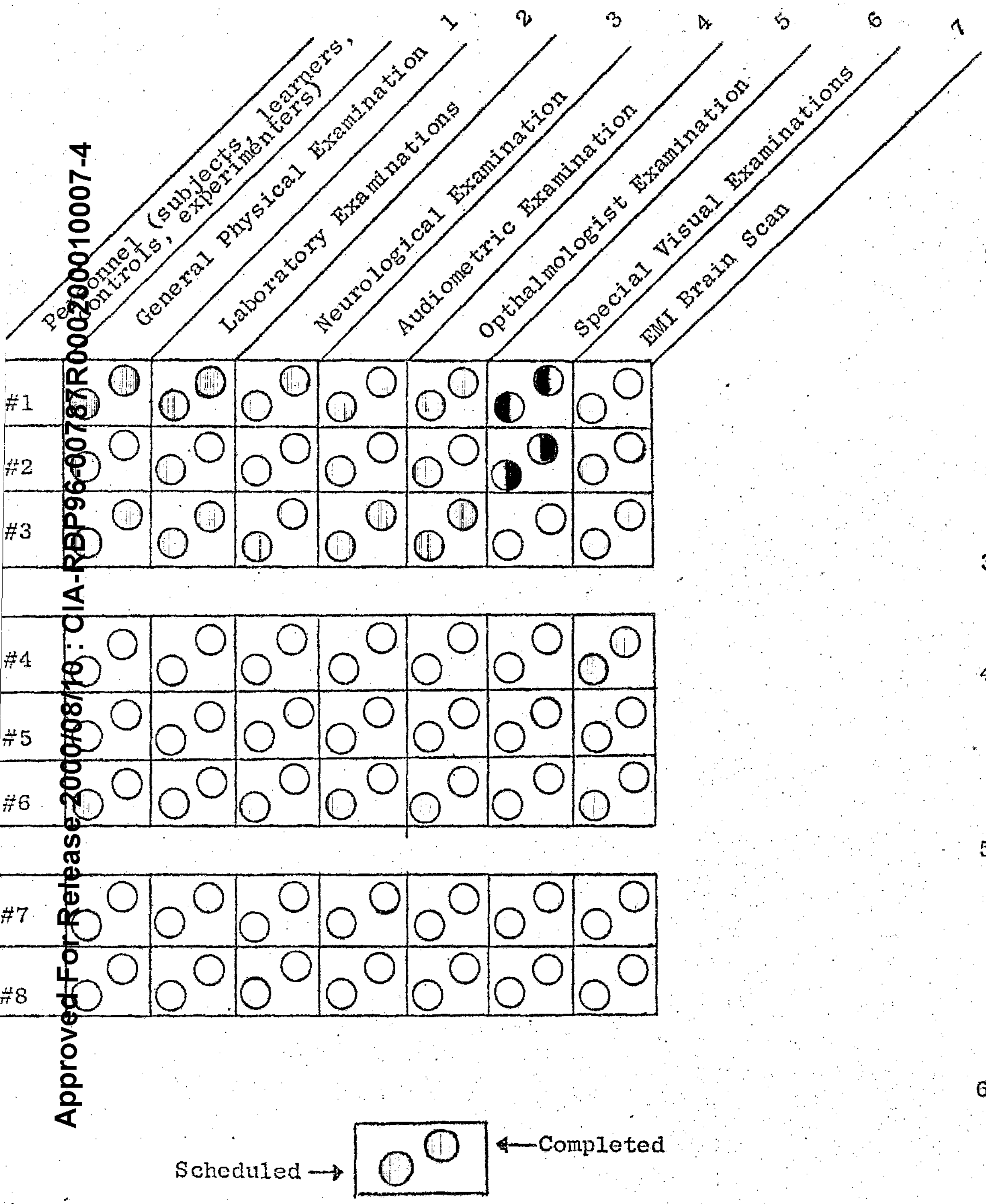


TABLE 3

MEDICAL EXAMINATION

Personnel #1 - 3, subjects; #4 - 6, learners/controls; 7, 8, experimenters.

1. General Physical Examination
   Complete medical
   Family history

2. Laboratory Examinations
   SMA-12 panel blood chemistries
   Protein electrophoresis
   Blood lipid profile
   Urinalyses
   Serology
   Blood type and factor
   Pulmonary function screening
   Electrocardiogram 12-lead

3. Neurological Examination
   Comprehensive
   Electroencephalogram, sleeping and routine

4. Audiometric Examination
   Comprehensive
   Bekesy bone conduction
   Speech discrimination
   Impedance bridge test

5. Opthalmologist Examination
   Comprehensive
   Card testing
   Peripheral field test
   Muscle test
   Dilation funduscope
   Indirect opthalmoscopic and fundus examination

6. Special Visual Examinations
   Electroretinogram (Stanford Med.)
   Dark adaptation test (Stanford Med.)
   Visual contrast sensitivity (SRI)

7. EMI Brain Scan

Palo Alto Medical Clinic   Stanford Medical Center   SRI

5) Opthalmologist examination, including comprehensive, card testing, peripheral field test, muscle test, dilation funduscope, and indirect opthalmoscopic and fundus examination;

6) Special visual examinations, including electroretinogram, dark adaptation test, and visual contrast sensitivity;

7) EMI Brain scan.

As indicated in Table 3, medical testing is currently in progress. To date the return information is sparse, having to be collated from several clinics before a complete analysis can be completed. To provide an indication of the type of raw data that is to be collated, a small sample of data obtained on Subject 1 is presented in Appendix 3. As indicated, the EMI computerized brain scan reveals a slight enlargement of the entire right lateral ventricle, while the left appears normal in size. An asymmetry in alpha development between left and right hemispheres is also indicated. Also noted is some concern about the EKG suggesting a coronary artery problem. The significance of these factors for our interest will be developed under the direction of Dr. Armbruster and made available to the client as available.

b) Psychological Evaluation

The psychological evaluation of program participants consists of both baseline personality evaluation, and of ongoing testing associated with daily experimentation. The collection of baseline data (e.g., in-depth interview, W.A.I.S., etc.) is for the purpose of identifying baseline characteristics possessed by gifted subjects. The ongoing testing associated with daily experimentation. (e.g., Mood Adjective Checklists) is for the purpose of identifying psychological correlates of successful versus unsuccessful performance tasks.

1) Baseline Data

The bulk of the baseline evaluation has been assigned to the Palo Alto Medical Clinic. Coordination of the program is being handled by Dr. J.E. Heenan, Chief Clinical Psychologist of the Department of Psychiatry.

The baseline evaluation, outlined in Table 4, consists of

(1) In depth interviews, including objective events and subjective views relating to the discovery and enhancement of paranormal capacities; socio-economic, cultural, familial, religious environment; outstanding peaks, traumas; values, motivation, interpersonal style;

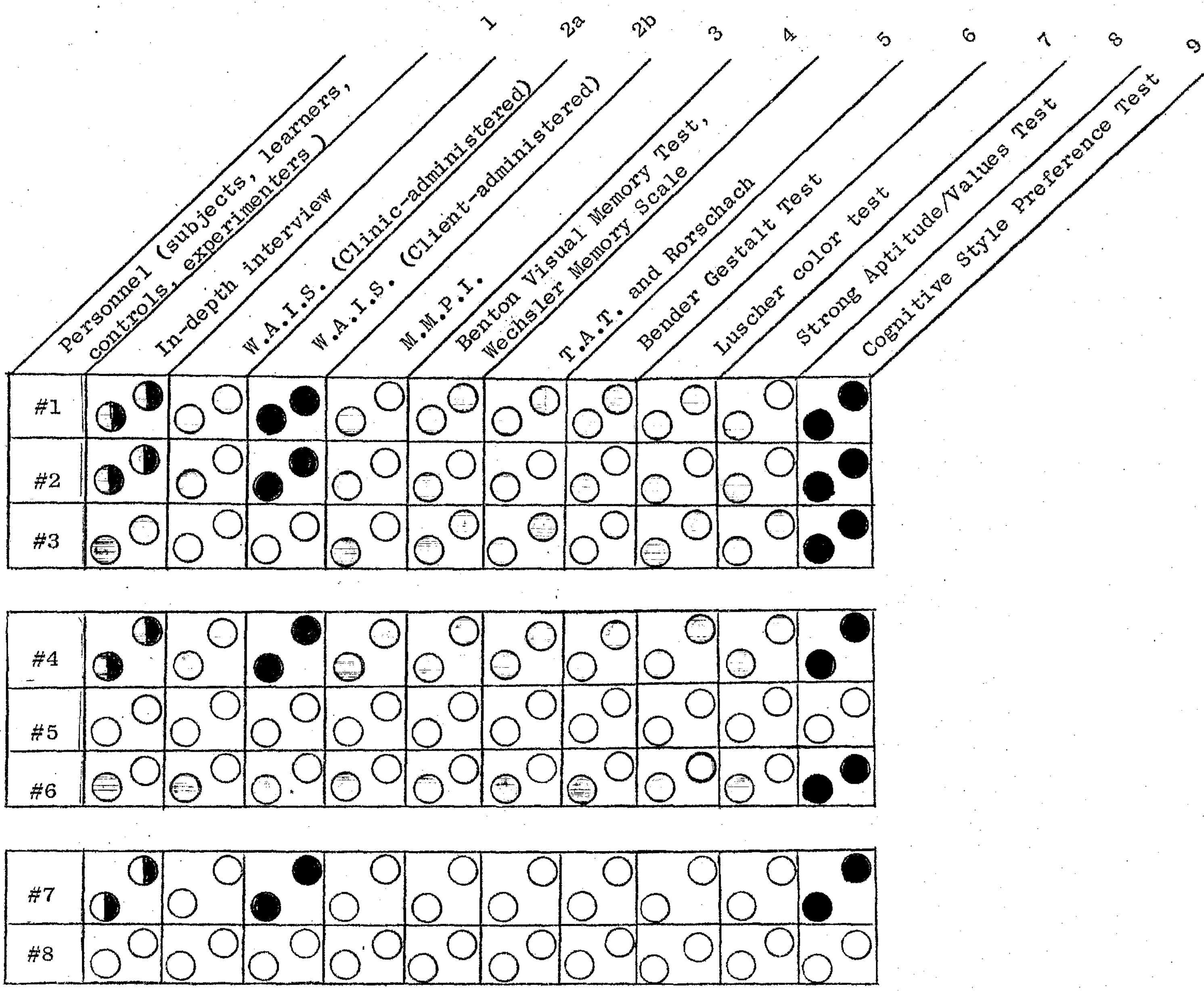
(2) Wechsler Adult Intelligence Scale (W.A.I.S.);

(3) Minnesota Multiphase Personality Inventory (M.M.P.I.)

TABLE 4

PSYCHOLOGICAL EXAMINATION

Personnel #1 - 3, subjects;
#4 - 6 learners/controls; #7 - 8, experimenters.



SRI   Palo Alto Medical Clinic   Client

(4) Benton Visual Memory Test and Wechsler Memory Scale;

(5) Thematic Apperception Test (T.A.T.) and Rorschach projective tests

(6) Bender Gestalt Test,

(7) Luscher color test

(8) Strong Aptitude/Values Test

(9) Cognitive Style Preference Test

As indicated in Table 4, the psychological testing is well underway. There is, of course, a considerable lag between testing and results. To date, only a partial analysis of data from Subject 1 is available. We present this data in Appendix 4 as a sample of the type of analysis that will become available. We note in passing that the data on Subject 1 from the W.A.I.S. appears to correlate with that obtained from the client-administered W.A.I.S.,* an indication of the uniformity of results available from such testing.

* Private communication.

2) Cognitive Style Preference Test

In connection with testing hypotheses associated with hemispheric specialization of the brain, Dr. Robert Ornstein of the Langley Porter Neuropsychiatric Institute, University of California, San Francisco, has been brought into the program as a consultant.

In his capacity as consultant, Dr. Ornstein has provided an instrument named the Cognitive Style Preference Test. This test was developed for use in differentiating between individuals preferring a gestalt-oriented cognitive style as compared with a verbally-oriented cognitive style. For the purpose of the program this instrument is administered to determine whether individuals exhibiting paranormal functioning prefer, as a group, one style of cognitive functioning predominantly as compared with individuals in a control group. The test is administered once to each individual. A sample of the test is included below.

