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A Comprehensive Research Plan for Anomalous Mental Phenomena (U)

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I OBJECTIVE (U)

(S/NF) The objective of this research plan is to suggest a long–term, systematic and comprehensive investigation of anomalous mental phenomena. The plan includes an integrated and multidisciplinary approach to both basic and applied research, and combines these with standard HUMINT practices to accomplish the long–term goals for applications in the intelligence community.

II EXECUTIVE SUMMARY (U)

(S/NF) This report describes a comprehensive, long-term research plan for anomalous mental phenomena (AMP) that is adapted to both the laboratory and operational environments. Section III provides a brief technical and administrative review of previous government involvement in AMP, and Section IV describes the research plan in detail. Section V provides a rationale for each of the individual research items in the plan and gives supporting references to the appropriate topic areas. Science Applications International Corporation's (SAIC) recommendations are presented in Section VI. The remaining sections provide tabulated references and a glossary of terms including a cross reference guide to foreign terminology. The last section contains a bibliography of 260 major reports produced from 1975 through 1990 for various government sponsors.

(U) With regard to this research plan, anomalous mental phenomena can be divided into two broad categories:

(1) Anomalous Cognition: A form of information transfer in which all known sensorial stimuli are absent.

(2) Anomalous Perturbation: The perturbation of matter in which all known physical interactions are absent.

Anomalous cognition (AC) includes phenomena that are described in the parapsychological literature as extra-sensory perception (ESP), telepathy, clairvoyance, and precognition, while anomalous perturbation (AP) includes psychokinesis, teleportation, levitation, and materialization.

(S/NF) The primary objective of this plan is to provide a systematic and scientifically sound methodology to improve the quality of AC data in the laboratory and during operations. In addition, the long-term objective is to understand the underlying mechanisms for the source, transmission and detection of AC data, and to attempt to validate the existence of AP phenomena.

(S/NF) To accomplish these objectives, 32 separate major topics have been identified, and most of these contain a significant number of subtopics. All of these topics are divided into basic and applied research. Basic research is primarily dedicated to understanding the fundamental mechanisms of AMP, whereas applied research is primarily dedicated to improving the quality of AC data. Eighteen of the 32 topics are considered applied and the remainder are basic.

(S/NF) Conceptually, the plan for the applied research of anomalous cognition is organized to:

- Identify individuals with natural, high-quality AC talent or potential talent (i.e., with training).
- Train those individuals to improve and stabilize their output.
- Identify optimal target systems.
- Develop optimal data-collection protocols.

- Locate specific targets.
- Provide quantitative analysis procedures.
- Define and develop curricula for an intelligence analyst training school, if warranted.

(U) The basic research plan is organized to:

- Define the nature of an AC target.
- Quantify how AC information propagates.
- Understand the neurophysiological mechanisms that allow humans to experience AC.
- Verify the existence of AP.

(S/NF) Fifteen of the 32 topics are scheduled to commence at the start of fiscal year (FY) 1992. Of these, 10 are designed for completion by mid FY 1994. *If* the applied research is successful, then by that date, the following conclusions are one possible scenario: (Please see Figure 2–4 in Section IV for more detail.)

- Individuals who are the best candidates for AC training are easily identified by their neurophysiologicall responses to external stimuli.
- These individuals can be trained for operations by systematically lowering their internal awareness thresholds for external events.
- Appropriate targets are chosen on the basis of specific physical properties.
- Protocols for data collection are improving, but more research is needed.
- Sophisticated mathematical procedures (i.e., fuzzy sets) provide quantitative analysis for laboratory data and *a priori* assessments for operational data are nearly developed.

In addition, *if* the basic research is completely successful, we will have met most of the stated objectives for that domain.

(U) The scenario for the applied research is a reasonable expectation, but admittedly, the basic research scenario is optimistic. It is anticipated that significant progress will be realized by mid FY 1994.

(U) The remaining 17 items are variations that will be invoked depending upon the progress of the research. Their general theme follows the above outline; however, the details may be considerably different.

(U) The total plan can not be accomplished without the assistance of numerous university departments, national laboratories and AMP laboratories. Thus the plan calls for significant integration of the research into the broader context of academic science. (See the Integration Section V.3.1 for details.)

(U) To assure that a scientifically sound approach is maintained throughout the 5 years, SAIC suggest that a technical panel of academic and government experts be established. Their task is to closely monitor the research, critically review the results and conclusions, and suggest avenues of research that may lead to future breakthroughs.

(S/NF) SAIC further recommends that to effectively accomplish the stated objectives, a 175 man–year program should be initiated in fiscal year 1992. The level of effort for the first two years is approximately $7.5 M and that will gradually increase over the next five years to a total of $30 M.

III INTRODUCTION (U)

(U) With regard to this research plan, anomalous mental phenomena can be divided into two broad categories:

(1) Anomalous Cognition: A form of information transfer in which all known sensorial stimuli are absent.

(2) Anomalous Perturbation: The perturbation of matter in which all known physical interactions are absent.

Anomalous cognition (AC) includes phenomena that are described in the parapsychological literature as extra–sensory perception (ESP), telepathy, clairvoyance, and precognition, while anomalous perturbation (AP) includes psychokinesis, teleportation, levitation, and materialization. Complete definitions and cross references to domestic and foreign synonyms can be found in Section VIII (i.e.,Glossary). Both AC and AP taken together constitute what we call anomalous mental phenomena.

(U) For the purpose of this document, we define research that is primarily directed at improving the quality of output (e.g., analysis techniques, choice of target material, etc.) as *applied*. Research that is primarily directed at understanding the nature of the phenomena (e.g., signal transmission, neurophysiology, etc.) as *basic*. The applied and basic research domains are broad and contain substantial numbers of items in each category. These domains are highly interactive and mutually supportive. Understanding the technical details of AC phenomena, for example, would improve its application potential, and likewise, being sensitive to the restrictions of a real–world problem may provide insight into underlying mechanisms.

1 Historical Background (U)

(S/NF) Government funded research of both these domains began in 1973 when the Central Intelligence Agency initiated a modest effort to determine if a genuine phenomenon could be verified and to assess the degree to which it could be applied to general intelligence problems. Through fiscal year 1985, a variety of intelligence agencies from the military services and the Defense Intelligence Agency had supported predominantly application–oriented research programs at SRI International for the intelligence community. Much of that support was minimal and/or sporadic and thus very little systematic research was conducted.[1] While the understanding of anomalous mental phenomena at that time did not allow for reliable operational use, nonetheless, enough had been learned to suggest that intelligence applications were possible and that applied and basic research should be conducted to verify and support potential operational applications.

(S/NF) Beginning in the federal fiscal year 1986, the Army Medical Research and Development Command (USAMRDC) initiated a coordinated, 5–year, basic research investigation of anomalous mental phenomena at SRI International. This program had three objectives:

(1) Provide incontrovertible evidence for the existence of anomalous cognition and anomalous perturbation.
(2) Determine the physiological, physical, and psychological basis for AC and AP.
(3) Determine the degree to which AC data could be integrated into the intelligence community.

(S/NF) The program was fully funded for the first two years; half funded for the 3rd year; and not funded by the USAMRDC for the 4th and 5th years of that contract. The House Appropriations Committee, however, funded the 4th year (at the same level as the 3rd) through DARPA to the USAMRDC contract. The 5th year of that contract was not funded at all.

(S/NF) Regardless of this uncertain support history, SRI's program met, or partially met, its objectives.[2–5] An information–transfer anomaly (i.e., anomalous cognition) that could not be explained by inappropriate protocols, incorrect analyses, or fraud was found to exist.[6] SRI's program was not, however, able to verify the existence of anomalous perturbation.[7–10]

(U) Significant progress had also been realized in meeting the second objective. Preliminary results suggest that the central nervous system (i.e., the brain) of individuals with known AC ability appear to respond to isolated and remote AC stimuli. These responses are similar to those observed when their eyes are stimulated directly.[11]

(U) In addition, two theoretical models have been constructed. The first one, a heuristic model, systematizes the data of over 600 separate experiments spanning 22 years of research that had been published in the open literature. It suggests a possible physical transfer mechanism for AC data.[12] The second one, a fundamental model, suggests that animals possess an additional sensorial system that is sensitive to "information" directly.*

(S/NF) In addition to these major findings, the program realized a number of preliminary secondary findings. They include, but are not limited to:

- Dynamic targets are statistically better than static targets in AC laboratory experiments, in simulated operational activity, and in actual operations.
- Traditional psychological, medical, and behavioral screening methods are not successful at identifying individuals with AC ability; however, empirical surveys indicated that approximately 1% of individuals from unselected populations do possess a robust, natural AC ability.[13]
- A number of empirically–based training methods were developed, but the results from these were preliminary.[14,15]
- Anomalous Cognition does not depend upon distance or the time span between a target and an AC receiver.[16]

It is beyond the scope of this report to provide a technical review of the long history of SRI's cognitive sciences program in detail; however, complete documentation and technical briefings will be provided upon request. In addition, the Section IX provides a list of the major documents that were produced under that effort.

* (U) Traditionally this "process" has been called "entropy" in the technical literature.

2 Overview of the Research Plan (U)

(S/NF) This document describes a plan which begins with the results and techniques of the earlier program, and develops new concepts that are integrated into the general research community. In addition, the plan suggests ways in which AC–derrived operational data might be integrated as general HUMINT information into the intelligence community. Because of the complex nature of the research problem, the plan will be interdisciplinary and will involve a number of specific university departments and government laboratories.

(U) The plan, itself, is shown in detail in Section IV, in which approximate start and stop dates for a variety of tasks are included. Because all the applied research issues become critically important for any basic research that involves experimentation (i.e., non–theoretical), they are described first. The rationale for selecting the topics for investigation can be found in Section V. This section also includes references the the relevant research and a brief research history, where warranted. By necessity, the plan will be long–term; however, a step–wise conservative approach that contains significant technical and policy review is outlined in Section VI. Sections VII and VIII provide a list of references for this document and a glossary of terminology, respectively. A complete bibliography of earlier research can be found in Section IX.

(U) Finally, a separate Volume that contains a representative sample of publish papers that bare directly on anomalous mental phenomena research is available upon request.

IV RESEARCH PLAN

(U) In this section we detail a comprehensive, long-term research plan for anomalous mental phenomena (AMP).

1 Definition of Terms (U)

(U) In a typical AMP task, we define:

- Receiver—An individual who attempts to perceive and report information about a target.
- Agent—An individual who attempts to influence a target system.
- Target—An item that is the focus of an AMP task (e.g., person, place, thing, event).
- Target Designation—A method by which a specific target, against the backdrop of all other possible targets, is identified to the receiver (e.g., geographical coordinates).
- Sender/Beacon—An individual who, while receiving direct sensorial stimuli from an intended target, acts as a putative transmitter to the receiver.
- Monitor—An individual who monitors an AC session to facilitate data collection.
- Session—A time period during which AC data is collected.
- Protocol—A template for conducting a structured data collection session.
- Response—Material that is produced during an AC session in response to the intended target.
- Feedback—After a response has been secured, information about the intended target is displayed to the receiver.
- Analyst—An individual who provides a quantitative measure of AC.
- Speciality—A given receiver's ability to be particularly successful with a given class of targets (e.g., people as opposed to buildings).

These terms will be used throughout this document, and a complete glossary, which compares AMP terms from a variety of countries, can be found in Section VIII.

2 Research Objectives (U)

(U) Given that the earlier program was able to verify the existence of anomalous cognition (AC) and not able to verify the existence of anomalous perturbation (AP), the research approaches to them will be considerably different.

(U) The primary research objective for AP research is to validate the existence of a phenomena.

(S/NF) Figure 1 shows a schematic representation of the research objectives for AC. The objectives are independent of whether the end-use is in an operations unit or in a fundamental research laboratory.

The requirements for the best receivers, optimal targets, protocols and assessments are the same for both circumstances. Therefore, research is shown in Figure 1 as supporting all potential uses of AMP.