Preliminary results indicate some preference for a verbally-oriented cognitive style on the part of good subjects (Figure 10), but further data is required before any significance is to be attached to the results tabulated thus far.

Should a correlation of test results with paranormal functioning be found, it would be appropriate in later work to determine whether this test instrument would be useful as a screening device, i.e., determine whether other individuals sharing the profile also exhibit paranormal functioning.

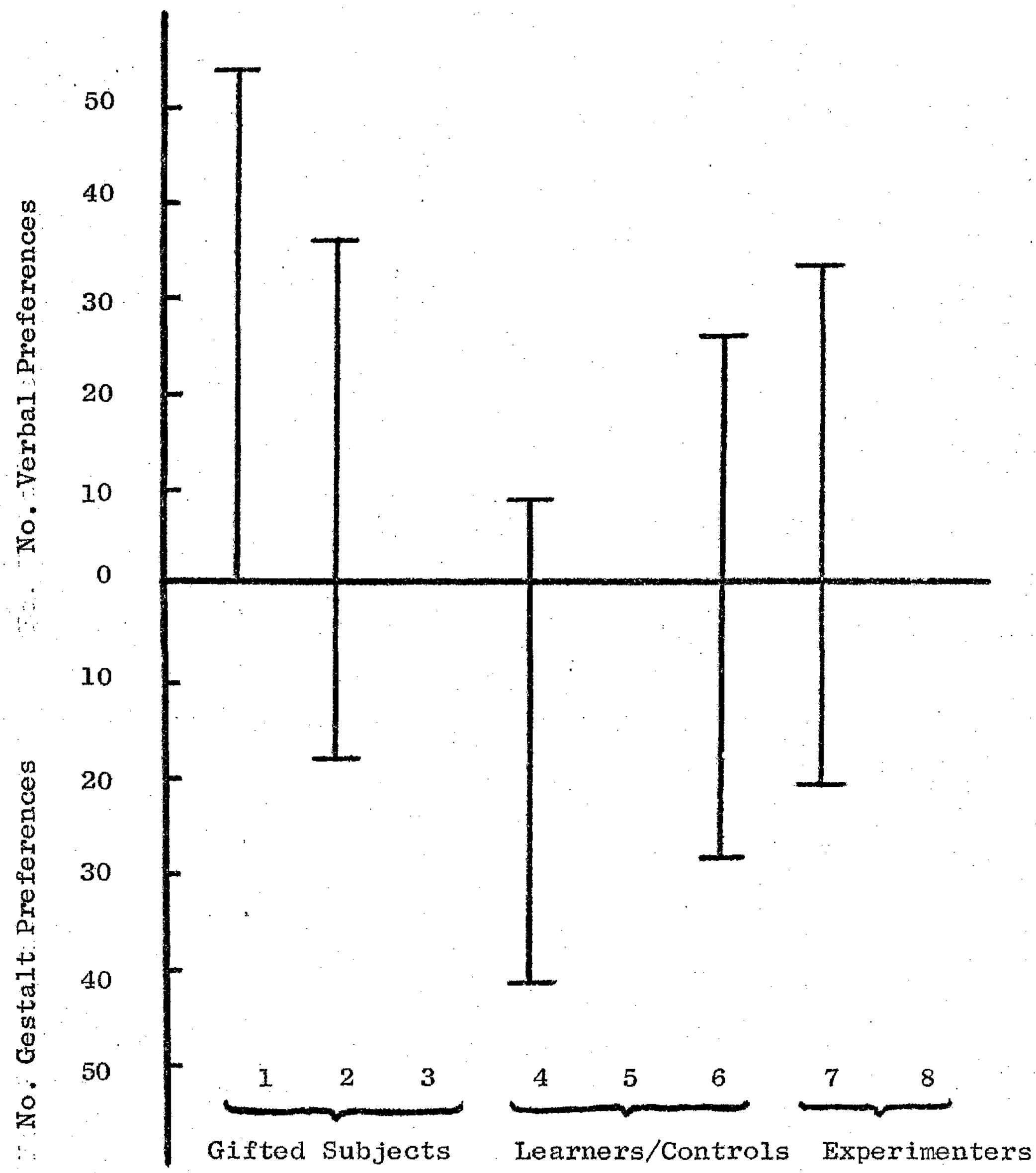


FIGURE 10 SUMMARY ON COGNITIVE STYLE PREFERENCE

Please do not turn over the pages until I ask you to do so. On each page of this booklet there are sets of three items arranged in rows. Two of them are alike or fit together in some way. Your task is to select which one is different and doesn't belong with the other two. The two columns on the first page are samples. There are three designs or shapes in each row. Each design has a word printed on it. In the first row of the first column all the words are the same. Most people would say that the first and second shapes go together and the third one doesn't belong. Would you agree? (If not, explain.) Mark the third one with an X then. In the second row most people would say that the first one is different and the last two go together. Do you agree? Then mark the first one with an X.

In the third row the shapes are all the same, but the words HORSE and SADDLE go together and the world FAULT doesn't belong. Do you agree? (If not, explain.) Mark the third one with an X.

Which would you pick as the odd one in the 4th row? [Color (2nd one)]

In the 5th row you could choose either a word that doesn't belong or a shape that doesn't belong. Which is the odd word? (TROUT.) Which is the odd shape? [the CIRCLE (DIME)] Either one of these answers is right. Mark either one of them.

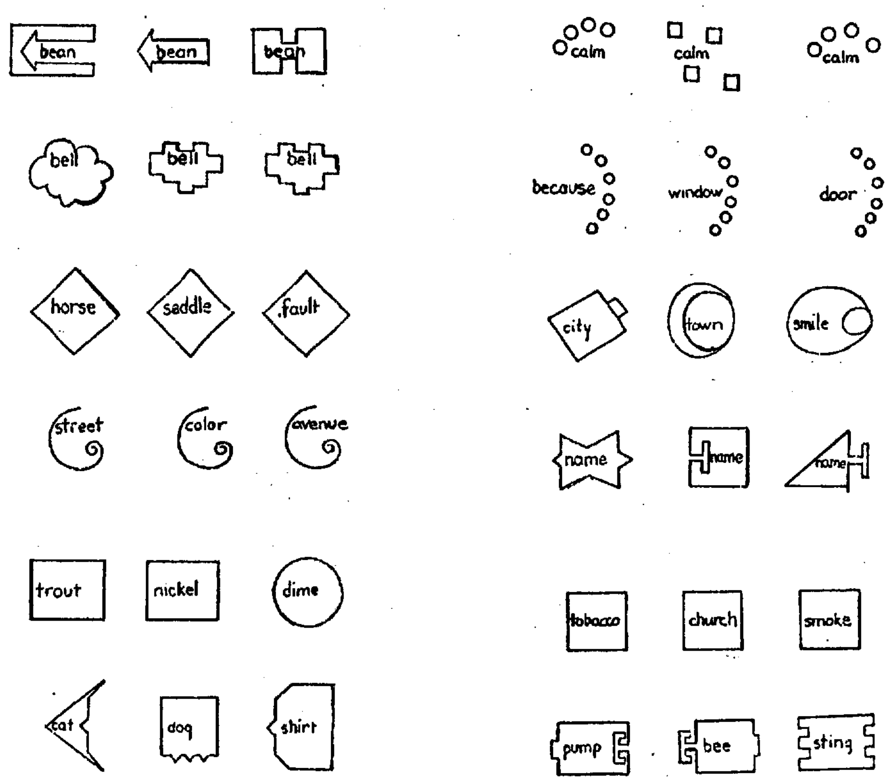
The last row also has two possible right answers. Which is the odd word? (SHIRT.) Which is the odd shape? [The second one (DOG)] Mark either one of them with an X.

On some of these sets people find it easier or more natural to pick out the odd word, and one some they find it easier to pick out the odd shape. Either way is correct. We want you to make your selections whichever way seems most comfortable and natural to you. Mark only once in each row, and go as fast as you can. Any questions so far?

The second column has more samples. When I say begin, please mark an odd member in each row, and say "STOP" as soon as you finish this sample column. BEGIN.

(Check forced choices--)

Any questions? Then when I say "BEGIN" turn over the next page. Work as fast as you can, and continue until you have finished the booklet, then say "STOP". Ready? BEGIN.



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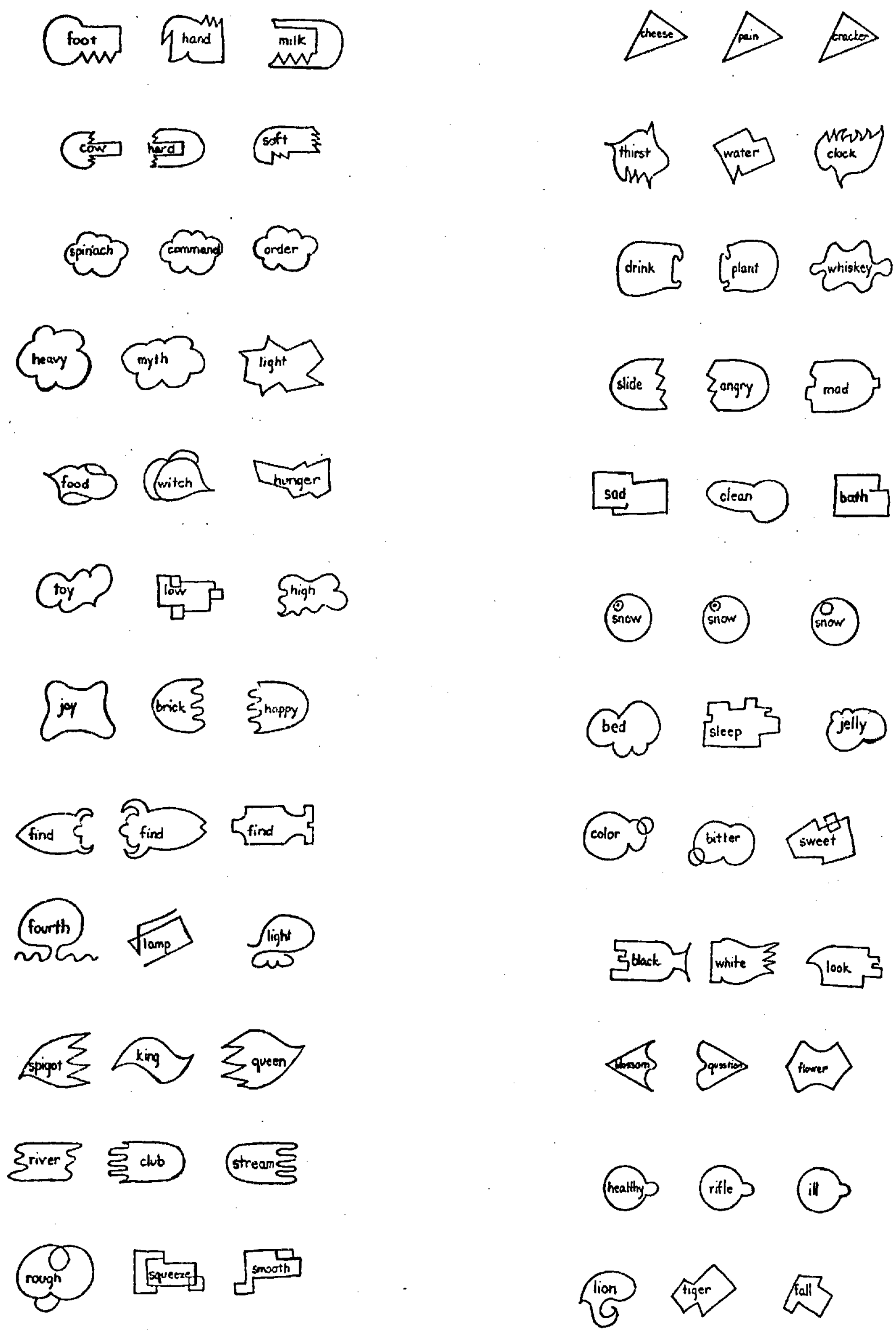
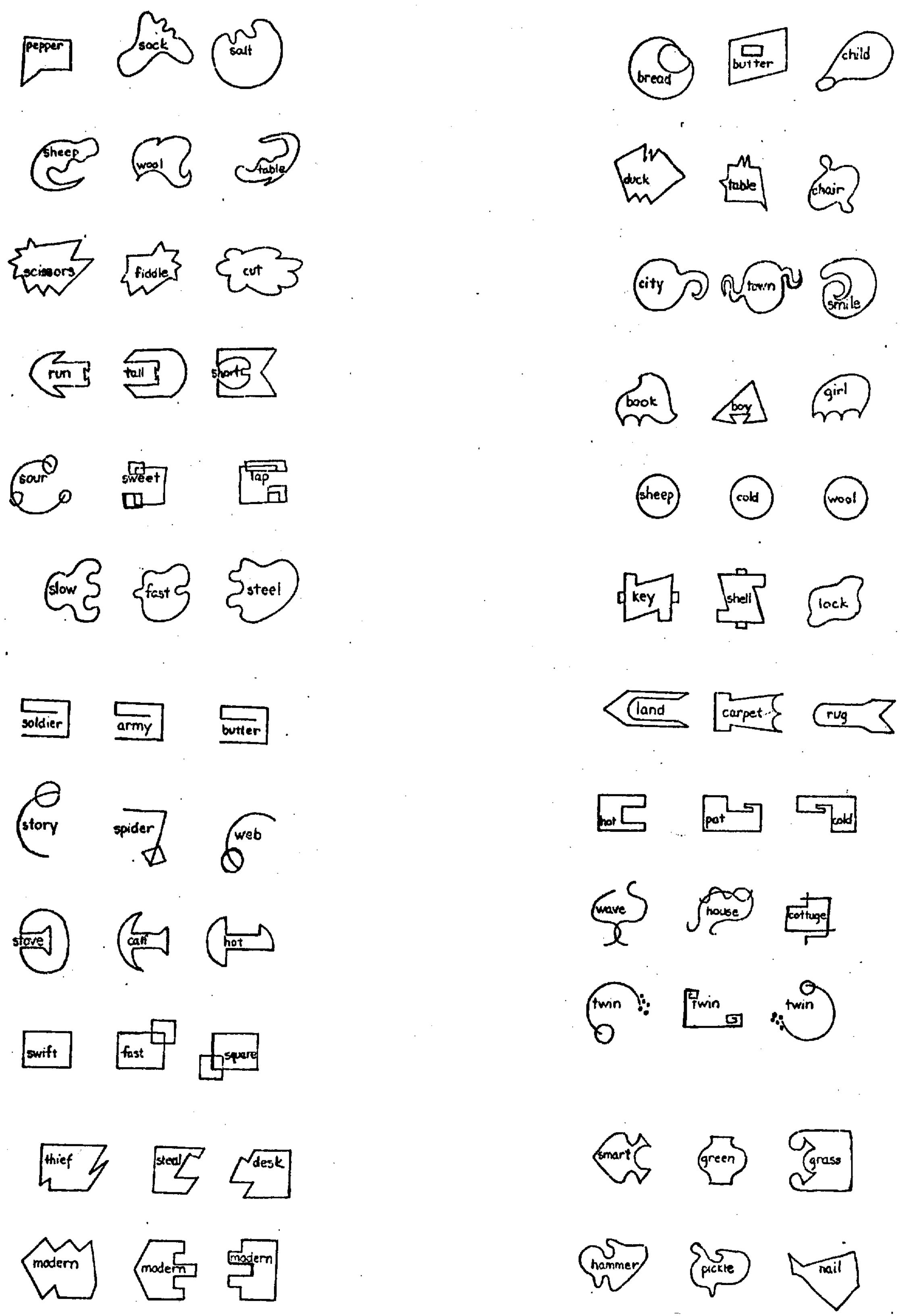

foot hand milk
cow hard soft
spinach command order
heavy myth light
food witch hunger
toy low high
joy brick happy
find find find
fourth lamp light
spigot king queen
river club stream
rough squeeze smooth
cheese pain cracker
thirst water clock
drink plant whiskey
slide angry mad
sad clean bath
snow snow snow
bed sleep jelly
color bitter sweet
black white look
blossom question flower
healthy rifle ill
lion tiger fall



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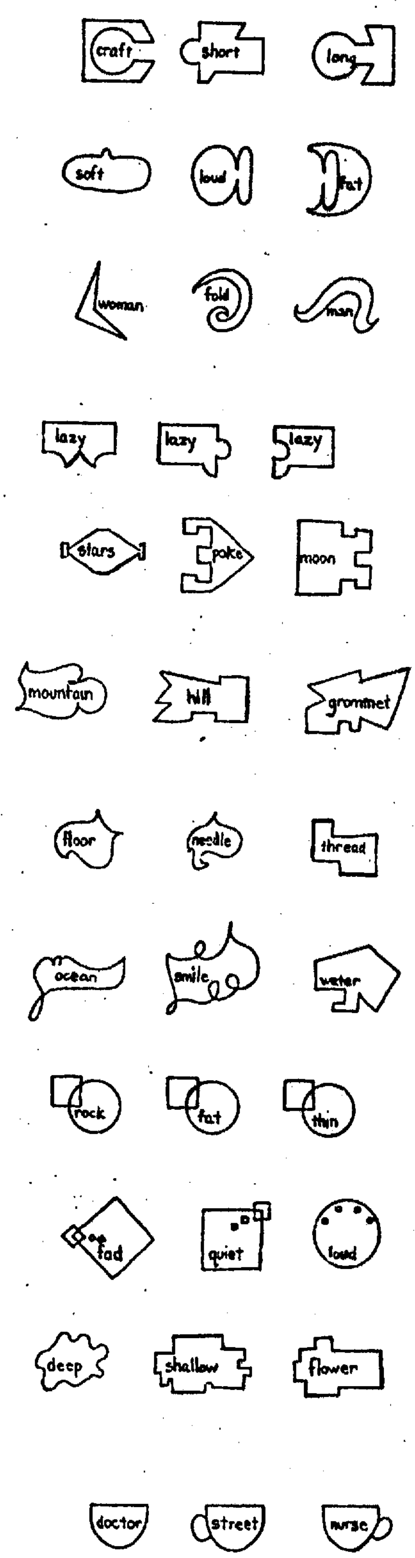
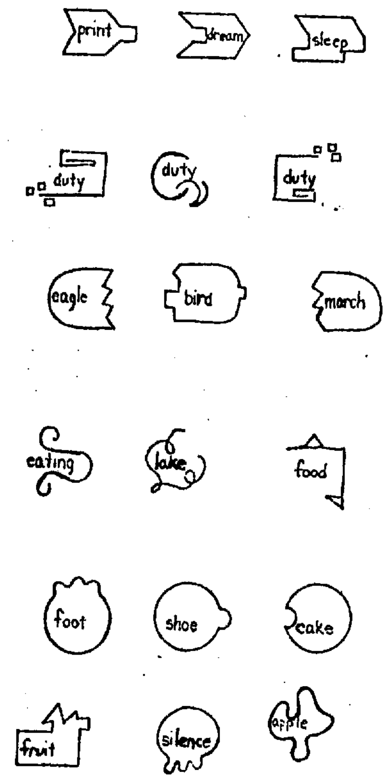

craft
short
long
soft
loud
fat
woman
fold
man
lazy
lazy
lazy
stars
poke
moon
mountain
hill
grommet
floor
needle
thread
ocean
smile
water
rock
fat
thin
fad
quiet
loud
deep
shallow
flower
doctor
street
nurse


print
dream
sleep
duty
duty
duty
eagle
bird
march
eating
lake
food
foot
shoe
cake
fruit
silence
apple

3) Midtesting (SRI-administered)

Ongoing testing associated with daily experimentation is carried out to provide indicators as to the effects of mood and conceptualization on success in experimentation. Conclusions will be drawn in the final stage of project effort.

Test: Mood Adjective Checklist
Source: Psychology Department, Stanford University (Hypnosis Lab)
Purpose: The Mood Adjective Checklist is one of a number of pre-experiment instruments designed to provide a measure of a subject's feelings of the moment as he enters the experimental situation. The purpose is to determine whether measures of success in the experimental phase correlate with pre-experiment mood indicators.

MOOD ADJECTIVE CHECKLIST

Each of the words in the following list describes feelings or mood. Please use the list to describe your feelings at this moment. Mark each word according to these instructions:

If the word definitely describes how you feel at the moment you read it, circle the double check (VV) to the right of the word. For example, if the word is calm and you are definitely feeling calm at the moment, circle the double check as follows:

calm (vv) v ? no (This means you definitely feel calm at this moment.)

If the word only slightly applies to your feelings at the moment, circle the single check as follows:

calm vv (v) ? no (This means you feel slightly calm at this moment.)

If the word is not clear to you or if you cannot decide whether or not it describes your feelings, circle the question mark as follows:

calm vv v (?) no (This means you cannot decide whether you are calm or not.)

If you clearly decide that the word does not apply to your feelings at this moment, circle the no as follows:

calm vv v ? (no) (This means you are sure you are not calm at this moment.)

Work rapidly. Your first reaction is best. Work down the first column before going to the next. Please mark all the words. This should take only a few minutes.

angry	vv	v	?	no
concentrating	vv	v	?	no
drowsy	vv	v	?	no
affectionate	vv	v	?	no
apprehensive	vv	v	?	no
blue	vv	v	?	no
boastful	vv	v	?	no
elated	vv	v	?	no
active	vv	v	?	no
nonchalant	vv	v	?	no
skeptical	vv	v	?	no
shocked	vv	v	?	no
calm	vv	v	?	no
bold	vv	v	?	no
earnest	vv	v	?	no
sluggish	vv	v	?	no
forgiving	vv	v	?	no
clutched up	vv	v	?	no
lonely	vv	v	?	no
cocky	vv	v	?	no
lighthearted	vv	-	?	no
quiet	vv	v	?	no

energetic	vv	v	?	no
playful	vv	v	?	no
suspicious	vv	v	?	no
startled	vv	v	?	no
relaxed	vv	v	?	no
defiant	vv	v	?	no
engaged in thought	vv	v	?	no
pleased	vv	v	?	no
tired	vv	v	?	no
fearful	vv	v	?	no
regretful	vv	v	?	no
egotistic	vv	v	?	no
overjoyed	vv	v	?	no
vigorous	vv	v	?	no
witty	vv	v	?	no
serene	vv	v	?	no
rebellious	vv	v	?	no
serious	vv	v	?	no
warmhearted	vv	v	?	no
insecure	vv	v	?	no
self-centered	vv	v	?	no
still	vv	v	?	no

Test: Semantic Differential Checklist

Source: SRI Urban and Social Systems Division

Purpose: The Semantic Differential Checklist is one of a number of pre-experiment instruments designed to provide a measure of subject conceptualization about an experiment in which he is about to participate. The purpose is to determine whether measures of success in the experiment correlate with pre-experiment conceptualization.

Semantic Differential Checklist

The purpose of this rating sheet is to obtain your candid reactions regarding the conditions surrounding the experiment.

For each numbered item you will find a concept to be judged. You are to rate each in order.

This is how you are to use the scales: If you feel that the concept is highly or closely related to one end of the scale, you should place your checkmark as follows;

impractical	✓	___	___	___	___	practical
impractical	___	___	___	___	✓	practical

If your feelings on the concept are neutral, place your checkmark in the middle space, etc.

Work at fairly high speed through this rating sheet. Do not puzzle over individual items. Give your first impressions, your immediate feelings about each item.

Conditions surrounding experiment

1. good	___	___	___	___	___	bad
2. unfriendly	___	___	___	___	___	friendly
3. stimulating	___	___	___	___	___	dull
4. positive	___	___	___	___	___	negative
5. unhelpful	___	___	___	___	___	helpful
6. right	___	___	___	___	___	wrong
7. uninteresting	___	___	___	___	___	interesting
8. unorganized	___	___	___	___	___	organized

9. satisfying	___	___	___	___	___	disappointing
10. unprepared	___	___	___	___	___	prepared

My involvement in experiment

1. good	___	___	___	___	___	bad
2. useless	___	___	___	___	___	valuable
3. stimulating	___	___	___	___	___	dull
4. positive	___	___	___	___	___	negative
5. passive	___	___	___	___	___	active
6. capable	___	___	___	___	___	incapable
7. important	___	___	___	___	___	unimportant
8. unsuccessful	___	___	___	___	___	successful
9. prepared	___	___	___	___	___	unprepared
10. impractical	___	___	___	___	___	practical

(c) Neuropsychological Evaluation

In addition to the measurement of the physiological components of the neurological system covered in the medical evaluation, a neuropsychological profile is being obtained by the administration of the Halstead-Reitan Neuropsychology Test Battery, which includes the Category Recognition Test, Tactual Performance Test, Halstead-Wepman Aphasia Screening Test, and other appropriate measures. This phase of the program is being handled by Dr. Donald Lim of the Palo Alto Veteran's Administration Hospital, who has personally consulted with Dr. Reitan on testing procedures and interpretation. The neuropsychological evaluation program is scheduled for the first half of September.