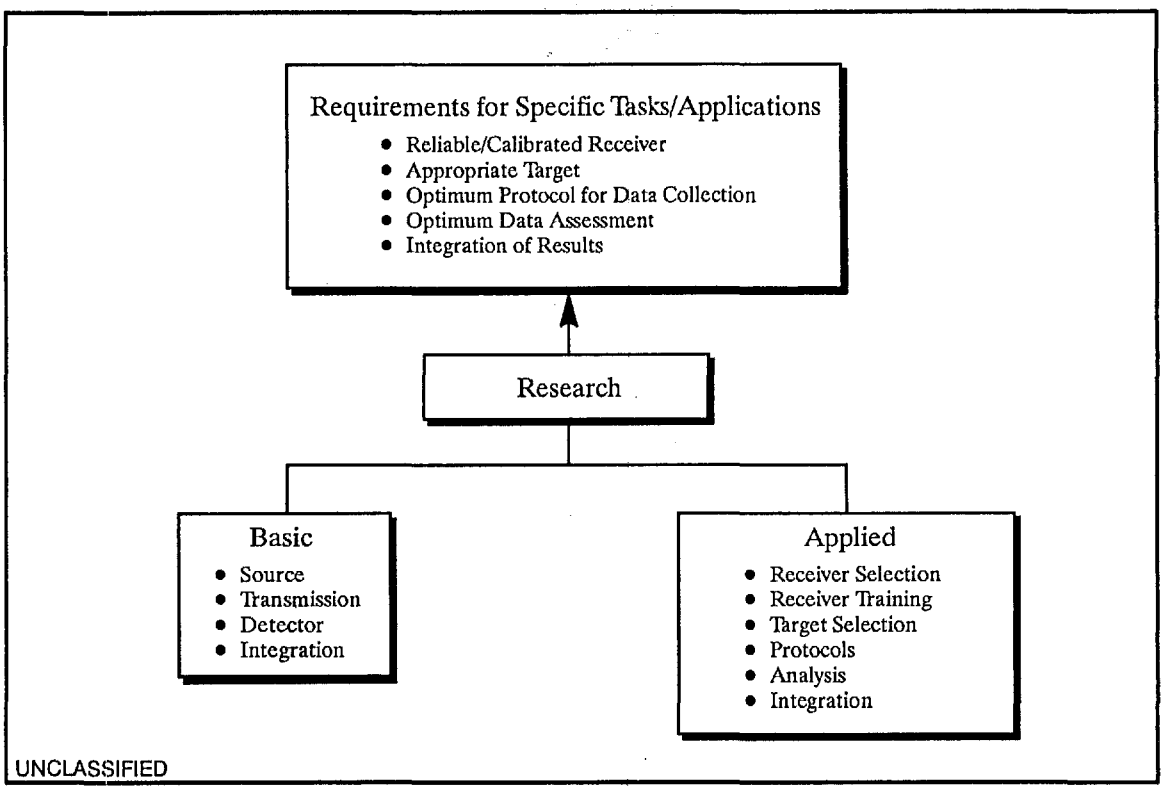

Figure 1 (U) Research Objectives

2.1 Basic Research (U)

(U) The objective of basic research is to understand the fundamental, underlying mechanisms for AC. As a an analogy, we use a "transmission" model; a source of AC "radiates" information (i.e., transmission) that is detected. For example, consider vision. The source of "vision" informations is photons. How photons radiate is the subject of the well–understood electromagnetic theory. The detection of photons by animals is via the retina in the eyes. Because of our understanding of the entire process, we have developed instrumentation that is quite effective at detecting photons, as well.

2.1.1 Source (U)

(U) The objective of source–research is to understand the fundamental nature of an AC source by developing a quantitative, intrinsic description of AC targets. By that we mean the target definition must be independent of external perceptions. For example, a receiver's emotional response to a target is not necessarily an *intrinsic* property of that target; rather, it can be thought of as a form of detector "efficiency" (i.e., affecting the ability of the receiver to detect), and thus be considered as an applied topic.

2.1.2 Transmission (U)

(U) The objective of transmission–research is to understand how AC information traverses space and time from the source to the detector.

2.1.3 Detector (U)

(U) The objective of detector–research is to understand how AC information is sensed. Ultimately, the long–term objective is to construct hardware that is capable of receiving AC information. In the near–term, however, the objective is to understand the physiological mechanisms in humans. This is equivalent to understanding the retina and its associated initial neurological precessing for the visual system.

2.2 Applied Research (U)

(U) The objective of applied research is to improve the quality of AC responses. All aspects of the items shown in Figure 1 under "Applied" are important and considered here.

2.2.1 Receiver Selection (U)

(U) The objective of receiver selection–research is to identify individuals who possess either a high–quality natural AC ability or a trainable one. This research includes physiological, psychological, and empirical methods (i.e., selecting receivers on the basis of performance in AC tasks).

2.2.2 Receiver Training (U)

(S/NF) The objective of training–research is to create a set of specialty–dependent training manuals that have been shown to be efficient and effective in teaching high–quality AC for applications the laboratory and operational settings.

2.2.3 Target Selection (U)

(S/NF) The objective of target selection–research is to develop a system to categorize potential AC targets with regard to their inherent AC "visibility." In operations, it is likely that all potential targets are not equally amenable to AC. Having a mechanism to sort them along this dimension, can significantly improve AC applications to intelligence.

2.2.4 Protocols (U)

(U) The objective of protocol–research is to design a series of instructions for conducting AC sessions that are optimized for each particular application. It is likely that different protocols will be required for different target systems, receivers, and for laboratory and practical applications.

2.2.5 Analysis (U)

(S/NF) The long–term objective of analysis–research is to provide meaningful absolute measures of the of information that is transferred by AC. The near–term goal, however, is to provide quantitative assessments of AC data when the target systems are completely known, and provide quantitative, *a priori* assessments under operational conditions when the target systems are not known in detail.

2.3 Integration (U)

(U) An important objective is to integrate basic and applied research results into the appropriate communities. Many of the research items involve aspects that are important topics for investigation in universities and national laboratories. For example, understanding the brain's response to a momentary visual stimulus is likely to assist our understanding of the brain's response to an AC stimulus. Similarly, there are a number of laboratories that are currently engaged in AMP research. The objective includes

providing a number of subcontracts to specific university departments and national and AMP laboratories to support research that bares directly on the broader AC questions.

(S/NF) The objective for the results of the unclassified research both within the cognitive science program (CSP) and that which is supported by the CSP, is to publish in main–stream technical journals whenever possible. The objective for intelligence results is to develop HUMINT–like procedures so that the existing HUMINT infrastructure can be used.

3 Method of Approach (U)

(U) A research plan that meets these objectives must be comprehensive, integrated, multi–disciplinary, long–term, and flexible. Any AC experimental investigations of basic fundamentals require optimal AC output; therefore, the applied research plan will be discussed first.* The plan for basic AC and AP research follow in the next sections.

(U) Figures 2–4 are approximate timing chart for these research domains. Since it is beyond the scope of this plan to provide protocols for individual experiments, these timing charts are as much an indication of priority as they are an indicator of temporal events. Closed, right–pointing arrows indicate the start of a given activity, and closed, left–pointing arrows indicate the end of an activity. Open arrows indicate decision points. If the research does not appear fruitful at that juncture, then it is abandoned. If, however, the results warrant, the activity will continue. The plan covers the fiscal years (FY) from 1992 through 1996.

(U) This section provides a rationale for the proposed organizational plan as shown in Figures 2–4. The rationale for individual research items within each section of these figures can be found in Section V.

3.1 Applied Research Plan for AC

(U) Figure 2 shows the overall plan for the applied research. The topics follow those shown under "Applied" in Figure 1.

3.1.1 Receiver Selection (U)

(U) The most promising potential for selecting receivers is to identify ancillary activity that correlates with AC ability. If such activity can be identified, then receiver selection can be incorporated as part of other screening tests (e.g., fighter pilot candidacy). Large populations can then be screened. Therefore, this task begins in FY 1992. Among the items that will be examined are physiology (e.g., responses of the brain to external stimuli) and hypnotic susceptibility (i.e., an individuals predisposition for being hypnotized). The results of this effort will be examined continuously, however, a decision to end the investigation will occur in mid FY 1994. Should the results at that time warrant, then refining of the techniques will continue to the end of FY 1996. The reason the initial research spans 2.5 years is that to validate even one psychological finding requires testing the candidate receiver using AC techniques. Current statistical methods require many AC sessions per receiver, and experience has shown that only a few sessions can be conducted per week per receiver.

(U) To allow for indications of success with the associated–functioning approach, research of psychological and behavioral techniques for receiver selection will begin after the first year. Previous research

* (U) It is likely that basic theoretical research will also require validation by non–AC physics and physiological experiments.

has shown that, while statistically significant results have been observed with these techniques, the effects are small and understanding them is problematical.* While the same comments about the length of time required for validation are true, these techniques have a lengthy research history, and thus a definitive answer about their effectiveness should be available by mid FY 1994.

(U) The previous program was able to estimate that approximately one percent of the general population possesses a high−quality, natural AC ability. The empirical method (i.e., asking large groups to attempt AC) is labor intensive and very inefficient; therefore, we have included it in the research plan only as a last resort. Thus it is scheduled to begin in mid FY 1994 only if the other techniques do not provide useful results.

3.1.2 Receiver Training (U)

(S/NF) Training has been a major part of the previous program; however the laboratory results have not been encouraging with regard to the empirical approach. That is, a few calibrated receivers have transcribed their internal experiences as they are producing high−quality AC data into training hypotheses. Due to resource limitations, these have not been systematically validated, but because of initial successes they were nonetheless incorporated into operational activity.

(U) Beginning in parallel at the start of FY 1992, is a systematic examination of one in−use empirical training method, and an exploration of associated functioning that may bare on the training issue. For example, lowering an individuals visual subliminal threshold (i.e., the level below which an individual is not consciously aware of visual material) might allow for a more sensitive response to AC targets. Included in this latter approach is an examination of the effects upon training of various altered states (e.g., lucid dreaming and hypnosis).

(U) A definitive answer about the empirical method should be available at the close of FY 1993. Because of their inherent complexity and variety of AC specialties that are required, the associative techniques continue for another year before an assessment is made. If no progress has been observed and if there have been no positive results from basic research, the task ends. However, should appropriate brain functioning be identified or should any of the other techniques appear promising (e.g., conditioning receivers with feedback), then the task will continue until the end of FY 1996.

(S/NF) It is anticipated that all laboratory successes must be validated by simulating operational tasks. These experiments involve identifying the speciality to be tested and its associated acceptance criteria, and conducting sessions in which the complete target systems are known. This 3−year activity runs concurrently with the other tasks but with a 1−year offset to allow for planning.

3.1.3 Target Selection (U)

(U) Based on earlier research, the most promising approach to target selection has been a single physical characteristic called entropy (i.e., a measure of information that is inherent in the target). Beginning in FY 1992, two and one half years have been allocated for the detailed study of this aspect of target properties. Initially, little experimentation is required; rather, a retrospective examination of previous target systems should indicate if this approach is valid. Included in this examination, are detailed calculations of natural target scenes. In mid 1994, a decision will be made whether to continue or abandon the task depending upon the results to date. If warranted the task continues through FY 1996 with field testing.

* (U) All references in this section to previous research can be found as part of the justification in Section V (i.e., Rationale).

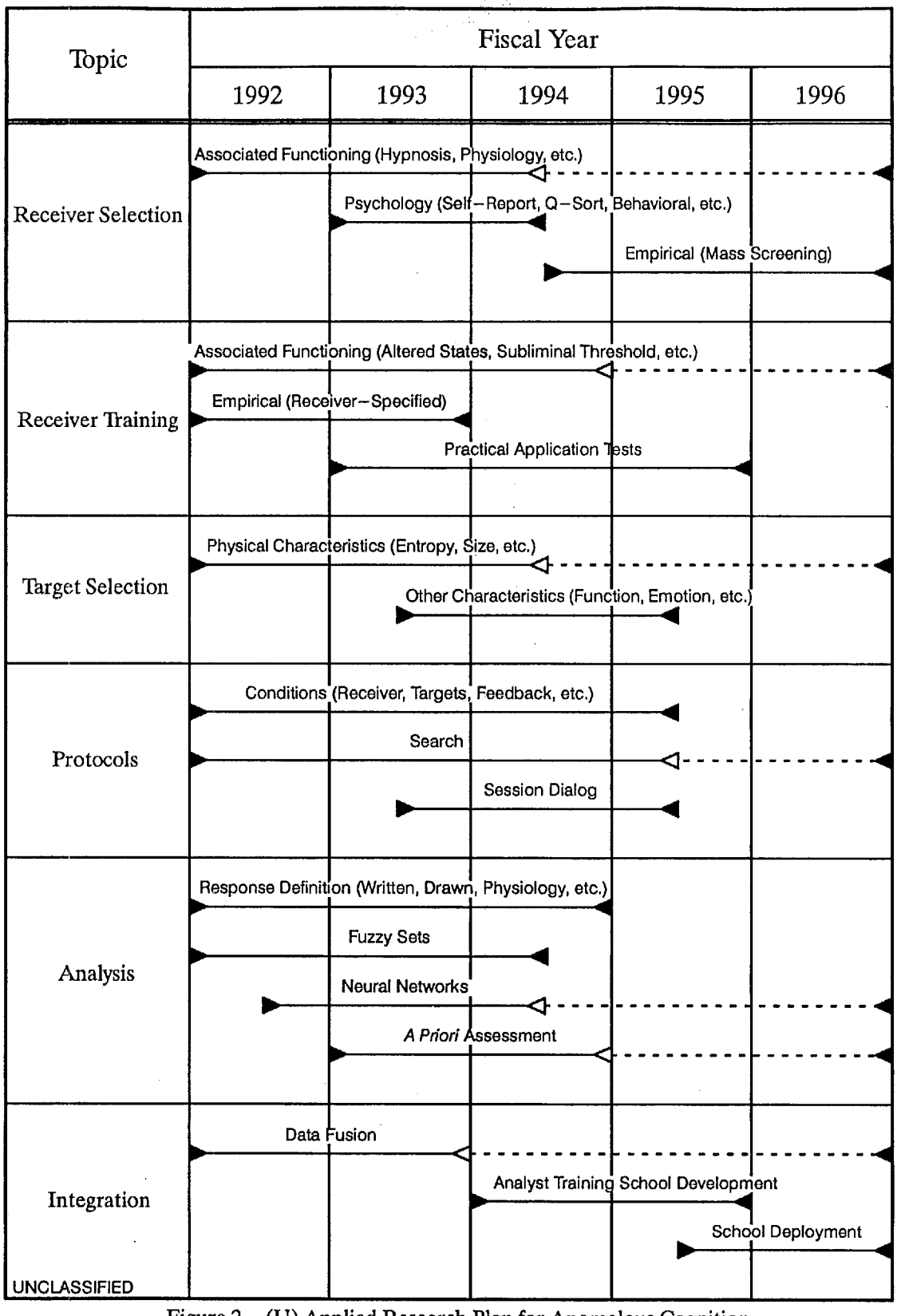

Figure 2 (U) Applied Research Plan for Anomalous Cognition

(U) Beginning in mid FY 1993, however, an investigation of other potential intrinsic target properties will be examined. Included in this task is developing a quantitative definition of targets that include non–physical target parameters such a function and elemental structure. For example, a target may be more readily sensed by AC if the collection of elements at the site (e.g., trees, buildings, roads) constitute a conceptually coherent unit as opposed to a collage of unrelated items. This task lasts until mid FY 1995 at which time it is scheduled to end.

3.1.4 Protocols (U)

(U) Given the laboratory success of AC experimentation, the protocol task can build upon a substantial literature. Determining optimal, specialty–dependent protocols only requires extending current concepts. The 3.5 years that have been allocated is primarily due to the statistical nature of AC analysis that is required to determine the effects of environment, receiver, target and feedback conditions experimentally.

(S/NF) Another aspect of the protocol task is to develop a reliable search capability. To be able to locate item of intelligence interest is a major requirement of the intelligence community. Because search has not been particularly successful under laboratory conditions, we initiate the task in FY 1992. After exploring a variety of procedures including information theory and empirical methods, if little progress has been made, then the task ends in mid FY 1995. However, if results are promising, considering the innate importance to the intelligence community, the task will continue through FY 1996.

(S/NF) After allowing time for understanding the optimal protocol conditions, we will initiate in mid FY 1993 an investigation of the proper within session dialog between a monitor and a receiver. While the form of this dialog is important in the laboratory, its effects upon operational sessions is critical. How much is said when may mean the difference between a successful outcome or not.

(U) It is anticipated that both protocol development tasks can be terminated in mid 1995.

3.1.5 Analysis (U)

(U) As in the case of protocol development, this task can build upon a substantial previous history. Since all forms of analysis require a quantitative definition of a response, this and the fuzzy sets task will be initiated in parallel in FY 1992. The fuzzy sets task is started early because of the previous success of the applications for AC data. Assuming that results will be realized from the definition task, a definitive conclusion about fuzzy sets as an analysis tool is anticipated in mid FY 1994. Because of the broader implications, the definition task extends another six months until the end of that year.

(U) One promising new approach for analysis is neural networks. These networks require a quantitative definition of both targets and response before they can be effective; therefore, this task begins mid FY 1992. The current results of the fuzzy set task will be used to initiate the neural network research. Because of the existing and extensive applications of neural networks, a definitive answer can be obtained in mid FY 1994. If at that time the research has been productive, the task is scheduled to last through FY 1996.

(S/NF) A major requirement for successful operations, is an *a priori* estimate of the validity of a response, Building upon the research of the other tasks for analysis, this one begins in FY 1993 and continues for two years. During that time a variety of adaptive database techniques will be studied to

provide the proper receiver–dependent assessment. Two years are required to allow time for the adaptive procedures to stabilize.

3.1.6 Integration (U)

(U) Many of the research items outlined in this document contain elements that are of current interest to a variety of university and national laboratories. In addition, other AMP laboratories have been conducting similar research and can also contribute. In the data–fusion task, which begins in FY 1992, a number of these laboratories will be subcontracted to perform specific tasks that address applied research tasks. At the end of FY 1993, this aspect of data fusion will be examined, and if it is productive, the task will continue through FY 1996.

(S/NF) Another aspect of data fusion is an intelligence one. How best should AC data be integrated as additional HUMINT data into the existing infrastructure? This question can be answered in the two–year time frame discussed above.

(S/NF) If the basic and applied research efforts are successful enough to warrant a permanent operations unit, then it becomes important to develop a training school to teach intelligence analysts the particulars of AC form of HUMINT data. This could begin as early as FY 1994 and last for two year. Near the end of that period (i.e., mid FY 1995) the school would be deployed and 1.5 years would be allowed for field evaluations.

3.2 Basic Research Plan for AC

(U) Figure 3 shows the overall plan for basic research of AC. The topics follow those shown under "Basic" in Figure 1.

3.2.1 Source (U)

(U) The most promising potential for understanding the nature of the source of AC information is the detailed analysis of innate target information/entropy. This task is similar to the one described as part of the target–selection task, above; however, the approach is more theoretical in scope. Beginning in FY 1992, definitive answers should be available by mid FY 1993 because of the extensive research history that is available. If the approach appears to be productive, the task could extend through FY 1996 because of significant physics implications.

(U) At the same juncture (i.e., mid FY 1993) we will initiate a search for other meaningful characteristics that can describe the *innate* aspects of a source of AC information. Given the exploratory nature of this task it will last only until mid FY 1995.

3.2.2 Transmission (U)

(U) The transmission task involves two separate theoretical calculations. The first of these begins in FY 1992 and builds upon substantial research suggesting a possible backward flow of information that is consistent with the general relativity theory of Einstein. Called the four–dimension calculation task, definitive results should be available by the end of FY 1993. Results include testable hypotheses that will be incorporated in other areas of applied research.

(U) The other theoretical calculations involve the vector and scalar potentials of standard electromagnetic theory. If they exist as propagating waves, they might provide a transmission mechanisms. Given

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the current controversy about these potentials, we will initiate this task in mid FY 1992 and expect definitive answers in mid FY 1994. Both calculations will continue for another 1.5 years each, should they yield positive results.

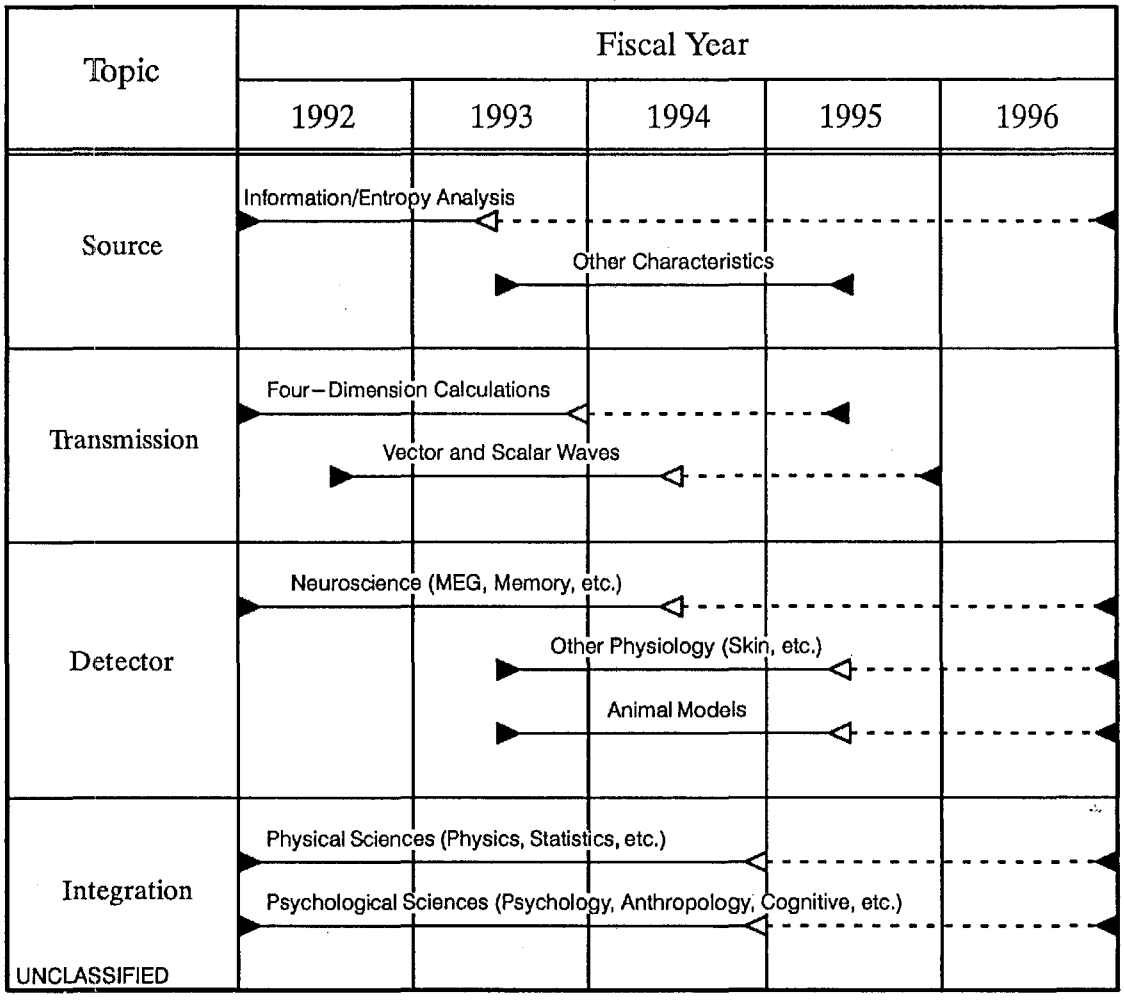

Figure 3 (U) Basic Research Plan for Anomalous Cognition

3.2.3 Detector (U)

(U) The most important and promising aspect of understanding the nature of the AC detection system in humans is through modern advances of neurosciences. Beginning in FY 1992, the earlier neurophysiological results will be validated and expanded to include a search for an evoked response. Since memory is a frequent source of wrong information in AC responses, that is included in the general neuroscience task. Definitive results from these and similar tasks will be available in mid FY 1994. Should any of these investigations prove productive, then the task will continue through FY 1996.

(U) Since there is less evidence for other physiological response in a human detector of AC, those investigations will begin in mid FY 1993. Definitive results should be available by mid FY 1995 and the task will be abandoned unless there is substantial evidence for effects. If it continues, the task will end in FY 1996.

(U) If the neuroscience speculations are correct in that humans possess an additional sensorial system which is sensitive to information, then by analogy, animals should also possess similar abilities. Beginning in FY 1993, if the results with human are promising, similar experiments will be conduct with various animals. In mid FY 1995, results should allow us to determine if the task should be abandoned or continue through FY 1996.

3.2.4 Integration (U)

(U) More than in the applied research domain, the basic research plan will liberally avail itself of the existing research communities that specialize in neuroscience, physics and statistics and the broader psychological/social sciences. Beginning in FY 1992 and continuing through FY 1994, we anticipate active contractual relationships with a variety of university departments, national and AMP laboratories. The success of the integration task will be evaluated at the end of FY 1994, and will continue through FY 1996 only if the programs warrant it.

3.2.5 Other Considerations (U)

(U) Depending upon the results of the basic research in information theory and statistics provided by subcontractors, we will initiate a 2–year effort in developing a potential communications system. When this effort will begin, strongly depends upon when these results are available. Please see Section V for details about AMP communication potential.

(S/NF) Countermeasures will be investigate over a 2–year time frame depending upon the results of the basic research of anomalous perturbation. If, however, the information/entropy model is correct, then it may be possible to mask sensitive target material. If the latter is true, this effort could begin as early as mid FY 1993.

3.3 Basic Research Plan for AP

(U) An outline for the basic research of AP is shown in Figure 4. For one half of a year beginning in FY 1992, acceptance criteria will be establish for judging the historical literature for potential AP effects. Using those criteria, a detailed review of the literature will begin in mid FY 1992 and, considering the size of that database, will last until the end of FY 1993. Knowledge gained from this review may provide insights for the development of new AP target systems or provide data so that particular experiments can be replicated. Given the complexity of most AP experiments, considerable time is needed to plan and conduct them properly. If the results warrant, application development may begin as early as FY 1994. The primary task of basic research of AP, however, is to attempt to validate its existence.

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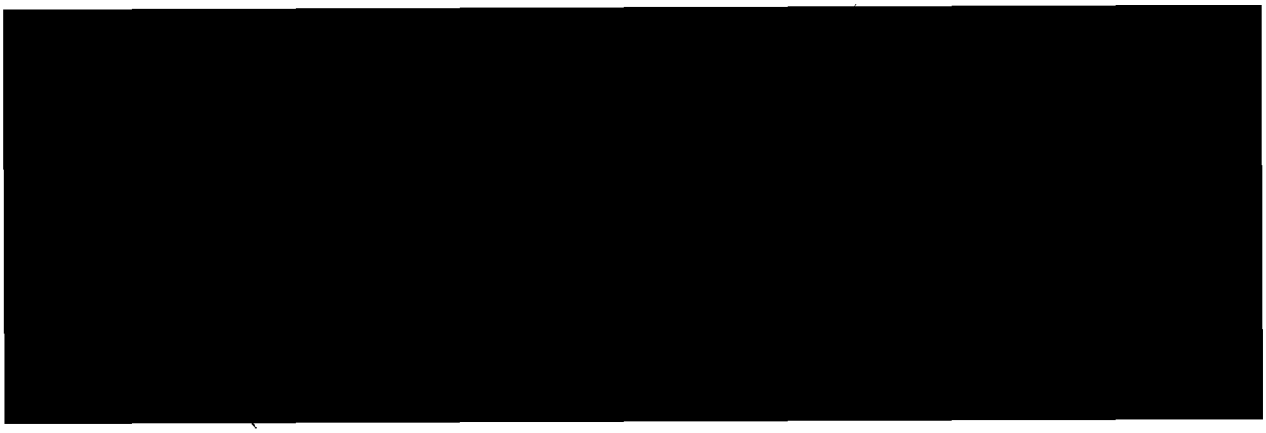

search programs and technologies. This activity will continue uniformly from FY 1992 through FY 1996.