3. Identification of Neurophysiological Correlates Which Relate to Paranormal Activities

High on the list of priorities for the program is the identification of neurophysiological correlates accompanying paranormal activity. The purpose of this part of the study is twofold: (a) to obtain information about the neurophysiological state associated with paranormal activity in general, and (b) to obtain indicators which differentiate between correct and incorrect responses to a paranormally applied stimulus, so that an independently-determined bias factor can be applied during the generation of data by the subject.

Two facilities are in use for the purposes described above. One is a standard EEG facility under the direction of Dr. Jerry Lukas, head of SRI's Sleep Studies program. This facility consists of two sound-isolated rooms with appropriate signal lead connections, an eight-channel polygraph for visual recording, and a magnetic tape/ computer processing/ printer readout which provides on-line processing of the polygraph data. In our configuration we obtain a hardcopy printout of 5-second averages of eight channels of polygraph information fifteen minutes following a fifteen minute run. At present we monitor broadband alpha (7-14 Hz) and beta (14-34 Hz) brainwave components from the left and right occipital regions, galvanic skin response, and two channels of plethysmograph data (blood volume and pulse height).

The second facility is a smaller semi-portable four-channel polygraph with a GSR channel, reflected-light plethysmograph indicating blood volume/ pulse height, one channel of unfiltered EEG activity, and a fourth EEG channel with zero-crossing digital filtering. The latter permits percent-time measurements in any band, with upper and lower band edge settings in 1 Hz increments.

Considerable data has been obtained with both facilities. The bulk of the data awaits further analysis which will occur at completion of various series underway. However, several results have been obtained which we describe below.

(a) Bilateral EEG Measurements -- Remote Strobe Experiment

As discussed in Report #2, a variety of evidence from clinical and neurosurgical sources indicates that the two hemispheres of the human brain are specialized for different cognitive functions. The left hemisphere is predominantly involved in verbal and other analytic functioning, the right in spatial and other holistic processing.

In consultation with Dr. Robert Ornstein of the Langley Porter Neuropsychiatric Institute, an hypothesis was formed based on certain observed characteristics that paranormal functioning might involve right hemispheric specialization. To test this hypothesis, the EEG remote strobeflash experiment, discussed in the original proposal and in the paper attached to Report #1, was repeated with Subject 4 three times in the sleep lab under the direction of Dr. Lukas with monitoring of right and left occipital regions. Each experiment consisted of twenty 15-second trials, with ten no-flash trials, and ten 16-Hz trials randomly intermixed. Reduction of alpha activity (arousal response) correlated with remote stimuli was observed as in previous experiments, but essentially only in the right hemisphere (average alpha reduction 16 percent in right hemisphere, 2 percent in left, during the 16-Hz trials as compared with the no-flash trials). The trial-to-trial variation is larger than in previous work, however, due to use of a wider-band filter for the alpha band, and therefore the system is being modified before further work.

(b) Physiological Correlates of Remote Viewing

In this series of experiments a subject takes part in a remote viewing protocol as described in Section A.1. (c) (Remote Viewing with Feedback). In this case, however, the subject is connected to the physiological recording instruments of the smaller semi-portable four-channel polygraph described above. Baseline and experimental measures of the following observables are made: 1) Galvanic skin response (GSR) is recorded using finger electrodes taped in place on second and fourth finger; 2) Blood volume/pulse height is recorded using a reflected-light plethysmograph; 3) Unfiltered EEG is recorded from the right occipital region; 4) Percent-time in alpha (8-12 Hz) is recorded on the fourth channel. The alpha filter is a sharp cut-off digital type with essentially zero-pass outside the prescribed bandpass limits.

During the course of an experiment the subject is asked to describe his perceptions as to the nature of the remote target. His comments are tape recorded and noted on the polygraph, along with the time. A correlation is then attempted between those descriptions which are found to be uniquely correct and accurate, and the corresponding sections of polygraph recording.

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In our investigations to date we have not found a strong correlation between the observed physiological states and the subjects' descriptions. Of the correlates being monitored, the one which seems the most promising is the unfiltered EEG. In our preliminary analysis of the data it appears that there is often an overall reduction in EEG power in the twenty-second period just before a subject renders a correct description. Subsequent to this observation, we have learned that Janet Mitchell at the American Society for Psychical Research, made similar observations in her work with Subject 3 ([redacted]), also in remote viewing experiments. A sample chart record is shown in Figure 11. (Time runs from right to left.)

The traces, top to bottom, are the unfiltered EEG, blood volume/pulse height, GSR, and filtered (alpha) EEG. Protocol, verbal description, and photograph of the location accompanying this chart are given in Section A. 1. (c).

Seven experiments of this type have been completed as a pilot study. Upon completion of the analysis of this data, any findings will be tested under rigorous no-feedback conditions.

4. <u>Identification of the Nature of Paranormal Phenomena and Energy (10%)</u>

This portion of the program is devoted to efforts to understand the nature and scope of paranormal phenomena, including investigation of the physical and psychological laws underlying the phenomena, determination of the manner and degree to which known processes are mediated by little understood or undiscovered mechanisms or energies, definition of the prrcise nature of the channels involved, etc.

At this point in the effort three "psychokinetic" tasks have been investigated beyond the pilot stage, and are reported below.

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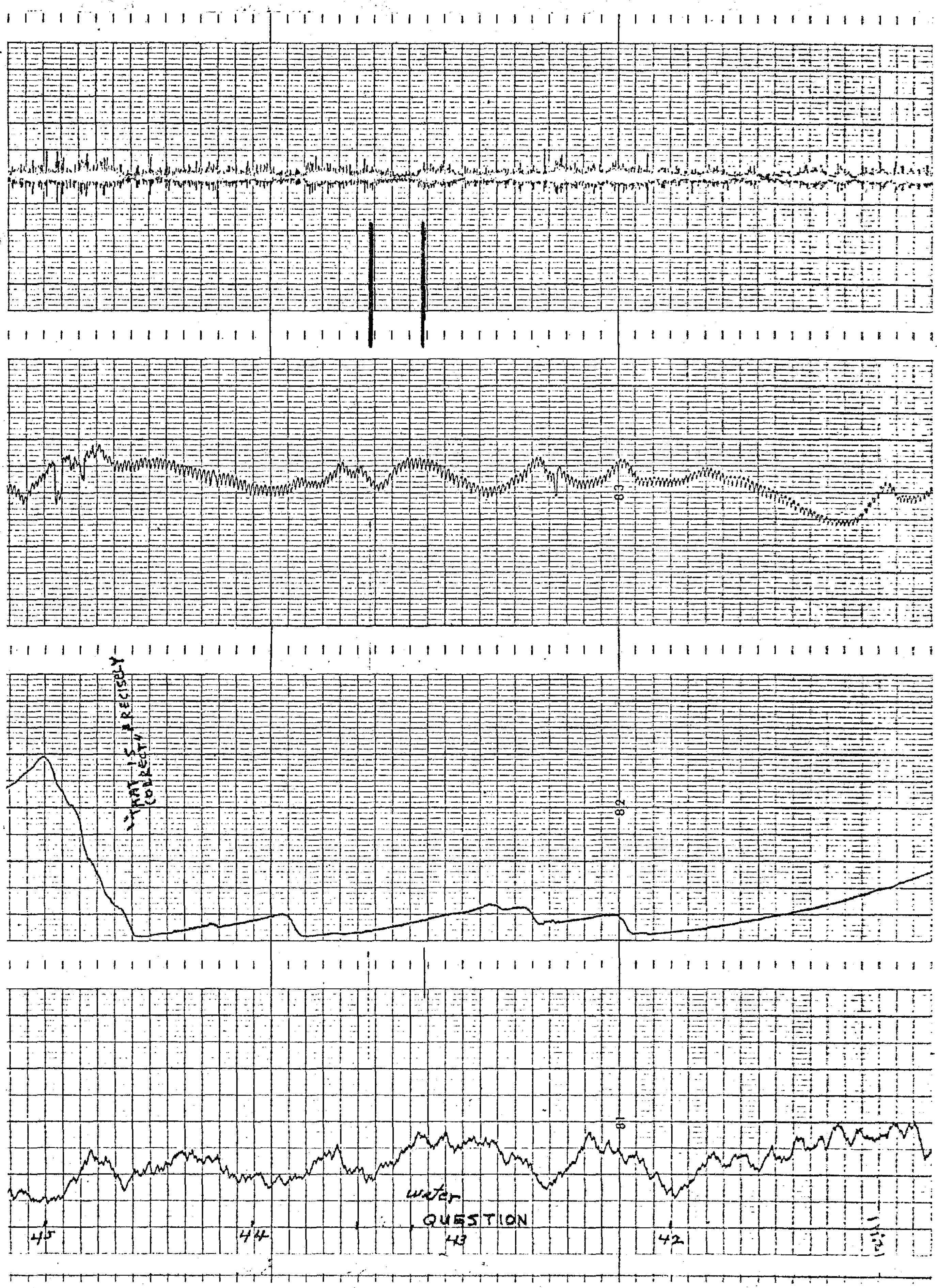
THAT IS PRECISELY CORRECT
83
82
81
water
QUESTION
45
44
43
42

(a) Universal Randomization Protocol

It was deemed desirable in our work to establish a universal randomization protocol independent of the particular experiment under consideration. The only exceptions were to be automated experiments where target selection is determined by radioactive decay or electronic randomization.

The randomization procedure is designed around a ten-unit base, e.g., ten targets, ten work periods, etc. A ten-digit sequence governing an experiment is blind to both experimenter and subject, and is uncovered by means of the following procedure. A three-page RAND Table of Random Digits (Table 5) is entered to obtain the ten-digit sequence, the entrance point being determined by four throws of a die,† the first 1, 2, or 3 determining page, the next 1, 2, 3, or 4 determining column block, and the final throw determining from which of the first six rows in the block the ten-digit sequence is to be taken. An opaque card with a single-digit window is then moved across the row to uncover digits one at a time. If a multiplicity of targets exist, the digits 0 through 9 are employed directly. If a binary command is required (e.g., increase/decrease or activity/no activity) the parity of the digit (even or odd) is employed.

† A technique found in control runs to produce a distribution of die faces differing nonsignificantly from chance expectation. — What about PK affecting the dice!!

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TABLE 5

Table of Random Digits *

11 16 43 63 18	75 06 13 76 74	40 60 31 61 52	83 23 53 73 61
21 21 59 17 91	76 83 15 86 78	40 94 15 35 85	69 95 86 09 16
10 43 84 44 82	66 55 83 76 49	73 50 58 34 72	55 95 31 79 57
36 79 22 62 36	33 26 66 65 83	39 41 21 60 13	11 44 28 93 20
73 94 40 47 73	12 03 25 14 14	57 99 47 67 48	54 62 74 85 11
49 56 31 28 72	14 06 39 31 04	61 83 45 91 99	15 46 98 22 85
64 20 84 82 37	41 70 17 31 17	91 40 27 72 27	79 51 62 10 07
51 48 67 28 75	38 60 52 93 41	58 29 98 38 80	20 12 51 07 94
99 75 62 63 60	64 51 61 79 71	40 68 49 99 48	33 88 07 64 13
71 32 55 52 17	13 01 57 29 07	75 97 86 42 98	08 07 46 20 55
65 28 59 71 98	12 13 85 30 10	34 55 63 98 61	88 26 77 60 68
17 26 45 73 27	38 22 42 93 01	65 99 05 70 48	25 06 77 75 71
95 63 99 97 54	31 19 99 25 58	16 38 11 50 69	25 41 68 78 75
61 55 57 64 04	86 21 01 18 08	52 45 88 88 80	78 35 26 79 13
78 13 79 87 68	04 68 98 71 30	33 00 78 56 07	92 00 84 48 97
62 49 09 92 15	84 98 72 87 59	38 71 23 15 12	08 58 86 14 90
24 21 66 34 44	21 28 30 70 44	58 72 20 36 78	19 18 66 96 02
16 97 59 54 28	33 22 65 59 03	26 18 86 94 97	51 35 14 77 99
59 13 83 95 42	71 16 85 76 09	12 89 35 40 48	07 25 58 61 49
29 47 85 96 52	50 41 43 19 66	33 18 68 13 46	85 09 53 72 82
96 15 59 50 09	27 42 97 29 18	79 89 32 94 48	88 39 25 42 11
29 62 16 65 83	62 96 61 24 68	48 44 91 51 02	44 12 61 94 38
12 63 97 52 91	71 02 01 72 65	94 20 50 42 59	68 98 35 05 61
14 54 43 71 34	54 71 40 24 01	38 64 80 92 78	81 31 37 74 00
83 40 38 88 27	09 83 41 13 33	04 29 24 60 28	75 66 62 69 54
67 64 20 52 04	30 69 74 48 06	17 02 64 97 37	85 87 51 21 39
64 04 19 90 11	61 04 02 73 09	48 07 07 68 48	02 53 19 77 37
17 04 89 45 23	97 44 45 99 04	30 15 99 54 50	83 77 84 61 15
93 03 98 94 16	52 79 51 06 31	12 14 89 22 31	31 36 16 06 50
82 24 43 43 92	96 60 71 72 20	73 83 87 70 67	24 86 39 75 76
96 99 05 52 44	70 69 32 52 55	73 54 74 37 59	95 63 23 95 55
09 11 97 48 03	97 30 38 87 01	07 27 79 32 17	79 42 12 17 69
57 66 64 12 04	47 58 97 83 64	65 12 84 83 34	07 49 32 80 98
46 49 26 15 94	26 72 95 82 72	38 71 66 13 80	60 21 20 50 99
08 43 31 91 72	08 32 02 08 39	31 92 17 64 58	73 72 00 86 57
10 01 17 50 04	86 05 44 11 90	57 23 82 74 64	61 48 75 23 29
92 42 06 54 31	16 53 00 55 47	24 21 94 10 90	08 53 16 15 78
35 54 25 58 65	07 30 44 70 10	31 30 94 93 87	02 33 00 24 76
86 59 52 62 47	18 55 22 94 91	20 75 09 70 24	72 61 96 66 28
72 11 53 49 85	58 03 69 91 37	28 53 78 43 95	26 65 43 78 51

* This table appears through the courtesy of The RAND Corporation and the McGraw-Hill Book Company, Inc. and is reprinted by permission from The Compleat Strategyst, by J. D. Williams, pp. 219-221 [44].

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07 42 85 88 63	96 02 38 89 36	97 92 94 12 20	86 43 19 44 85
35 37 92 79 22	28 90 65 50 13	40 56 83 32 22	40 48 69 11 22
10 98 22 28 07	10 92 02 62 99	41 48 39 29 35	17 06 17 82 52
90 12 73 33 41	77 80 61 24 46	93 04 06 64 76	24 99 04 10 99
63 00 21 29 90	23 51 06 87 74	76 86 93 93 00	84 97 80 75 04
40 77 98 63 82	48 45 46 52 69	02 98 25 79 91	50 76 59 19 30
43 21 61 26 08	18 16 78 46 31	94 47 97 65 00	39 17 00 66 29
96 16 76 43 75	74 10 89 36 43	52 29 17 58 22	95 96 69 09 47
70 97 56 26 93	35 68 47 26 07	03 68 40 36 00	52 83 15 53 81
85 81 26 18 75	23 57 07 57 54	58 93 92 83 66	86 76 56 74 65

37 10 06 24 92	63 64 24 76 38	54 72 35 65 27	53 07 63 82 35
53 40 61 38 55	38 51 92 95 00	84 82 88 12 48	25 54 83 40 75
55 17 28 15 56	18 85 65 90 43	65 79 90 19 14	81 36 30 51 73
40 35 38 48 07	47 76 74 68 90	87 91 73 85 49	48 21 37 17 08
18 89 90 96 12	77 54 15 76 75	26 90 78 81 73	71 18 92 83 77
68 14 12 53 40	92 55 11 13 26	68 05 26 54 22	88 46 00 63 52
51 55 99 11 59	81 31 06 32 51	42 58 76 81 49	88 14 79 97 00
92 21 43 33 86	73 45 97 93 59	97 17 65 54 16	67 64 20 50 51
15 08 95 05 57	33 16 68 70 94	53 29 58 71 33	38 26 49 47 08
96 46 10 06 04	11 12 02 22 54	23 01 19 41 08	29 19 66 51 87

28 17 74 41 11	15 70 57 38 35	75 76 84 95 49	24 54 36 32 85
66 95 34 47 37	81 12 70 74 93	86 66 87 03 41	66 46 07 56 48
19 71 22 72 63	84 57 54 98 20	56 72 77 20 36	50 34 73 35 21
68 75 66 47 57	19 98 79 22 22	27 93 67 80 10	09 61 70 44 08
75 02 26 53 32	98 60 62 94 51	31 99 46 90 72	37 35 49 30 25
11 32 37 00 69	90 26 98 92 66	02 98 59 53 03	15 18 25 01 66
55 20 86 34 70	18 15 82 52 83	89 96 51 02 06	95 83 09 54 06
11 47 40 87 86	05 59 46 70 45	45 58 72 96 11	98 57 94 24 81
81 42 28 68 42	60 99 77 96 69	01 07 10 85 30	74 30 57 75 09
21 77 17 59 63	23 15 19 02 74	90 20 96 85 21	14 29 33 91 94

42 27 81 21 60	32 57 61 42 78	04 98 26 84 70	27 87 51 54 80
17 69 76 01 14	63 24 73 20 96	19 74 02 46 37	97 37 73 21 12
05 68 63 02 43	34 13 40 29 36	50 19 77 98 69	86 49 76 87 09
52 99 24 66 50	89 91 05 73 95	46 95 46 75 36	28 96 88 19 36
94 51 89 39 84	81 47 86 77 50	82 54 96 26 76	31 12 34 98 99
00 18 47 21 86	78 90 67 54 80	61 79 88 16 00	80 01 88 47 42
87 46 26 31 65	79 81 66 16 30	57 66 62 90 55	46 51 80 14 87
88 69 25 87 16	12 27 34 81 76	29 80 56 49 94	66 87 26 22 30
20 09 44 29 62	41 38 21 67 68	06 71 13 49 39	19 59 97 62 47
60 93 58 15 04	50 52 08 21 53	13 93 44 68 85	58 31 58 83 66

CPYRGHT

51 39 28 59 36	43 89 85 05 96	28 54 99 83 27	99 94 32 53 77
54 23 94 19 18	79 52 64 62 74	40 87 16 18 03	25 76 75 54 84
57 89 27 33 94	07 16 09 02 62	47 70 43 83 55	71 70 88 01 17
02 33 07 47 36	53 27 44 44 68	62 61 11 96 98	09 30 42 92 65
76 11 52 92 47	55 34 25 12 99	03 04 78 39 81	11 91 60 92 67
63 31 28 18 86	29 08 52 01 01	26 46 05 05 01	31 73 11 89 38
27 63 22 15 70	34 27 45 64 26	01 76 42 59 59	69 29 38 98 75
06 33 56 21 11	44 01 45 25 67	11 76 25 48 06	02 65 15 29 12
64 14 28 76 76	21 35 88 87 73	31 73 63 16 95	11 52 36 42 13
28 43 62 54 68	75 23 57 53 70	97 15 54 87 06	52 23 92 18 31
09 52 28 38 55	85 97 31 58 88	31 18 14 96 72	17 23 70 40 24
93 71 41 54 14	93 71 20 27 42	32 11 58 26 83	67 18 28 90 30
15 68 15 35 99	58 18 57 38 40	07 06 87 59 47	71 74 36 92 85
77 71 22 39 14	08 90 74 37 68	26 62 27 41 84	75 16 69 67 48
78 45 35 48 44	61 50 90 12 45	02 80 55 26 76	22 51 94 78 48
24 86 06 82 84	19 36 72 90 73	32 30 15 87 01	04 19 33 01 42
37 28 40 68 44	78 88 75 72 76	26 33 95 69 09	39 33 14 21 01
35 48 85 24 73	37 63 43 25 69	95 27 40 95 08	81 01 24 24 13
51 59 55 99 09	35 22 34 49 91	24 27 53 96 32	09 77 79 88 00
90 66 03 51 71	30 02 19 11 20	36 11 64 21 28	65 40 19 41 99
47 50 50 20 08	20 30 08 71 88	96 19 50 70 59	13 26 63 13 89
13 35 00 84 14	64 04 99 43 77	22 40 89 49 58	19 09 55 80 35
33 00 69 26 90	69 24 89 74 43	53 89 62 35 08	16 22 75 69 29
55 21 66 38 86	06 80 41 18 61	22 56 50 24 75	00 25 87 90 18
21 99 12 62 28	14 80 11 91 92	49 43 82 07 72	60 84 66 97 32
71 02 52 82 12	10 47 42 75 22	65 62 03 46 84	00 21 00 48 63
65 52 21 52 42	84 55 47 45 60	20 24 62 69 41	41 29 80 47 63
27 97 55 49 23	90 65 00 61 70	09 43 30 91 67	35 16 63 27 31
07 30 00 97 04	36 09 96 15 77	95 55 27 34 56	16 57 88 81 40
54 35 71 36 89	19 56 90 38 14	76 05 30 51 50	69 12 56 94 42
00 97 70 44 81	42 04 40 86 49	34 82 23 58 43	78 46 88 23 80
13 92 07 87 61	12 31 19 28 08	07 75 30 40 73	58 52 08 00 22
08 39 53 70 43	37 88 03 41 72	04 20 49 44 34	62 79 88 19 02
46 16 66 72 06	01 61 94 37 69	96 77 01 94 40	29 70 04 20 93
87 76 77 76 07	03 74 20 16 13	65 98 96 28 43	10 91 73 44 58
29 88 09 52 88	21 64 44 65 87	06 64 49 47 84	66 99 56 18 12
36 24 83 66 66	14 89 45 92 73	88 95 04 60 77	34 65 11 20 38
12 38 62 96 56	30 47 42 59 64	21 48 29 54 22	02 00 23 36 71
52 06 87 38 01	52 18 81 94 91	55 13 76 10 39	02 00 66 99 13
41 72 75 21 71	56 71 90 60 54	98 44 18 15 29	59 60 76 52 25