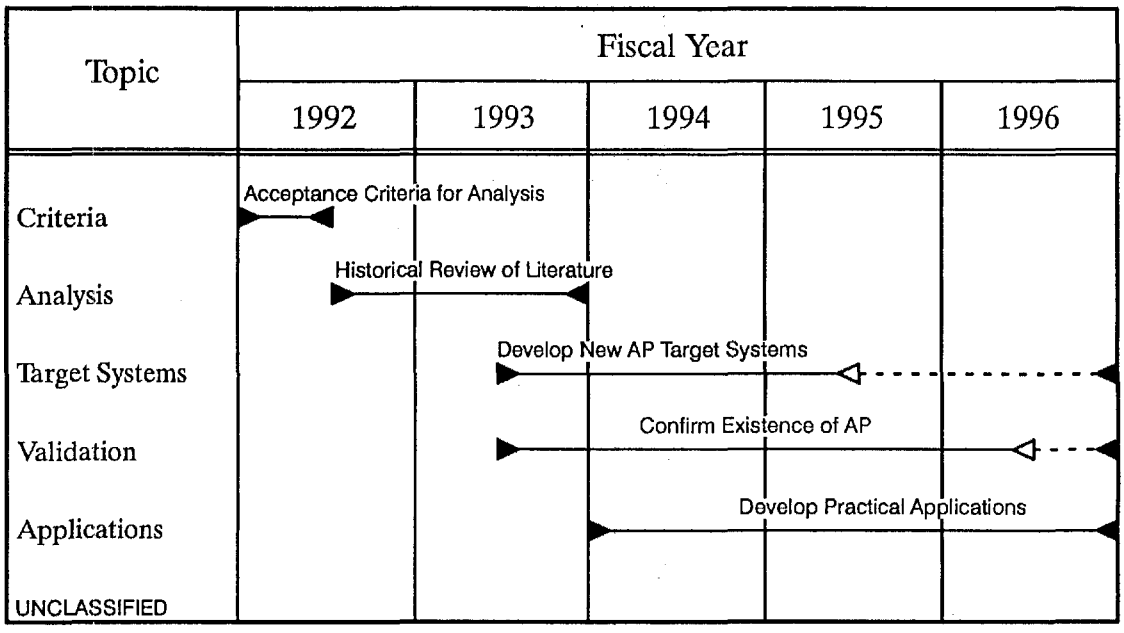

Figure 4 (U) Basic Research Plan for Anomalous Perturbation

4 Conclusions (U)

(S/NF) This section has described a comprehensive, multi-facited, integrated, long-term research plan for anomalous mental phenomena. Whenever possible, the plan builds upon earlier research and provides milestone points to reevaluate the overall approach. As described in detail in Section VI (i.e., Recommendations), SAIC suggests that the government require significant policy and technical oversight so that optimal program direction and management can be maintained and that the overall program meet the requirements of the intelligence community.

V RATIONALE (U)

(S/NF) The Cognitive Sciences Program (CSP) at Science Applications International Corporation (SAIC) is currently engaged in applied and basic research in support of potential applications of anomalous mental phenomena for the intelligence community. Starting in February 1991, the CSP has initiated a broad–based research effort to quantify the physics, physiology, psychology, and protocol parameters that will increase the signal strength of anomalous phenomena to the point where it can be integrated into existing intelligence methodology.

(S/NF) For any CSP activity that involves the use of humans as research subjects, SAIC will be in full compliance with all laws and federal regulations of the Department of Defense and the Department of Health and Human Services.

(U) We have suggested a plan that builds upon earlier research whenever possible, so in this section, we provide a rationale for each of the research items. The organization follows that of Section IV. Because basic research that involves experimentation, must avail itself of the results from applied research, the latter topic is covered first. Applied anomalous cognition is covered first followed AC basic research in Section 1.1.8 on page 37. Both applied and basic anomalous perturbation research are covered in Section 2 on page 39. The rationale for integrating the investigation into the broader research community and how the operational activity may be integrated into the intelligence community can be found in Sections 3.1 and 3.2 on pages 41 and 44, respectively. Finally, the rationale for including foreign assessment can be found in Section 4 on page 44.

1 Anomalous Cognition (U)

(S/NF) Conceptually, the anomalous–cognition rationale is organized to:

- Identify individuals with natural high–quality AC talent or potential talent (i.e., with training).
- Train those individuals to improve and stabilize their output.
- Identify optimal target systems.
- Develop optimal data–collection protocols.
- Locate specific targets.
- Provide quantitative analysis procedures.
- If warranted, define and develop curricula for an intelligence analyst training school.
- Conduct basic research.

The effort for each of these topics is designed to obtain results, in a timely manner, for basic and applied research that are in direct support to intelligence applications. Each topic is discussed in the following section.

1.1 Major AC Topics for Research (U)

(U) The research topics described in this section are primarily applied. No topic, however, is exclusively applied or basic; rather, only the primary emphasis determines the research domain.

1.1.1 Receiver Selection (U)

(U) In considering research of anomalous cognition, selecting receivers who are potentially capable of demonstrating high–quality AC is of primary interest. Traditional psychological screening methods have not been particularly successful in the past, and general random behavioral screening is substantially inefficient.[17,18] Figure 5 outlines the approach for developing a receiver selection procedure in which each figure element is numerically keyed to the text.

(U) **Populations—Figure 5.1:** The first step of selecting a receiver is to identify individuals who might be ideal candidates for possessing natural AC ability. Such individuals might be chosen from the general population at large, chosen on the basis of special characteristics (e.g., neurophysiology), or drawn from specialized groups such as photointerpreters. Past research has indicated that careful selection of populations can significantly enhance the likelihood of finding good receivers.[19]

(U) **Hypnotic Susceptibility—Figure 5.2:** A selected individual enters into a complete screening program that explores a variety of physiological and psychological techniques. As part of a general exploration of the effects of hypnosis on improving AC reception, earlier results showed that the best receivers also scored high (i.e., 10–12 out of 12) on the standard Stanford Hypnotic Susceptibility Scale.[20] This was an unexpected and *post hoc* casual observation; therefore, careful validation has not yet been carried out. Perhaps, whatever internal structures that allow some individuals to be hypnotized more easily than others might also potentially influence an individual's capacity as a receiver. Because of the simplicity of implementation and the standard nature of this susceptibility measure, the research plan includes determining its efficacy as a receiver–selection procedure.

(U) **Micro (μ)–Physiology—Figure 5.3:** As part of the general neurophysiological investigation,[11] we observed that the best receivers produced exceptional central–nervous–system responses to direct light stimuli (i.e., N100 visual evoked response). As in the hypnotic susceptibility case, this also was an unexpected and *post hoc* finding. Perhaps the internal hard–wiring of the visual cortex bares on the question of AC reception as well. The techniques used to measure visual evoked responses are standard and relatively easy to implement, so this, along with an investigation of a variety of other μ–physiological variables, will be a major part of the effort to identify good receivers.

(U) **Self Report—Figure 5.4:** As the name implies, this field of parapsychology has traditionally focussed on the psychology of receivers. Part of that effort has been devoted to the selection process; however, it has not been particularly successful. A summary of this research can be found in the *Handbook of Parapsychology*.[21] Small, but statistically significant personality effects have been observed in Ganzfeld and AC studies.[22,13] Th driving factor in these experiments, however, is the data–collection procedures rather than something inherent in the AC process. For example, the Ganzfeld procedure requires individuals to relate, without censorship, out loud to strangers, their internal impressions. The Meyers–Briggs Type Inventory (i.e., one self–report personality test) indicates that good receivers in this procedure tend toward extroversion.[22] This is the very type of individual who would most likely feel comfortable in this circumstance. Whereas, good AC receivers tend toward introversion, which is con-

sistent with the techniques used in that procedure.[13] The research plan includes examining this hypothesis in detail.

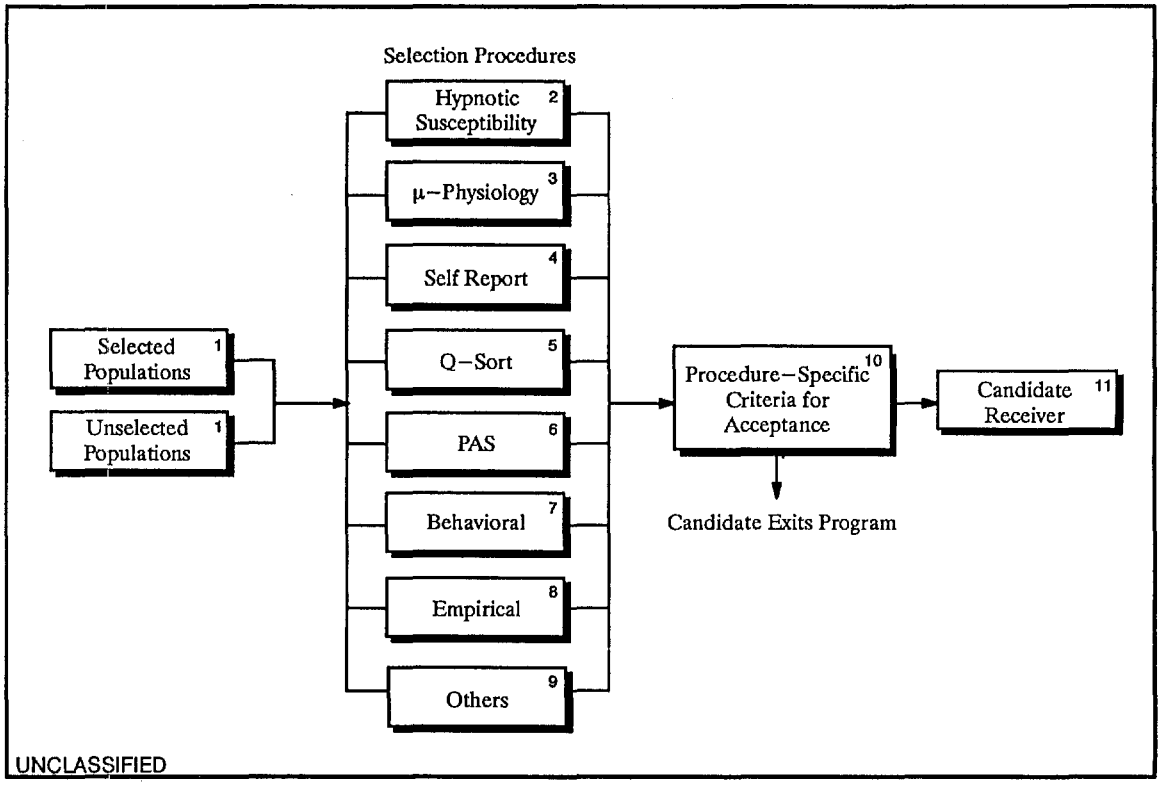

Figure 5 (U) Receiver Selection (The numbers are keys to text paragraphs.)

(U) **Q–Sort—Figure 5.5:** The Q–Sort is an empirically–based, self–report personality instrument.[23] It differs from other instruments in that individuals are not forced to describe themselves along pre–specified dimensions. For example, many traditional self–report instruments require respondents to assess the degree to which they perceive themselves as being assertive. Yet, it is possible that assertiveness is not even in the lexicon for a given individuals self–assessment. The Q–Sort removes this objection by asking an individual to sort personality descriptions into groups that best and least describe themselves. A preliminary investigation of the Q–Sort to identify good receivers was promising, and thus, exploration of it is included in the overall research plan.

(U) **Personality Assessment System (PAS)—Figure 5.6:** The personality assessment system is a behavioral measure of personality. One of the major criticisms of self–report instruments as measures of personality is that the output is filtered by the very personality that is under investigation. The PAS assumes, in a sophisticated model of personality, that performance in specific tasks is affected by personality variables. Early exploration of the PAS as a receiver–selection procedure were quite promising, however the investigations were prematurely terminated. While the PAS procedure is quite elaborate to administer, nonetheless it is included as part of the research plan, because of its initial success.

(U) **Behavioral —Figure 5.7:** In an earlier pilot study, a trained behavioral psychologist was able to select the best AC sessions from a single series consisting of good and bad examples of AC responses.[3]

In that experiment, a set of subjective, large-scale behavioral measures were developed from a number of previously video-taped AC sessions of the same receiver. Based on those measures, the psychologist was asked to sort good and bad sessions from the test series. The preliminary results were encouraging, and thus, this technique is included in the research plan.

(U) **Empirical—Figure 5.8:** Because the PAS and self-report methods have previously not been particularly successful at screening individuals for natural, high quality AC ability, the empirical approach was favored by the earlier program. This approach assumes that the best way to identify individuals is to ask large numbers of them to participate in AC experiments and select those that score well. While this procedure appears to work, it is very inefficient and labor-intensive. Only approximately 1% of individuals from unselected populations demonstrate high-quality, natural AC ability.[13] The empirical approach is included in the research plan as a last resort. The techniques described above will be examined first.

(U) **Others—Figure 5.9:** Finally, the "Others" category is a schematic representation of new potential selection procedures that may arise during the course of the investigation.

(U) **Criteria for Acceptance—Figure 5.10:** The next step indicated in Figure 5, is to establish criteria for accepting a given screening procedure. It is likely that a specific procedure may not provide candidates for all types of AC tasks; therefore the criteria must be sensitive to potential receiver specialities.

(U) It is important to realize that each of the possible selection procedures that is examined require careful, and sometimes lengthy, testing so that the selection/rejection criteria are statistically meaningful.*

(S/NF) A successful conclusion of this topic will include a series of speciality-dependent selection manuals that can be used to optimize the staff of an operations unit, and provide additional receivers for research.

1.1.2 Training (U)

(S/NF) Once a receiver has been selected, that individual must be trained for the laboratory environment, an operational unit, or both. Regardless of the end use, the initial stages of the training are similar. Figure 6 outlines the approach for developing efficient training methodologies in which each figure element is numerically keyed to the text.

(U) **Baseline Calibration—Figure 6.1:** In order to assess the effectiveness of training, a critical first step is to establish baseline measures of the receiver's innate abilities. This involves a variety of standardized, speciality-dependent AC tasks, and considerable research is required to identify them. For example, suppose that Specialty A involves an individual who, by using an AC skill, is proficient at describing personalities. Baseline calibration measures must measure a trainee's *a priori* innate skill in this and all other specialties, so that the efficacy of the training can be determined. At present, the only known, statistically valid way to measure AC ability is to conduct many trials over an extended period of time. As more is learned about AC mechanisms, it is likely that increased statistical power will allow us to reduce the number of trails, and thus the time period and the resource commitment that is required.

* (U) In general, all of the AC research described in this section requires extensive time and resources to be statistically valid.

(U) Once the baselines have been determined, the receiver will be trained by a number of specific techniques. Those shown in Figure 6 have been chosen because there is supporting evidence that suggest that each may contribute to AC–training.

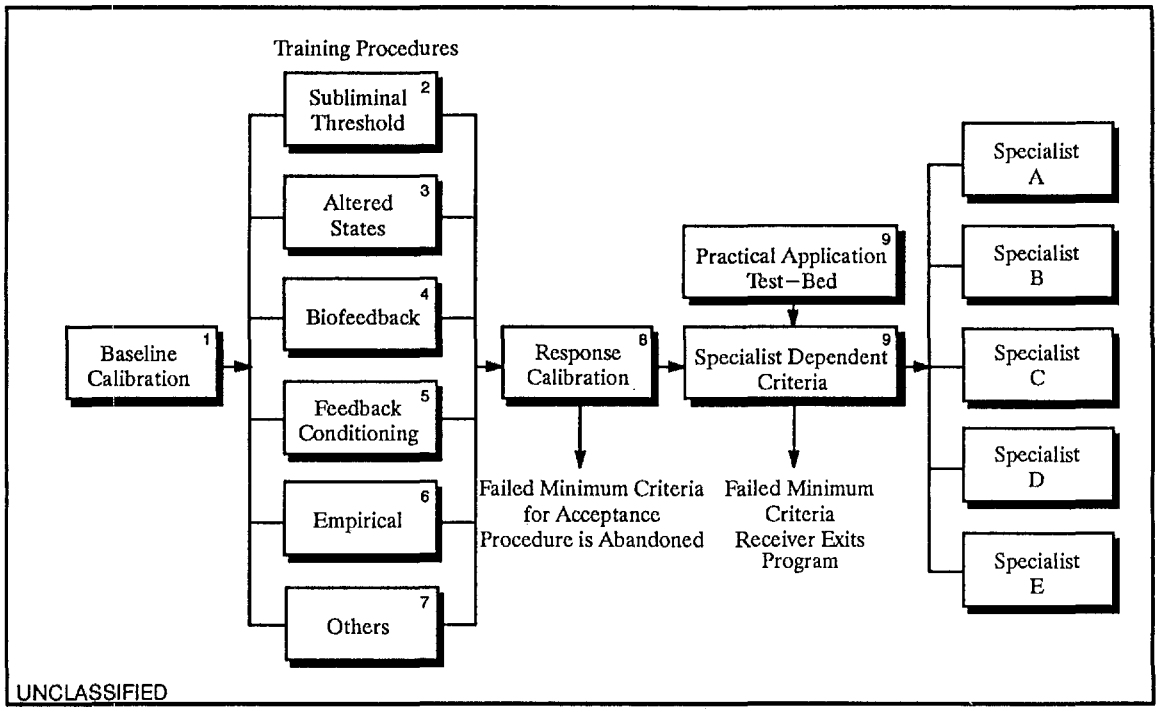

Figure 6 (U) Training (The numbers are keys to text paragraphs.)

(U) **Subliminal Threshold—Figure 6.2:** In the preliminary investigation of the Personality Assessment System, Saunders showed that individuals who possessed a low internal threshold of environmental awareness (i.e., constantly aware of, or sometimes distracted by, the environment) ultimately performed well in AC tasks.[NO TAG] Because of the potential distraction of the lower threshold, the initial performance is likely to be substandard; however, *if* the receiver can be disciplined to recognize distractions, the final performance will be markedly improved. The literature suggests that the visual subminimal threshold can be lowered by training. Using a tachistoscope (i.e., a device to display visual material for very brief intervals), individuals learn to increase their sensitivity to brief visual displays. The hypothesis, then, for potential AC training is that a lower visual subliminal threshold will enhance an individual's AC detection capability.

(U) **Altered States—Figure 6.3:** Honorton has suggested that somatic–sensory input is a source of "noise" that interferes with AC functioning. He used that argument as a justification for the use of various altered states in his AC research. Judging from the magnitude of the AC effects he observes, his Ganzfeld altered state produces about the same level of functioning that is observed in our non–altered state approach.[19,6] There are two other altered states, however, that we propose as potential training enhancements. They are dreaming and hypnosis.

(1) Dreaming, a form of altered state that reduces somatic–sensory input, has been examined in detail as a procedure to elicit AC data. It has not been particularly successful at producing consistent high–quality responses. One possibility for the lack of success is that the dreamer is give little, or

no detailed instructions prior to sleep. In the unstructured dreaming approach, receivers are asked to describe their internal experiences without regard to any particular instructions. Lucid dreaming, which is defined as a dream during which the dreamer becomes aware that his or her experience is a dream, can be structured to include complicated pre–sleep instructions that are later carried out during the lucid part of the dream.[24] By employing this type of altered state as a potential training technique, we test the hypothesis that structured dreaming can assist in training receivers.

(2) Hypnosis is another form of altered state that may reduce somatic–sensory noise and that also includes the possibility of structure. AC task instructions can be provided either in the trance state or as post–hypnotic suggestions. The earlier program showed promising results in a preliminary investigation of hypnosis, but those techniques were not specifically applied in a training environment.[20] By employing various hypnosis procedures, we will test the hypothesis that structured hypnosis can assist in training receivers.

(U) **Biofeedback—Figure 6.4:** It is an established fact that certain aspects of the so–called autonomic responses (i.e., physiological functions such has blood pressure and brain activity) can be controlled by conscious activity. The techniques of biofeedback are mature and are easily adapted to new circumstances. For example, suppose we wish to control the level of some blood chemical by biofeedback techniques. All that is needed is an instrument that can monitor and display the instantaneous level of that chemical rapidly (i.e., less that 0.2 seconds). The trainee is simply asked to attend to the instrument display; mentally suggest a desire to control the target chemical in the specified direction; and relax. By mechanisms of adaptive learning and operant conditioning, conscious control can be gained with a minimum of training. *If*, as a result of the neurophysiological research, neurons or other micro–physiological structures, can be identified as participating specifically in AC reception, then those micro–physiological structures can be monitored and the techniques of biofeedback are valid. Using biofeedback methodology, we test that hypothesis that training specific physiological structures to respond to AC stimuli will improve the total output of an AC session.

(S/NF) **Feedback Conditioning—Figure 6.5:** We extend the operant conditioning concept to the large–scale. Suppose that we wish to train a receiver to be specifically responsive to directed energy devices. In a feedback conditioning technique, a receiver is asked to respond rapidly to AC targets that include, among other things, directed energy devices. After the response, feedback is provided immediately. The hypothesis being tested by the feedback conditioning procedure is that a receiver will learn to recognize internal signatures that correspond to specific AC targets.

(S/NF) **Empirical—Figure 6.6:** The most common procedure that has been employed in training for operations and for laboratory experiments has been empirical. Certain receivers who have consistently performed well in AC tasks have described their internal personal experiences as a guide for training. In the earlier program, one such empirical method was developed and transferred as a potential training technique to the Army INSCOM.[14,15] These techniques are called empirical because they are exclusively based upon the experience of good receivers and are not necessarily generalizable to a larger population. The research plan includes an detailed validation of existing empirical methods and the development of any new ones that might arise.

(U) **Others—Figure 6.7:** Finally, the "Others" category is a schematic representation of new potential training procedures that may arise during the course of the investigation.

(U) **Response Calibration—Figure 6.8:** As each technique is added to the training regimen, resulting AC responses are compared to their respective baselines to determine the degree of improvement. Those techniques that fail predetermined statistical criteria are abandoned for a given receiver's training.

(S/NF) **Practical Application—Figure 6.9:** To assess the efficacy of the training for the operational environment, the receiver will participate in a simulated operational setting. We intend to follow similar procedures as in the past for operational simulation.[25,26] The targets for this test–bed will be known in detail by the analysis team, and the target types will be similar to those in actual operations. Therefore, detailed analysis will be possible and a receiver's operational readiness can be determined. In the event that all techniques fail to demonstrate improvement, the receiver exits the program.

(S/NF) A successful conclusion of this topic will include a series of training manuals that will include acceptance criteria for individual operational AC–specialists.

1.1.3 Target Selection (U)

(S/NF) A trained receiver requires appropriate targets. Research has shown that there are meaningful differences among target types and that all targets are not identically sensed by AC abilities. Specifically, in the laboratory, targets that contain dynamic activity are sensed significantly better than are photographs.[19] Preliminary calculations involving concepts from thermodynamics appear to confirm this finding. In an operational setting, highly dynamic targets (e.g., directed energy systems) are often described in accurate details as well.

(U) The target–selection topic examines a number of possible target descriptions and establishes categories based on a variety of target measures (e.g., physical, emotional, functional, etc.). These measures are designed to indicated the degree to which a target may be sensed by AC. Figure 7 details the research approach in which each figure element numerically is keyed to the text.

(S/NF) **Elements—Figure 7.1:** An extensive literature exists within the field of parapsychology that deals directly with an elemental description of target material.[27,28] By elements, we mean that an AC target is segmented into declarative statements. For example, if the target is a small, red, VW car on the Golden Gate bridge, then an element list consists of the segmented words (i.e., small–red–VW–car–Golden–Gate–bridge). This technique, however, does not include relations among the elements nor does it include coherent conceptual information units. Regardless of this shortcoming, the former program was able to developed mathematical structures (i.e., fuzzy sets) that can be used as reasonable descriptions of targets.[29] The research on elements will primarily be directed at identifying stable sets that can describe laboratory targets and different sets that can describe targets of operational interest.

(U) **Concepts—Figure 7.2:** Concepts are more information–intense than are simple elements. While it is true that collections of elements can bind together to form information units called concepts, a different ordering of the same elements may imply a totally different concept. In the example above, a Golden Gate VW on a small red bridge is completely different than the intended meaning. In general, the more information rich the linguistic unit, the more difficult it is to generalize. The problem of systematizing and categorizing natural language, a current topic in artificial intelligence research, is an extreme example of the difficulty. A complete description of a target must include some form of information units. Therefore, the concepts–aspect of targets is included in the research plan.