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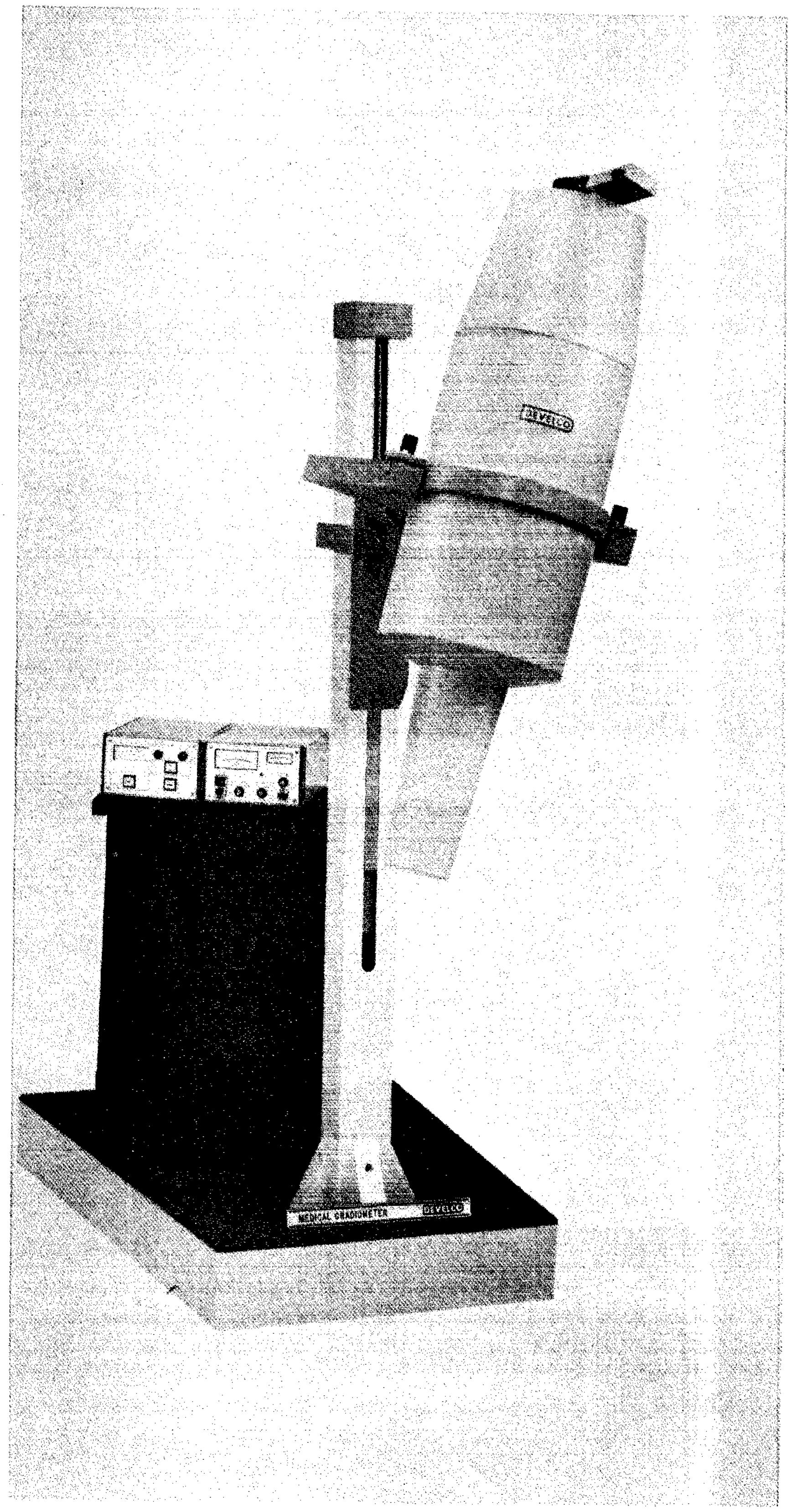
(b) Experiments with Develco Superconducting Differential Magnetometer (Gradiometer)

One of the first psychoenergetically-produced physical effects observed by SRI personnel in early research (1972) was the apparent perturbation of a Josephson effect magnetometer. The conditions of that pilot study, involving a few hours use of an instrument committed to other research, prevented a proper investigation. The number of data samples was too few to permit meaningful statistical analysis, and the lack of readily available multiple recording equipments prevented investigation of possible "recorder only" effects.

Therefore, at the suggestion of the client, a series of experiments were carried out using a client-supplied Develco Model 8805 superconducting second-derivative gradiometer manufactured by Develco, Inc., Mountain View, California. The assembled device is shown in Figure 12.

Basically, the gradiometer is a four-coil Josephson effect magnetometer device consisting of a pair of coil pairs wound so as to provide a series connection of two opposing first-derivative gradiometers, yielding a second-derivative gradiometer (i.e., a device sensitive only to second and higher order derivative fields). As a result, the device is relatively insensitive to uniform fields and to uniform gradients. This arrangement allows for sensitive measurement of fields from nearby sources while discriminating against relatively uniform magnetic fields produced by remote sources. The device is ordinarily



SUPERCONDUCTING DIFFERENTIAL MAGNETOMETER

FIGURE 12

used to measure magnetic fields originating from processes within the human body, such as action currents in the heart which produce magneto-cardiograms. The sensitive tip of the instrument is simply placed near the body area of interest.

In our application, however, the subject is located at a distance of four meters from the gradiometer probe. As a result the subject is located in a zone of relative insensitivity; e.g., standing up, sitting down, leaning forward, and arm and leg movements produce no signals. From this location the subject is asked, as a mental task, to affect the probe. The results of his efforts are available to him as feedback from three sources: an oscilloscope, a panel meter, and a chart recorder, the latter providing a permanent record.

After initial difficulty with the instrument due to RF interference effects, which required modificaton by the manufacturer, the gradiometer was available for use by the contractor from June 10 to June 21. Some RF interference effects remained, due in part to environmental proximity to other instrumentation, but the device was usable nonetheless.

Protocol for subject participation was instituted as follows. The subject removes all metal objects, and the effects of body movements are checked at the start of each experimental period. The subject then works with the machine in a learning mode, observing effects being produced, if any, via feedback from the instrumentation. Once satisfied that a possibility exists of producing effects on command under experimenter control, the experimenter announces the start of the experiment. The universal randomization protocol (discussed in previous section) is then used to generate ten activity/no activity periods of equal length (e.g., twenty-five seconds) pre-determined by the experimenter.

A sample run (Run 1, Subject 1) is shown in Figure 13. The randomly-generated ON (activity) periods are Nos. 2, 8, and 9. As observed, signals appear in each of these three periods. The signal appearing in period 9 was strong enough to cause loss of continuous tracking. This latter type of signal can be the result of an exceptionally strong flux change, or an RF burst whether subject-generated or artifactual, and are handled on the basis of statistical correlation as discussed below. An artifact due to the passage of a truck in the parking lot adjacent to the laboratory (under continuous surveillance by the experimenter) is noted in period 6. Each of the signals on scale corresponds to an input $\sim 1.6 \times 10^{-9}$ Gauss/cm^2 (second derivative $\partial^2 B_z / \partial_z^2$), equivalent to $\sim 3.5 \times 10^{-7}$ Gauss referred to one pickup coil.

The interpretation of such observations must be subjected to careful analysis. For example, the emphasis on "corresponds to" is based on the following: although the probe is designed to register magnetic fields, and the simplest hypothesis is that an observed signal is such, in a task as potentially complex as "psychokinesis", one must be cautious about assigning a given observed effect to a specific cause. Therefore, without multiple measurement employing equally sensitive apparatus, which time and lack of instrument availability did not permit, one can only conclude that generation of a magnetic field is the most probable cause. With regard to signal display, the signal was observed simultaneously on three recording devices, and thus a "recorder only" effect can be considered

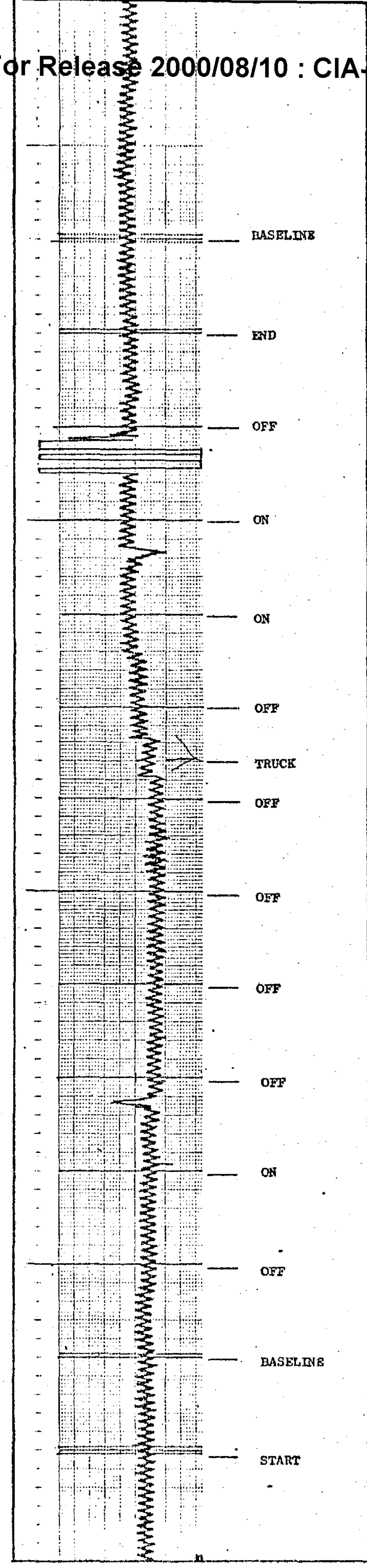


FIGURE 13 GRADIOMETER DATA

low probability, although an electronics interference effect ahead of all display cannot be ruled out. We therefore treat the magnetic cause as tentative, although most probable, and concentrate our attention on whether a correlation exists between system disturbances and subject efforts.

Subject 1 logged the most time in controlled runs, thirteen ten-trial runs. Each of the ten trials in the run lasted fifty seconds each,* the activity/no activity command for each trial being generated by the universal randomization protocol technique. In the 13 x 10 = 130 trials, consisting of a random distribution of 64 activity and 66 no-activity periods, 63 events of signal-to-noise ratio > 1 were observed. Of these 63 events, 42 were distributed among the activity periods, 21 among the no-activity periods, a correlation significant at the $p = 0.004$ level.

Subjects 2 and 6 also interacted with the device. Although subject efforts and observed perturbations sometimes coincided, activity was generally low and did not appear to be a signature of correlated activity under control. A controlled ten-trial run with Subject 2 and two such runs with Subject 6 yielded non-significant results.

Given the limited availability of the instrument and somewhat noisy environment, from our best effort we nonetheless conclude that for Subject 1 the observed number of precisely timed events in pilot work coupled with the statistically significant (p [illegible] 0.004) correlation between subject effort and signal output in controlled runs indicates a

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* With the exception of the first run where 25-second trials were used.

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highly probable cause-effect relationship. Thus it appears that a gifted subject can interact with a second derivative magnetic gradiometer of sensitivity $\sim 10^{-9}$ Gauss/cm^2 from a distance of four meters. Further work would be required to determine absolutely the precise nature of the interaction, although given the equipment design the generation of a magnetic field is the most probable mechanism.

(c) Experiments with Laser-Monitored Torsion Pendulum

In this series of experiments we examine the possibility that a subject may be able to exert a physical influence on a remotely located physical system. The target is a torsion pendulum suspended by a metal fiber inside a sealed glass bell jar. The pendulum consists of three 100 gram balls arranged symetrically at 120° angles on a 2 cm radius. The entire apparatus is shock mounted, and protected from air currents by the enclosing bell jar.

The angular position of the pendulum is measured by means of an optical readout system. The system consists of a laser beam from a low power argon laser[†] reflected from a small mirror on the pendulum onto a position sensing silicon detector[††] 1.5 meters from the pendulum. The detector yields an output voltage proportional to spot position. The output from the detector is monitored by a chart recorder[†††] which provides a continuous sine wave record of pendulum position.

† Spectra Physics Model 262

†† United Detector Technology Model SC/10

††† Brush Model Mark 200

The system exhibits a sensitivity of approximately 10 microradians. Under typical experimental conditions random accoustical fluctuations drive the pendulum in its torsional normal mode of 10 second period to a level ~ 100 microradians angular deviation. During control runs the pendulum executes harmonic motion with a maximum variation in amplitude of ± 10 percent over an hour period. Sudden vibrational perturbations in the environment produce oscillation of the pendulum in the vertical plane at a frequency of 1 Hz, as contrasted with the torsional mode in the horizontal plane at 0.1 Hz.

The subject is asked, as a mental task, to affect the pendulum motion, the results of which would be available as feedback from the chart recorder. The subject is then encouraged to work with the pendulum from a distance of 1 meter, observing effects being produced. If satisfied that there is a possibility of producing effects (typically following a week's activity, a couple of hours per day), an experiment is begun.

As in other experiments, subject efforts to increase or decrease oscillation amplitude are determined by an experimenter utilizing the universal randomization protocol described in (a). Each experiment lasts one hour and consists of six 5-minute work periods alternated with six 5-minute rest periods.

In later work, the subject is removed to a room 12 meters down the hall with three intervening office spaces to determine whether effects can be produced from a remote location. The subject is provided feedback at the remote location either by closed circuit video or by a second chart recorder in parallel with the recorder in the enclosed target laboratory. The remote aspect was instituted both to prevent artifactual effects from body heat, etc., and also to determine whether energy can be coupled via the remote viewing channel to a remote location.[†]

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† . Both experimental evidence and theoretical work indicate that distance may not be a strong factor in paranormal phenomena. See, for example, E.H. Walker "Properties of Hidden Variables in Quantum Theory: Implications for Paraphysics", U.S. Army Ballistic Research Laboratories, Aberdeen Proving Ground, Maryland.

In pilot studies we observed considerable evidence indicating that a gifted subject located in the same room is able, by concentration, to increase or decrease pendulum motion on command while sitting quietly one meter from the bell jar. The change-to-baseline ratio is often 5:1 or better so the effects are not small. A sample chart showing a rest period followed by a decrease period is given in Figure 14.

Vibrational artifacts can be ruled out on the basis that when such inputs occur, a marked 1 Hz oscillation signal due to vertical motion is superimposed on the 0.1 Hz torsional motion. What is especially interesting are the decreases which take the motion below that generally observed due to environmental noise driving. Such observations indicate the application of a constraint which couples energy out of the pendulum motion. Similar observations have been observed with the subject removed to the second location 12 meters away. Although less pronounced (change-to-baseline ratios typically 2:1), the effect remains easily observable.

The universal randomization protocol is used throughout to determine increase/decrease periods. Control run data are being collected to be subjected to the same analysis. Multiple recording is used throughout to rule out artifacts due to recorder effects. Finally, an electrometer with the base of the bell jar serving as one electrode is monitored to record acoustic vibration independently. Due to the potential significance of such findings, considerable data is being taken in order that the matter can be subjected to statistical analysis over a large sample involving hundreds of work periods. A few hundred data samples have already been collected for this purpose, an the results will be published when available.

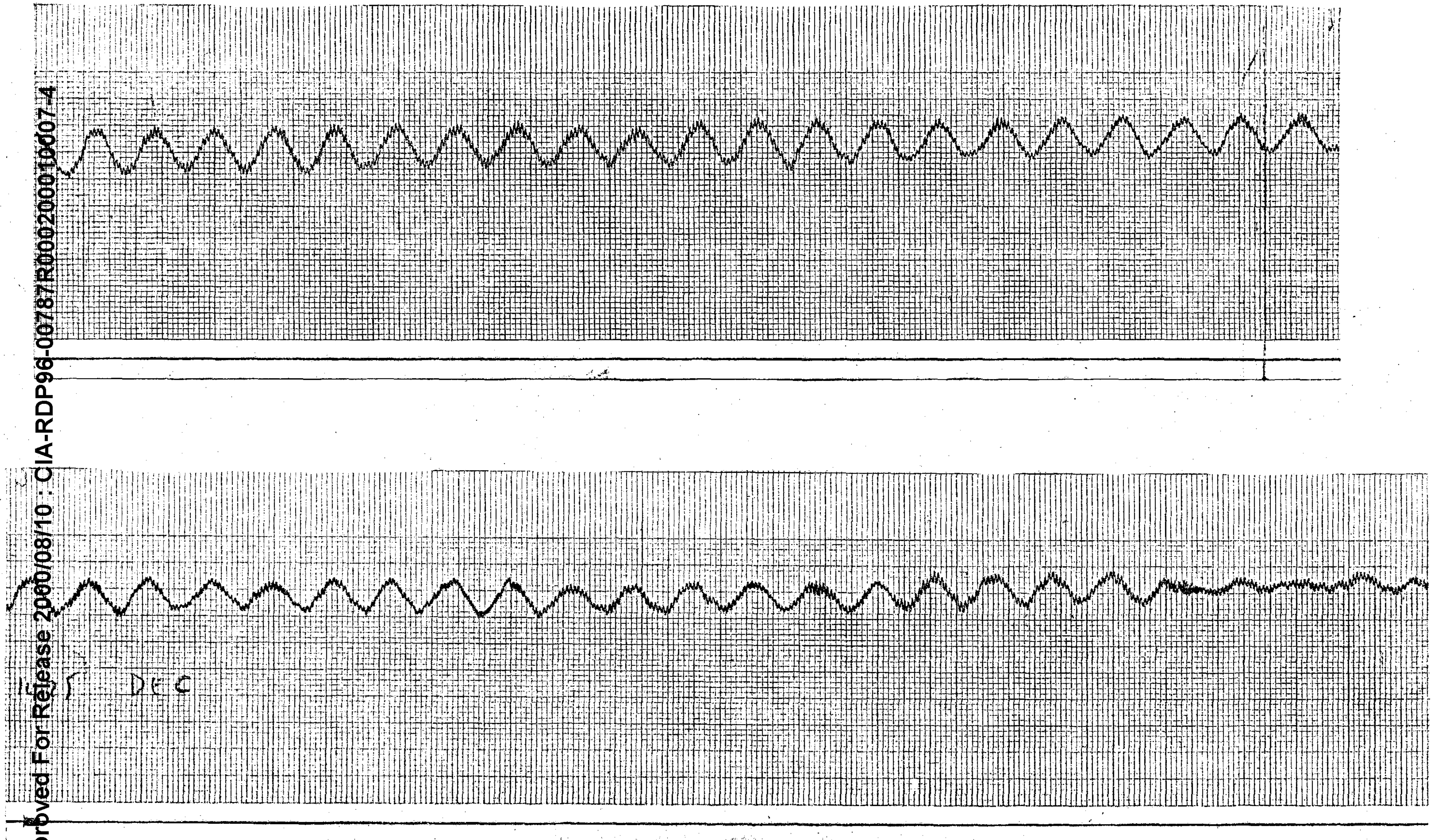

FIGURE 14 PENDULUM MOTION

Large amplitude variation corresponds to 0.1 Hz torsional mode

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Speed runs?

(d) Experiments with Geiger Counter

As part of a continuing search for mechanisms involved in paranormal phenomena, a series of experiments were conducted with Subject 1 to determine whether a geiger counter in the γ - ray mode (i.e., beta shield in place) would register subject-directed efforts.

The output of a geiger counter,† fed into a Monsanto Model 1020 counter/timer, indicates a background count due to cosmic rays ~ 35 counts/minute. Experimental protocol requires the subject to try to change the registered count by concentration on the geiger counter probe from a distance ~ 0.5 meters. Each run consists of 15 60-second trials, with 10-second separations between the trials. Preceding each subject run is a control run of equal duration.

In four runs to date the results, shown in Table 6, indicate no effect of statistical significance, neither in the mean nor standard deviation of counts.

† OCDM Item No. CD V-700, Model No. 66, Electro-Neutronics, Inc., Oakland, CA.

TABLE 6

Geiger Counter Experiment

	Control Runs		Experimental Runs	
Run	Mean	Standard Deviation	Mean	Standard Deviation
1	36.07	5.73	35.33	6.00
2	34.87	6.23	33.87	7.27
3	33.87	5.88	34.00	5.25
4	35.20	5.09	35.67	5.77

5. Basic Research Summary

The basic research program to date has been spread over a number of subjects and over number of activities, generating a considerable amount of data. It was deemed desirable in the first half of the research program to cover as much material as possible in a horizontal development in order to determine the best subjects and the fruitful directions for concentrated effort in the second half of the program.

We intend to concentrate on analysis of the large amounts of data already obtained while subjects are involved in extramural medical and psychological testing. Based on the findings, a few carefully-chosen items will be culled for final specific testing following discussion with client representatives.

APPENDIX 1

Randomness Tests of Four-State Electronic Random Stimulus Generator

The design objective was to build a four-state machine, with each state equally likely to occur on each trial, independent of the past sequence of states. If the machine meets this objective, it should not be possible to devise a rule for future play that significantly differs from chance. A simple example of such a rule would be to select the machine state observed in the preceding trial; if this strategy were to produce scores significantly above chance (25 percent hits), we would reject the hypothesis of randomness of the machine under test.

Before experimentation, four machines, purchased from Aquarius Electronics, Albion, California, were extensively tested for randomness. Data were analyzed on a CDC-6400 computer, and three machines finally selected for use in screening met established criteria for randomness.

In developing randomness tests, we are guided in part by a knowledge of the machine logic. When one of the four choice keys or the pass key is depressed, the current machine state is displayed; then a brief time after release of the key, a new machine state is established (but not shown to the subject) by sampling the instantaneous state of a high-speed four-state electronic counter. For the machine to be random, the times of dwell of the counter in each of the four states must be precisely equal; otherwise, the distribution of outcomes will be biased. The first randomness test is thus based on tallying the number of occurrences of each of the four states. This test should detect a stable bias, yet may miss a drifting bias. To test for this second possibility we also tally the distribution of outcomes in each group of 100 trials, then compute a likelihood ratio test statistic (see below) for each group. Under the null hypothesis of equal likelihood of the four states, these statistic values are distributed approximately as chi-square with three degrees of freedom and their sum for m groups distributed approximately as chi-square with three m degrees of freedom. This test may also detect stable bias, but is not as powerful for this purpose as the first test. Variable bias of still shorter period, if substantial, can be tested for by tallying the frequency with which the previous machine state is repeated; an overall repeat ratio ("all") significantly above 0.25 is indicative of such bias.

If for any reason the machine were to fail to sample the counter to establish a new state, the previous machine state would be repeated. To test for this possibility, we tally the number of repeats following the depression of each key. A repeat ratio significantly greater than 0.25 should be considered a danger signal.

We also tally the initial machine states following reset and the transitions between states. In each case, the number of occurrences of each of the four possible outcomes should be approximately equal. When repeats are deleted from the sequence of trials ("nondiagonal transitions"), the four states should also be approximately equal in frequency.

In testing the null hypothesis of four equally likely outcomes of a trial, a likelihood ratio test is used. The statistic

† Alexander Mood, Introduction to the Theory of Statistics (McGraw Hill, New York, 1950).

$$-2 \sum_{i=1}^{4} n_i \, \ell n \left(\frac{n/4}{n_i} \right)$$

under the null hypothesis is distributed approximately as chi-square with three degrees of freedom, with rejection for large values of this statistic. The computer program used in testing randomness includes a subroutine for computing the probability of a chi-square value as large or larger than that observed.

In testing the null hypothesis that the probability of a repeat is 0.25, the binomial probability of obtaining the observed number K or more repeats in N trials is computed. For K greater than 1000, a normal distribution approximation is computed, assuming the statistic

$$\left(\frac{K - 1/2}{N} - 0.25 \right) \sqrt{\frac{N}{3/16}}$$

to be approximately normal with mean zero and standard deviation one.

The typical test pattern used was six passes followed by twenty-five choices of one color, repeating this for each of the four colors. In this way each of the five keys other than rest were given approximately equal use. Typically, 2,000 to 6,000 trials were made in each sitting. In the absence of any unusual results in the randomness tests, a minimum of 10,000 trials were made before using a machine with experimental subjects. With 10,000 trials, the expected fraction of repeats is 0.25 with a standard deviation of 3/200 = 0.00866.

A sample computer listing of the results of randomness tests on Machine 4 is included in Table 1. Of the four machines tested, three were found suitable for use in screening activity. The fourth machine was returned to the manufacturer for adjustment.

Table 1

RANDOMNESS TESTS--MACHINE 4

	Buttons				Number of Trials	Chi-Sq.	Binom. Prob.
	Yellow	Green	Blue	Red			
Initial states	107	116	113	128	464	1.996	0.57
Transitions	728	764	765	790	3047	2.573	0.46
	777	784	773	863	3197	6.745	0.08
	776	796	810	773	3155	1.158	0.76
	787	852	803	805	3247	2.877	0.41
All states	3175	3312	3264	3359	13110	5.667	0.18
Nondiagonal transitions	2340	2412	2341	2426	9519	2.630	0.45

Diagonal transitions	Key	N-Trials	Repeats	Ratio	Binomial Prob.
	Yellow	2774	705	0.2541	0.313
	Green	2755	674	0.2446	0.748
	Blue	2761	706	0.2557	0.250
	Red	2742	667	0.2433	0.793
	Pass	1614	375	0.2323	0.953
	All	12646	3127	0.2473	0.763

Randomness in groups of 100 trials:

Chi-sq. = 299.6141 D.F. = 345 Prob. = 0.9628

Appendix 2

PERSONAL OBSERVATIONS ON THE USE OF THE FOUR-STATE ELECTRONIC RANDOM STIMULUS GENERATOR *

The following notes are based solely upon my experience and I therefore make no claim that they are generalizable to other persons. Since I am still learning about ESP phenomena, I am confident that additional work in this area will expand, modify, and refine the perceptual processes discussed below. While I have tried to describe these experiential processes with as much precision as possible, the use of seemingly precise language should not leave the impression that the perceptions themselves were equally precise. To the contrary, I found these perceptions to be delicate, transient and ephemeral--and yet, at the same time--and somewhat surprisingly--unmistakably real.