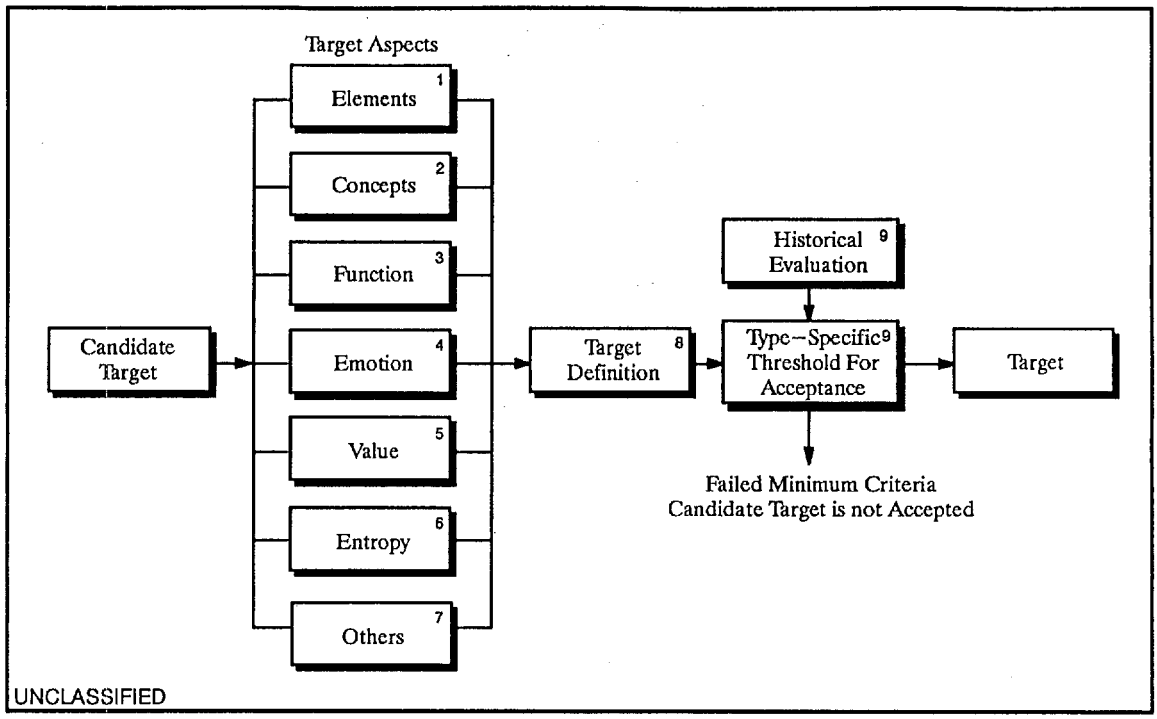

Figure 7 (U) Target Selection (The numbers are keys to text paragraphs.)

(S/NF) **Function—Figure 7.3:** For any operations application, understanding the functional aspect of a target is mandatory. Two targets might otherwise be completely identical except for their intended purpose. For example, a bacteriological and chemical weapons manufacturing facility can be made to look identical to a baby–formula production plant. In the earlier program, one of the receivers was often able to identify the function of targets, so function can be obtained by AC techniques.[30] The impact of function of a target is critical to understand; therefore it is included in the research plan.

(U) **Emotion—Figure 7.4:** Previous research has indicated that the emotional content of target material influences the quality of the AC response. A vast literature exists in experimental psychology that indicates our traditional modes of perception are highly influenced by the emotional contents of the scene. For example, individuals tend to ignore (i.e., not consciously observe) visual material that is exceptionally distasteful or completely unexpected. To understand the degree to which these effects translate to AC perception is included as a topic in the current research plan.

(U) **Value—Figure 7.5:** It is part of the lore of putative psychic phenomena, that the intrinsic value of a target is important. The reports are confused, however. In some cases, receivers claim that unless the target is important (i.e., valuable) they are unable to perceive it; yet in other cases, it is claimed that AC abilities cannot be used for personal gain. There has been no systematic research to investigate the effects of intrinsic value of the target on AC perception; therefore, we include it in the current research plan.

(U) **Entropy—Figure 7.6:** To date, the most promising target aspect that might predict AC "visibility" is the change of classical thermodynamic entropy. Roughly speaking, entropy is a measure of disorder or chaos. For photographs or video presentations, the spatial and temporal changes of entropy can be calculated directly as information.[31] Honorton has shown a persistent and significant preference for

moving video targets as opposed to static photographs in Ganzfeld experiments, and this preference is qualitatively predicted by an change–of–entropy model.[19] Very preliminary results, that were obtained at the close of the previous project, indicate that the calculated changes of entropy for a few video targets correlated with the quality of the AC responses. A complete discussion of target entropy can be found in Section 1.1.8 (i.e., Basic Research) on page 37. The entropy aspect of targets is included in the research.

(U) **Others—Figure 7.7:** Finally, the "Others" category is a schematic representation of new potential target aspects that may arise during the course of the investigation.

(S/NF) **Target Definition—Figure 7.8:** The target aspects taken together will constitute a formal definition of the target. For example, a quantitative target definition might include a fuzzy set of object elements such as a directed energy weapon and chemical weapons. In addition it might include the target entropy and any other relevant aspects. This definition is the one that will be used in both laboratory experiments and in operations, where possible. In both domains, having a quantitative definition of the target material is critical for any valid form of quantitative analysis of the data from AC.

(S/NF) **Historical Evaluation—Figure 7.9:** Currently the only known mechanism devised to determine the efficacy of a target for AC is to test it empirically. During the research and development phase, the test results will influence the development of the acceptance criteria. Once deployed a potential target can be compared to a set of predefined acceptance criteria before it is allowed to be used.

(S/NF) Regardless of whether a candidate target is intended for a laboratory experiment or for an operational activity, the target analysis is identical. This subdivision constitutes a structural definition of the target which can be analyzed with regard to predetermined acceptance criteria and historical performance. Establishing appropriate criteria and meaningful target aspects are substantial research issues.

(S/NF) A successful conclusion of the target–selection topic will be specific guidelines for the optimal selection of targets for the laboratory and for the operational setting.

1.1.4 Protocol Selection (U)

(S/NF) Once the primary constituents of an AC session have been identified (i.e., a receiver and a target), a session protocol must be selected to optimize the data collection. Protocol is here defined as an established way of carrying out an anomalous cognition (AC) task. Protocol effectiveness may be measured by quality, quantity, and/or usefulness of the AC information elicited by its use. The requirements for protocols that are designed for laboratory settings are considerably more restrictive than those required for operational settings. For example, providing limited information to a receiver while an operational session is in progress (i.e., intermediate feedback) might facilitate the acquisition of the desired data. This kind of feedback is strictly prohibited, however, in most protocols designed for laboratory experiments.

(U) An example of a simple session protocol for an AC laboratory experiment is shown in Table 1.

Table 1

(U) Schematic Protocol for an AC Session

Time	Action
1000	A receiver and monitor are sequestered in a laboratory.
1005	An assistant randomly selects one target photograph from a set of 100.
1015	Session begins.
1030	Session ends.
1035	Raw data is copied and secured.
1040	Feedback of the intended target is provided.

A receiver and session monitor enter a laboratory. At a pre–arranged time, an assistant selects a target. This is done randomly in order to keep both the receiver and assistant from attempting to "second guess" each other with regard to what target is selected. While it is assumed that the monitor and possibly the receiver are familiar with the target set, both are "blind" to the specific choice. The AC session lasts for approximately 15 minutes during which the monitor assists the receiver in obtaining as much information about the intended target as possible.* After the data is secured, feedback of the intended target is provided to the receiver to bring closure to the session.

(U) The session–protocol development topic is lengthy and somewhat difficult; nonetheless it is very important. A schematic block diagram of the approach can be found in Figure 8 in which each figure element is keyed to the text.

(S/NF) The initial step in identifying an effective protocol is to identify the task at hand. Tasks are determined by the questions that need to be answered about a specific target. In operational situations, often more than one task is needed to answer all of the questions about one target. For example, a receiver might be asked to describe the function of a distant location and identify important personnel at the site. Each task type may require a different protocol.

(U) **Historical Protocol—Figure 8.1:** To begin development, we identify a historical protocol, if one exists, that is specific to the task. Various session protocols are extensively discussed in the open literature. Although some of these protocols have been used successfully for many years, there are many variables that have not yet been the subject of a systematic and scientifically rigorous examination. The research plan includes a compilation of all known protocols that have been used in the past, and includes a meta–analysis to evaluate them for effectiveness for the tasks at hand.

* (U) In a formal protocol, how this is done is completely specified.

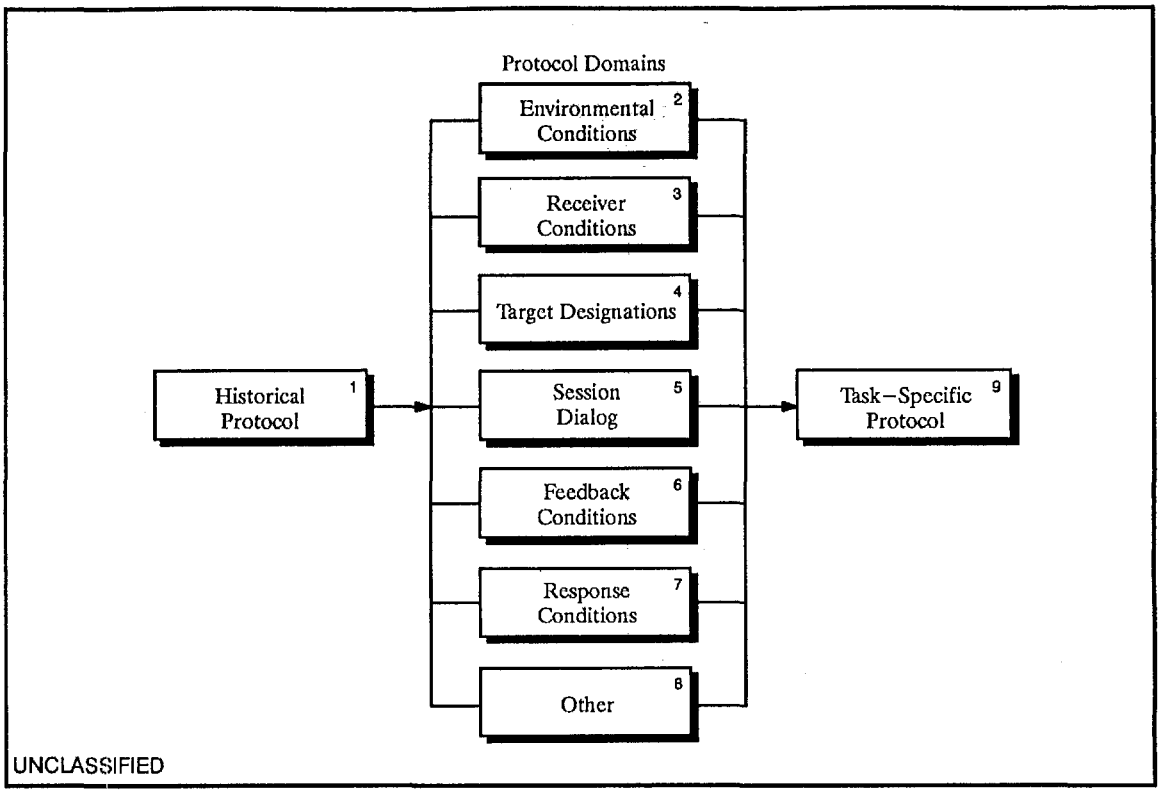

Figure 8 (U) Protocol Development (The numbers are keys to text paragraphs.)

(U) **Environmental Conditions—Figure 8.2:** By environmental conditions we mean any environment surrounding the receiver that might effect either the reception or reporting of AC information, and includes the physical and psychological conditions.* The physical environment (e.g., temperature, geomagnetic field, etc.) and the physical and mental condition of the receiver (i.e., emotional state, hunger, ambiance etc.) are important considerations. The research plan includes designing and conducting experiments to identify and verify specialty–dependent environmental conditions that enhance AC data collection.

(U) **Receiver Conditions—Figure 8.3:** By receiver conditions we mean explicitly the state under which optimal data collection can occur. In Section 1.1.2 (i.e., Training) on page 21, we discuss altered states as possible training aids. It is true that the same training aids may also be the best routine way in which to collect AC information. Besides hypnosis and lucid dreaming, which were discussed as part of training, we list a number of other altered/emotional states that will be included in our broad–based research plan:

- *Emotion/Stress*—It has been observed anecdotally that receivers perform well in very stressful circumstances. For example, receivers who are asked to function on television may often perform excellently. What are the limits? What specifically are the stress points that influence the receiver?
- *Sensory Depravation*—A state in which an individual is isolated from all external stimuli. One such a state might be accomplished in a sensory depravation tank. The Ganzfeld is a mild form of sensory isolation that has proven successful. What are the limits of sensory depravation?

* (U) Traditional experimental psychology calls this "set and setting."

- *Physical Condition and Age*—An example might be the physical condition (i.e., athletes) of the receiver. Another might be the question of whether children experience AC and whether it is to a greater or lesser extent than adults.
- *Meditation*—This is a state of deep, continued reflection. Honorton has examined meditators as a specific population and found that they are not necessarily better at AC than unselected individuals. In this study, however, meditation itself, as a mechanism for data collection, was not examined.
- *Prayer*—A devotional state of deep reflection. Do receivers with a strong religious bias perform better in AC tasks? To what degree can the act of prayer be used in collecting AC data?
- *Right/Left Hemisphere*—Budzynski has demonstrated marked improvement in clinical therapy by addressing the right brain hemisphere with emotionally compelling statements while at the same time keeping the left hemisphere "busy" with an analytical task.[32] Can this technique be adapted to AC data collection?

The research plan includes investigation of these various types of altered states as part of the session protocol development task. For example, each of these conditions can be artificially generated to examine its effects on good receivers, or specific individuals who are partitioners (e.g., advanced meditators) can be trained as receivers and compared to the earlier group.

(S/NF) **Target Designations—Figure 8.4:** Target designation is the method by which a specific target, against the backdrop of all other possible targets, is identified to the receiver. The target designation technique is used specifically to focus the attention of the receiver onto the intended target. Often the AC target designation technique is determined by an operational situation. The following are currently used methods of target designation:

- *Geographical Coordinates*—The geographical coordinates (i.e., degrees North and degrees East) are used to focus receiver on an unknown target in a known location. For example, describing the function of a known foreign facility.
- *Encrypted Coordinates*—One difficulty with geographical coordinates as a target designation is that the coordinates, themselves, contain information about the site. For example, a target at 72 degrees north in winter is likely to be cold. To avoid this problem, some groups have encrypted the numbers to a meaningless series of digits and letters.
- *Known Sender/Beacon*—In this technique, the location of a known individual is the specified target site.
- *Unknown Sender/Beacon*—The location of a named, or otherwise designated individual, who is unknown to the receiver, specifies the target site.
- *Abstract*—Any word or symbol that, in itself, bares no relation to the target site, but is nonetheless linked to it is an abstract target designation. For example, the word "target" can be linked to a photograph by announcing at the start of the session, "I have a photograph that needs a description. Access to that photograph is through the word 'target'."

The current research plan includes investigation of these various types of potential target designators as part of the session protocol development task. For example, the results from a calibrated receiver can be compared among different target designations. Although it is an issue for basic research, the apparent indifference to target designation implies a multi-dimension transmission mechanism. (See Section 1.1.8 on page 37.)

(S/NF) **Session Dialog—Figure 8.5:** The first consideration in the session dialog is should there be a session monitor? Some receivers are able to perform well without a monitor to facilitate the session, while others are unable to function without one. In those cases where there is a monitor, the next ques-

tion is to what degree should she/he interact with the receiver? Too much interaction can be invasive in the process, but an appropriate question now and then can restimulate a receiver who may be momentarily stuck. Another consideration in the operational situation is: to what degree should the monitor be informed about the intended target? In the laboratory, the answer is clear; none. But is this necessarily true in operations? The current research plan includes investigation of these points to determine the optimal amount of session dialog for both the laboratory and the operational setting.

(U) **Feedback Conditions—Figure 8.6:** Feedback is defined here as target information used to debrief a receiver. We currently have little information on how the various elements of feedback effect the quality, quantity, and/or usefulness of information attained by AC. One experiment demonstrated no differences in AC quality as a function of weak sensorial feedback.[35] It is not currently known if more robust amounts of feedback play a significant role in the amount of information available to the receiver. If nothing else, the amount of feedback may certainly play an important role in the psyche of the receiver. Regardless of the type of feedback, it is possible to provide:

- *Whole Feedback*—Complete information about a target is available and used to debrief a receiver. For example a receiver might be taken to the target site.
- *Partial Feedback*—Only incomplete information about a target is available to be used for debriefing. For example, only a single photograph of a real target site is available.

(S/NF) It is not currently known if feedback type plays a significant role in the amount of information available to the receiver. The type of feedback used is often determined by the nature of the intended target. For example, if the target is a photograph, then the feedback is also usually a photograph. In experimental situations feedback is often the target itself or some multidimensional representation of it (e.g., video footage of a target site). In operational situations, however, feedback type is determined by both the nature of the AC task and the amount of information known about the target. For example, if the AC task is to describe the function of a particular building, the only available feedback might be a photograph of the building.

(S/NF) The following is a list of various feedback types that will be explored as part of the overall research plan:

- *Visual*—Feedback consists only of direct visual stimuli to the receiver. It may appear in static form (i.e., photographs, prints, drawings, and written material) or may be dynamic (i.e., video).
- *Auditory*—Feedback consists only of direct auditory stimuli that may be administered either is verbal information or simply as sounds relating to the intended target.
- *Tactile*—Feedback consists only of direct tactile stimuli. An example of this might be an experiment where a wrong answer provokes a mild shock, or touch (e.g., vibration).[33]
- *Smell*—Feedback consists only of direct olfactory stimuli. Suppose the target site is a suspected chemical weapons facility. Providing non–toxic odors as feedback might facilitate responses to these types of targets.
- *Mixed*—Feedback consists of one or more of the stimuli types listed above.

For calibrated receivers, AC experiments using standard targets will be conduct during which the major independent variable is the feedback type. Statistical comparisons among the types may reveal a preference for a given receiver.

(U) Additional important research questions are the intensity of each of these feedback types and when should they be given? Should the feedback experience be sensorially robust or should the feedback be presented below the threshold for conscious awareness? These questions, too, are included for study in the research plan.

(S/NF) The previous program had examined, in depth, the specific aspect of providing feedback to the receiver within and after a session.[34,35] In experimental protocols, feedback is most often given immediately or shortly after the conclusion of the AC task (i.e., future). In an operational protocol, however, feedback may come at any time or not at all.

(U) **Response Conditions—Figure 8.7:** An AC response is defined as any means by which a receiver externalizes AC information. The investigation of the most optimal time for AC response production is directly tied into the questions of what the mechanisms of AC information transfer are and how these mechanisms work, and what the task type is. The following are possible response times that are included for study in the overall research plan.

- *Precognition*—When an AC response provides information about an event that has not yet occurred, or about a target that has yet been chosen. This AC information is accessed without the possibility of a prediction or inference based on currently known clues, cues, or patterns.
- *Real–Time*—When an AC response provides information about any subject (e.g., person, place, thing, event), as it exists at that very moment in time.
- *Retrocognition*—When an AC response provides information about an event that has already occurred which could not have been learned of or inferred by currently known means.

(U) Up to now, the decision to use one response type over another has been determined primarily by; individual receiver abilities, the AC task type, and available methods of AC response analysis. The following are the four general categories of response types that are included for study in the overall research plan:

- *Forced Choice*—The AC response consists of a choice that must be made among a number of possibilities presented to the receiver. For example, the receiver may be shown a number of photographs and asked to select the one that is the designated target.
- *Free Response*—The AC response consists of a free, uninhibited, reporting of internally perceived information by the receiver. These responses can be recorded on tape, written, drawn, and/or modeled, depending on the AC task type.
- *Stimulus/Response*—This AC response is a kind of controlled free response. In this technique, a receiver, while participating in an AC task, is presented with a stimulus (e.g., the word "target") and responds with whatever is in his/her mind at that moment. The full AC task response may consist of a series of these relatively short stimulus/response pairs. These responses can also be recorded on tape, written, drawn, and/or modeled, depending on the AC task type.
- *Physiological*—This response might consists of macro– and/or micro–physiological indicators of AC. For example, a receiver's brain could be monitored for a response to some remote event (e.g., a light flash), or a receiver's skin might respond to an AC stimulus.[41]

Currently, the only known way to identify a preference for response type is to conduct a considerable number of AC trials during which the other pertinent variables (e.g., receiver, target, target designation) are held constant. Standard statistical methods will be used to search for preferences among the data.

(U) **Others—Figure 8.8:** Finally, the "Others" category is a schematic representation of new potential protocols that may arise during the course of the investigation.

(S/NF) **Task–Specific Protocol—Figure 8.9:** The goal of the protocol development task is to define practical and effective task–specific protocols. As is evident by the length of this section, considerable research is necessary to adequately define a session protocol for the laboratory and operational situations. A successful conclusion of this topic will be a set of laboratory and task–specific operations–tested protocols.

1.1.5 Search (U)

(S/NF) One particular protocol deserves special consideration. Because modern intelligence collection methods are now good at providing facility descriptions, that aspect of AC has become less important. The *search* problem, which is defined as the inverse of the usual AC circumstance, has replaced direct AC for primary intelligence interest. A typical search problem involves locating a specified target. For example, suppose the complete details (i.e., photograph, biographical information) are know about a hostage. What is missing is the hostage's exact location? For reasons not yet understood, this activity seems much more difficult than direct AC; however, there have been a number of examples in the intelligence community and in the open literature that are impressive and suggest that search is possible, in principle. Figure 9 outlines an approach to the search problem in which each figure element is numerically keyed to the text.

(U) **Establish Criteria for Evidence—Figure 9.1:** Understanding the search problem has been problematical. Most of the research conducted to date has not been systematic; however, there are a few laboratory experiments that should be reexamined because either of their inherent interest or their statistical results.[36,37] These experiments primarily involve using AC abilities to locate items that had been place upon a predetermined grid, or to locate objects (e.g., ship wrecks) that are known but difficult to find. In all of these laboratory cases, detailed criteria for evidence of a search phenomena have not been established. Thus, we include defining that criteria before a review of the pertinent literature can be accomplished in the research plan.

(U) **Historical Review and Analysis—Figure 9.2:** Having established the criteria for evidence for search, the next step is to critically analyze all the earlier experiments. Those that fall below the acceptance criteria are no longer considered; however, those that do are subjected to a series of practical applications tests for validation trials.

(U) **Information Theory—Figure 9.3:** The most promising new approach is to adapt information theory to the search problem. Most importantly, early experiments indicated that suitable coding of target material enhanced identification of the correct target.[38] The primary question to be answered is, can coding theory be applied to the location of a known target? There is a considerable literature on coding and information theory, thus this is included in the research plan.

(U) **Empirical—Figure 9.4:** As is the case for training (i.e. see Section 1.1.2 on page 21), it is possible that an empirical approach will prove useful. This technique involves locating a receiver who is particularly good at search and ask that individual to describe the experience. A protocol is developed based upon that description. Given the empirical approach's moderate success in training, it is included in the research plan for search, as well.

(U) **Others—Figure 9.5:** Finally, the "Others" category is a schematic representation of new potential search protocols that may arise during the course of the investigation.

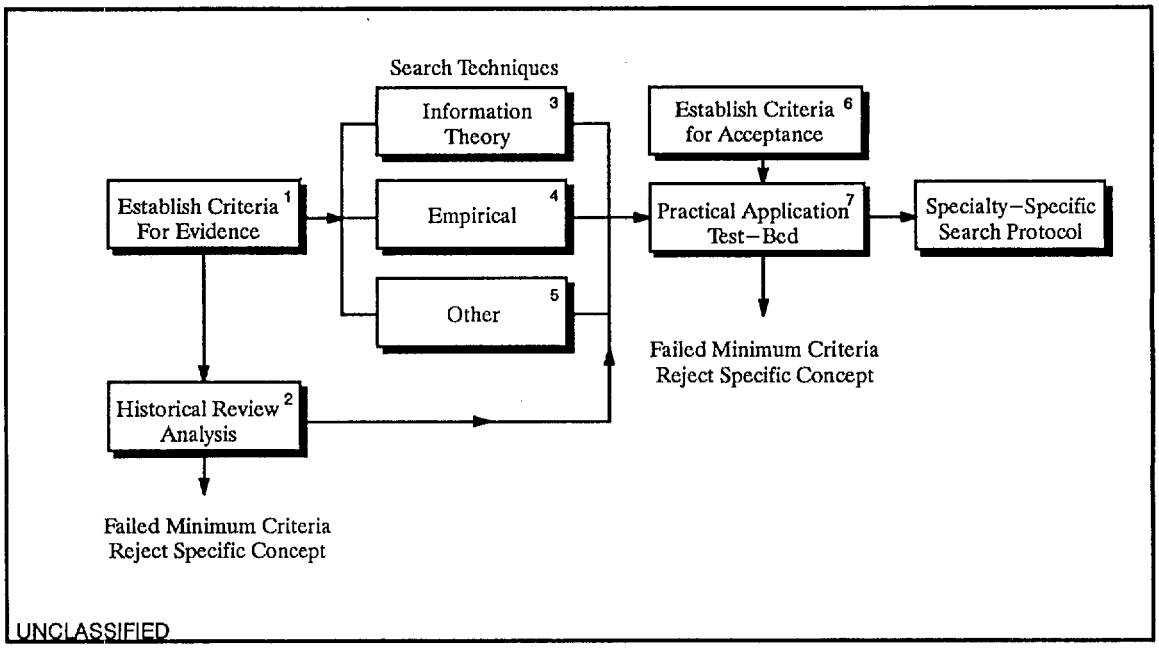

Figure 9 (U) Search Investigation (The numbers are keys to text paragraphs.)

(S/NF) **Establish Criteria for Acceptance—Figure 9.6:** Regardless if a search protocol had evolved from earlier experiments or was new, criteria for its acceptance in the operational arena must be established. It is likely that the criteria will be specialty dependent. This critical aspect of establishing a search protocol is most important, and therefore is included in the research plan.

(S/NF) **Practical Application Test–Bed—Figure 9.7:** The importance of the acceptance criteria is shown here. Search is primarily of interest to the operational community, so tests of possible protocols must reflect the operational environment. The tests must be operational like (i.e., as much like a real case as possible), yet contain enough laboratory aspects so that meaningful statistical evaluations may be conducted. Identifying appropriate test–beds, therefore, is included in the research plan.

(S/NF) A successful completion of this topic will be a set of specialty–dependent protocols that have proven value in operational settings.

1.1.6 Analysis (U)

(S/NF) Having constructed a complete AC–data collection session (i.e., receiver, target, and protocol), the next important topic is data analysis. The kind of analysis required depends upon *a priori* knowledge of the intended target. In the laboratory, all the possible targets, including the intended one, are known in detail, thus enabling a detailed analysis. Yet in operations, only partial or little information about the target is known.

(S/NF) The solution to the analysis problem is conceptually simple; all that is needed is an analytical definition of the target and response, and a way of comparing the two. The AC response usually consists of a form of natural language (i.e., written and drawn material); however, a quantitative definition of natural language is currently one of the unsolved problems of artificial intelligence. Similarly, a quanti-

tative definition of all real targets, including types usually found in operational settings, is also a currently unsolved.