1. Perceptual Processes

Working with the ESP machine proved to be a venture into unfamiliar perceptual territory which functioned according to new and different rules. It took some time (five hours or so with the ESP machine) to begin to learn not only which perceptual processes would work but, equally important which would not work. There was clearly a learning process in finding those delicate and subtle internal cues that would allow me to make perceptually based choices. After approximately 1000 trials with the ESP machine, five dominant perceptual modes emerged. Subsequent

* Prepared by a policy research analyst at SRI, who was a high-scoring subject ($p < 10^{-6}$) with the four-state electronic random stimulus generator.

work with the machine seemed to essentially expand and refine these perceptual processes that emerged initially.

Direct Knowing (Used approximately 5 to 15 percent of the time)--This perceptual cue came as a "gift" that I did not have to work for. This is not to say that this "cue" was always right, but when there was a direct perception of the appropriate response unmediated by any of the other cues described below, my chances of being right seemed quite high (say 75 percent of the time). Internally, this was simply the feeling that I should push one specific button and the knowing was almost immediate. If it were not immediate then, typically, one of the other cues would be used.

"Closure Cues" (Used perhaps 75 percent of the time)--This cue manifested itself in a variety of ways; a sense of "fullness" with respect to a particular button, an internal anticipation of the bell ringing, a sense of "hardness" or "firmness" and a sense of being "locked into" the correct response. The validity of this cue could be tested by acting and thinking as if I were going to push a particular button and then noting the extent to which these "closure cues" became present. This sense of active intentionality--both physically and psychologically--seems important in that it allowed me to sort out many real from imagined perceptions. Also, this cue often gave a kind of veto power; i.e., it did not necessarily assure me as to the right answer but it would tend to tell me if I had picked the wrong one, i.e., I would not experience the aforementioned cues.

Pattern Recognition (Negligible use initially, but then used approximately 75 percent of the time during Phase IV)--Although I used this perceptual mode very infrequently during the initial stages of the experiment, it emerged rather naturally toward the end. This was similar to the "direct knowing" but not isolated to a single button; rather, there was a sense of the next two to three buttons that would be the correct responses. These perceptual cues were obtained in a less objective/rational way and in more of a meditative state, highly concentrated but without specific focus on a particular button. Interestingly, in using this perceptual process, I was able to go somewhat faster and have greater access to all of the buttons in an equivalent way (see the second point under Section 2 next page). Thus, this mode had the advantage of loosening habituated perceptual patterns but it also made selections less amenable to conscious control and testing. This process proved to be either highly accurate or highly inaccurate. Accuracy seemed to be a function of the degree to which I could become synchronized with the evolving pattern of machine selected choices--and it was easy to get out of phase/sequence with this pattern.

<u>Rational Guessing (Used approximately 5 percent of the time)</u>--Although I virtually never did try to superimpose some rationally predicted pattern upon the random, machine selection of buttons, I would sometimes temper my selections (very seldom for the better) by noting that one button had come up too often for it to be likely on the next trial or, conversely, it had come up so seldom that it should be given special consideration as a likely possibility on the next trial. Again, although this was a tempting strategy, I found that random processes were not amenable to rational anticipations and my rational guesses seemed often to be wrong.

<u>Tension/Vector Analysis (Used approximately 75 percent of the time)</u>--Here the cue was manifested as a sense of tension(s) pulling in one direction or another with the selection buttons as the locus for that tension. The cue was also manifested as a feeling of "emptiness" and

conversely as a sense of "fullness." To describe this process further, it felt analogous to vector analysis in physics where, in sorting out competing tugs and pulls, one finds the "dominant" vector; i.e., the one with the strongest "pull" or the one that best "balances" the other vector tensions. Figure A-1 illustrates this phenomenon.

Although the tension/vector cues were very useful and among the most reliable of all the cues, I found them to be at times quite misleading. The source of confusion stemmed from the role of time as a variable rather than a constant in extrasensory reality (discussed in more detail under section "Comments on Perceptual Processes"). If my assumptions as to the temporal nature of my perceptions did not fit with the actual nature of those perceptions. then the perceptions were quite misleading. (Recall that precognition refers here to a button that will be selected in the future--typically the next trial). The nine-cell matrix shown in Figure A-2 may clarify the complexity of the perceptual process, the need for discriminating awareness and the possibility for error. Out of nine possible combinations of the assumed/actual nature of perceptions, only three are matched or congruent and yield accurate understandings. Each of these primary cases is discussed below:

- Clairvoyant--Here the feeling which allows sorting and selection is like that described in Figure A-1.
- Precognitive--The feeling, sorting, and selection is like that described in Figure A-1 with clairvoyance; the primary difference being a shift in the time dimension to refer, not to the present target of the machine, but to the one to be selected next. To act on this perception I would press the pass button to bring the future into the present and then press the button that corresponded to my precognitive perceptions.
- Clairvoyant and Precognitive--The perception is of a pattern of buttons, distributed through time, that are and will be selected by the machine--the "pattern" usually consisted of two to three buttons. Again, the time variable was most

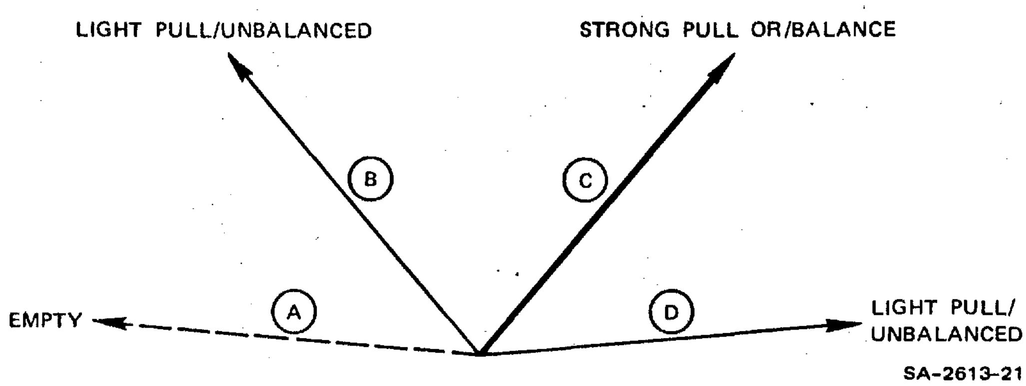

FIGURE A-1 ILLUSTRATION OF TENSION/VECTOR ANALYSIS IN OPERATION
With Button C being the one selected using these cues.

ACTUAL NATURE OF PERCEPTIONS

ASSUMED NATURE OF PERCEPTIONS		Clairvoyant	Precognitive	Clairvoyant and Precognitive
	Clairvoyant	Correct Perception	Misperception	Misperception
	Precognitive	Misperception	Correct Perception	Misperception
	Clairvoyant and Precognitive	Misperception	Misperception	Correct Perception

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FIGURE A-2 MATRIX SHOWING CORRECT PERCEPTION AND MISPERCEPTION IN THE USE OF TENSION/VECTOR CUES VIA THE INTERFACE BETWEEN ASSUMED AND ACTUAL NATURE OF PERCEPTIONS troublesome--typically with greater difficulty in determining the order in which the buttons would appear as targets and lesser difficulty in determining which buttons were targets.

Confusion and error would arise when I assumed the tension/vector perceptions were clairvoyant when in fact they were (say) clairvoyant and precognitive. To explain how this felt, refer back to Figure A-1. If the actual sequence of correct answers were Buttons B and D, and if I were assuming the perceptions were clairvoyant only, then it was not uncommon to have the perception that the intervening button (C) was the correct choice. The rationale for this perception was that it felt like a balance point between Buttons B (present target) and D (next target).

In retrospect, when I am more rationally aware of the room for error in the use of this cue mechanism, I am somewhat surprised as to how useful it was in operation.

It should be clear from the preceding descriptions that selections were made by a variety of processes which were used sometimes in isolation and oftentimes in combination. A typical sequence in the selection process was: (1) Check for "direct knowing" cues, if not there, then (2) Use "tension/vector" cues, then (3) Make final selection with "closure cues."

2. Comments on Perceptual Processes

Rather than work rapidly, I chose to work deliberately, consciously, and therefore slowly. I would typically take five to thirty seconds to select a button--enough time to have a firm and conscious sense of my internal cues and what I thought they meant. The typical sequence would be as follows:

- Clear mind and become quiet
- Concentrate internal awareness

- Observe various cues
- Rationally interact with cues to sort them out
- Select a button and press it
- Integrate feedback from response
- Clear mind and become quiet.

Except during "pattern recognition," when all buttons seemed equally accessible, I found that the top two buttons on the machine were much more accessible than the bottom two. Three plausible explanations emerge to account for this. First (and least likely I think) is a psychological predisposition against the bottom two buttons--perhaps because of the color of the buttons or because of the pictures associated with the targets. Second is the possibility that the circuitry of the ESP machine in some way favors the top two buttons or obscures the bottom two. Third (and most plausible to me) is the possibility that to the extent I used the "tension/vector" cue, then the bottom two buttons would be without a vector below them--making it more difficult to "bracket" the bottom two buttons with this perceptual process. In later phases of the experiment, I was more able to access the bottom two buttons and this seemed to correspond with increasing use of the "pattern recognition" cues and the decreasing use of tension/vector cues.

The longer I worked with the ESP machine, the more apparent it became that, in an extrasensory perception reality, time becomes fluid. In other words, although the experiment was designed to test clairvoyance (selecting the current target) only, I found that the perceptual cues would oftentimes be equally applicable to precognition (selecting a future target--usually the next one). Therefore, making a correct selection required doing two things; first, finding the correct "pattern" of buttons that would be randomly selected by the machine (typically the pattern consisted of two to three buttons) and second, associating a time component with the buttons in that pattern. Stated differently, the same cues discussed above held equally well for precognition or for clairvoyance--so the problem of making a selection was compounded by the additional difficulty of having to determine whether a perceptual cue was associated with the button that had already been selected by the machine or the button that would be selected in the next or even subsequent trial. I definitely felt that if I could consistently separate clairvoyant from precognitive dimensions of identical cues, that I could substantially increase the accuracy of overall scores.

The cues were not always consistent in their presence and meaning. For example, I might be obtaining good results with the use of tension/vector cues and then find them becoming ambiguous, with a commensurate decline in my score. Then I would rely more heavily upon other cues. Or, the cues might work well for clairvoyant perceptions for a while but then shift to operate for precognition--then I would have to "recalibrate" myself to the cue mechanisms. So, it was a fluid, dynamic perceptual process which required flexibility and patience. Highly significant scores and perceptions seemed to go in spurts of ten trials or so, then I would fall back to a chance level until I could resynchronize myself ith the machine and the character of my perceptual cues.

I tend to agree with the notion that it might be more appropriate to call these processes "extraconceptual perception" rather than "extra-sensory perception." The perceptual cues were definitely present and they had sensory dimensions even though they do not fit into our traditional sensory categories. Just "where" and "how" these sensory cues were present is not clear to me--but these are essentially conceptual rather than sensory issues.

3. Problems in Perceptual Translation

A basic problem in using the ESP machine was not so much the obtaining of perceptual data as the translating of those data into sufficient information to allow the action of selecting the correct button. While the act itself is so simple as to be trivial, the information processes (gathering, filtering, dynamically translating) underlying that act seemed to me very substantial. It is within this unseen and unrecorded portion of the ESP testing process that most of the "action" takes place. From this vantage point I would like to suggest two impediments that might partially account for relatively low scores.

First, I am still not fluent in the "language" of extrasensory perceptions--analogously, it is like hearing many separate commands in Russian (or another unfamiliar language), each time spoken in slightly different ways and with different intonations and inflections. The call for action may be clearly heard but the translation of that command into operational reality is an imprecise process until the language can be better understood.

Second is the problem created by shifting back and forth between rational and intuitive knowledge processes during the course of the experiment. In selecting a single button I would use intuitive knowledge processes for perception and oftentimes, rational or semirational knowledge processes to interpret those perceptions. This is not to say that the rational component is absolutely necessary, but it did seem to be useful for me. In any event, since the experiment covers thousands of trials (button selections) it required thousands of translations from one knowledge mode to another. Although the rational mode did seem helpful for inter-