(S/NF) An additional problem arises in the assessment of AC data for the intelligence community. A detailed, high–quality example of AC data may have little value to an intelligence analyst, because that information was known from other sources. Likewise, a poor example of AC data might provide a single element as a tip–off for other assets, or provide the missing piece in a complex analysis, and thus be quite valuable. Therefore the intelligence utility of AC data is only weakly connected to the AC quality, and thus is highly circumstantial. Therefore a data fusion protocol is needed for AC–derived operational data.

(U) In spite of these difficulties, an extensive literature exists on various successful methods of analyzing laboratory AC data. Most of the techniques do not require quantitative definitions of responses and targets, but rely on human judgement for the analysis. One example is that an analyst is asked to rank–order a number of possible target photographs (including the intended target) from best to least match with a given response. Dawes has shown, however, that complex judgements, such as this, are best divided between human analysts and computers.[39] A recent publication from the earlier program explores this idea by applying a sophisticated mathematical technique, known as fuzzy sets to the analysis of AC data.[29]

(U) The analysis topic includes a quantitative definition of a response; uses the existing target definition; and develops a series of quantitative analytical comparison techniques. Figure 10 outlines this approach in which each figure element is numerically keyed to the text.

(U) **Target—Figure 10.1:** All quantitative descriptions of a response must include the identical forms that were used for a quantitative definition for a target. (See Figure 7, element 8 on page 25.) For example, if the target definition includes elements only, then the response definition must also only include elements.

(S/NF) **Physical—Figure 10.2:** An AC response usually consists of written and drawn material. The current research plan broadens this definition to include the physical environment (e.g., geomagnetic field, temperature), because those variables may influence the overall quality of the response.[40] This would be particularly important for developing *a priori* estimates for operations.

(S/NF) **Receiver Dependence—Figure 10.3:** The response definition must be sensitive to individual differences. Receivers are different among themselves, and they may not be individually consistent from session to session. For example, a one–to–one translation dictionary (i.e., for words or drawings) is one method of attending to one form of receiver dependence. Suppose one receiver consistently responds with a directed energy system when the intended target a was bacteriological and chemical weapons facility. By exchanging a bacteriological and chemical weapons facility for the directed energy system, the quality of the response is enhanced at least to the degree of the receiver's consistency. xx

(U) **Others—Figure 10.4:** Finally, the "Others" category is a schematic representation of new potential response types that may arise during the course of the investigation. Additions to the definition of the response include a variety of receiver's physiological and behavioral responses during the session. For example, research has shown that the electrical properties of the skin (i.e., electrodermal activity) respond in AC sessions.[41] This research plan will expand this concept toward a possible AC polygraph,

because such a device would greatly enhance the quality of the responses. Likewise, there may be other non–verbal responses that indicate response quality.

(U) **Response Definition—Figure 10.5:** Regardless of the aspects described above, the raw response is reduced to a quantitative definition that is used as part of the formal analysis.

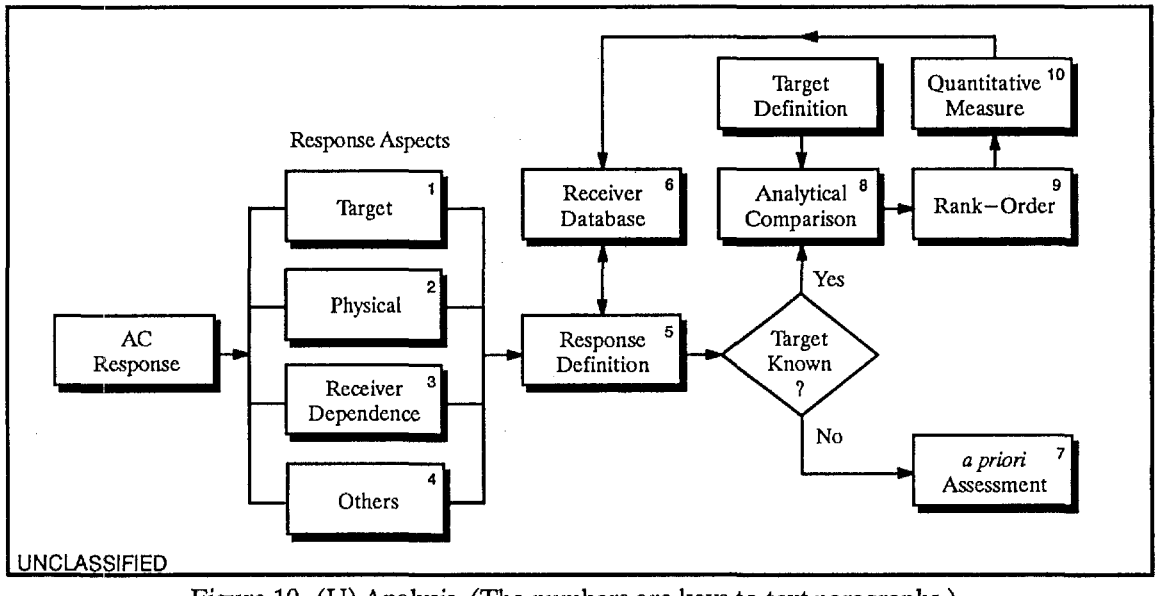

Figure 10 (U) Analysis (The numbers are keys to text paragraphs.)

(U) **Receiver Database—Figure 10.6:** All aspects of a response will be included in a receiver–dependent database, and in those cases where the targets are known and a quantitative measure is available, it too is included in the database. This database is consulted to incorporate specific receiver dependences. By updating the database on a session–by–session basis, an adaptive description of receivers is available to assist in any *a priori* assessments that are required.

(S/NF) ***A Priori* Assessment—Figure 10.7:** Often in operations very little is known about the target. In these cases a reliable *a priori* assessment of the AC data would assist in the overall intelligence analysis. An *a priori* judgement will be made from a response that has been modified by the current receiver–dependent database. This assessment will follow the particular response/target definition that is used. For example, if only elements are involved in the definitions, only elements will be provided in the assessment. Considerable research is necessary before a reliable method can be deployed, and it is likely that a large number of responses are required for each receiver speciality so that the database will be accurate.

(U) **Analytical Comparison—Figure 10.8:** In those cases in the laboratory where the target systems are known completely, a detailed analytical comparison is possible. Currently, the following three evaluations are employed:

(1) *Accuracy*—The percent of the target material that is described correctly. While accuracy is useful, it is insufficient to provide an assessment of AC; a receiver could, in principle, read an encyclopedia as a response and mention something about everything! In this circumstance, accuracy is not a measure of AC at all.

(2) *Reliability*—The percent of the response material that is correct. A highly reliable receiver is one who has little incorrect information in his/her response. This too, however, is not a good measure of AC. If a receiver knows about the general target system (e.g., photographs of natural scenes), a good guess such as "outdoors" would likely be 100% reliable, but not mediated by AC.

(3) *Figure of Merit*—The product of accuracy and reliability. The figure of merit (FM) is a sensitive measure of AC. To obtain a high FM, a large fraction of the target material must be describe correctly (i.e., high accuracy) with little incorrect information (i.e., high reliability).

One possible mathematical definition of accuracy and reliability uses fuzzy sets,[29] others, however, should be developed. Regardless of the internal mathematical definitions, the concept of FM holds not only for the response as a unit, but also with the individual response elements.

(U) **Rank–Order—Figure 10.9:** A high FM is qualitatively desirable, but an absolute quantitative evaluation of an individual figure of merit is not yet possible. A statistically valid relative assessment is provided by the rank–order method. Suppose for a given session, the target is randomly selected from a set of 100 photographs. For that response, 100 figures of merit are calculated; one each for all the potential targets, and then they are ordered from largest value to the smallest. The position in this list of the FM that corresponds to the intended target is called the rank–order number. Rank–order numbers from a series of sessions can be combined to produce a statistically valid overall assessment of AC. This research plan includes a detailed investigation to provide a relative measure of AC and to gain insights toward an absolute measure.

(S/NF) **Quantitative Measure—Figure 10.10:** The current trend in behavioral science is to quote results not as traditional *p–values* (i.e., the probability that a repeated experiment would provide a result that is equal to or more deviant than the observed one) but rather as *effect sizes*. Statistically, p–values depend upon the number of samples in the study, whereas, by definition, effect sizes do not. As Utts has shown, if only p–values are considered, major errors are induced in accepting or rejecting hypotheses.[42] Cohen has defined effect sizes less than 0.1 is small, effect sizes between 0.1 and 0.4 as moderate, and effect sizes greater than 0.4 as robust. A typical value for unselected receivers is 0.3, but for the CSP's experienced receivers 0.6 is typical and 1.0 has been frequently observed. The current research plan will expand these measures and develop additional ones.

(S/NF) The analysis topic is long–ranged. This plan includes research to provide a meaningful absolute measure of AC and reliable predictive assessments in the absence of target information. Much can be learned from the artificial intelligence and neural network communities to assist in recognizing accurate patterned responses from noisy data. One near–term successful milepost for this topic, however, is an enhanced application of fuzzy sets to laboratory and operational data.

1.1.7 An Intelligence Analyst Training School (U)

(S/NF) The ideal circumstance for the use of AC data in the intelligence community would be to treat the data as just another form of HUMINT. With more traditional forms of HUMINT, intelligence analysts are trained to assess the data and to provide a global analysis when HUMINT data are fused with information from other collection assets. AC data should not be treated differently. Since at some future time, it is likely that AC data will be routinely required to be analyzed by specialists, this research plan includes developing a strategy to construct a curriculum for a training school which specializes in

teaching intelligence analysts about AC assets and provides guidelines for producing HUMINT intelligence reports to be easily integrated with the rest of HUMINT data.

1.1.8 Basic Research (U)

(U) All effort primarily designed to understand the fundamental nature of anomalous mental phenomena is defined as basic research. Figure 11 outlines this approach for AC in which each figure element is numerically keyed to the text.

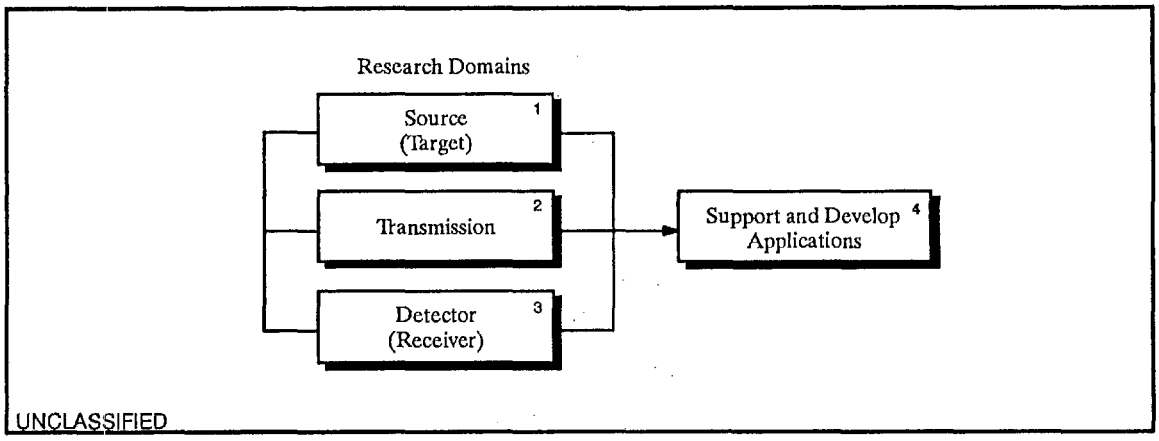

Figure 11 (U) Basic Research (AC) (The numbers are keys to text paragraphs.)

(U) Anomalous Cognition basic research contains three major concepts that, at a minimum, can serve as a template for research. The target is generalized to be considered the source of AC information. That information "propagates" across space and time to reach the receiver. This aspect is called the transmission of information. Finally, the information is received by a detector, which is an expanded concept of the receiver as defined above. Thus, information from a source is transmitted across space and time to a detector.

(U) **Source—Figure 11.1:** The definition of the target has been discussed in Section 1.1.3 (i.e., Target Selection) on page 24. From a basic research perspective, the physical characteristic of the target is of primary interest in understanding the nature of the source of AC information. Currently, the most promising results are with classical thermodynamic entropy, specifically the Shannon formulation.[31] Preliminary investigations have computed the total change of entropy for a few targets as:

$$\Delta S = \int \nabla S \cdot \vec{dr} + \int \frac{\partial S}{\partial t} dt, \qquad (1)$$

and have shown a crude correlation with AC quality. In other words, if the total amount of "information" that is indicated by the spatial characteristics of the target is added to the temporal "information," the results appear to correlate with AC quality. The research plan includes a continuation of this calculation for all targets from the previous program and from the AC research field in general. In parallel, the plan also includes research on how to calculate the total change of entropy (i.e., Equation 1) for actual scenes as opposed to photographs and video material. In addition, there may be other physical target characteristics that should be examined. The program plans to identify and research these in its search for the source of AC information.

(U) **Transmission—Figure 11.2:** Basic research on transmission primarily includes general relativity calculations of possible four−dimensional (4−D) energy transmission mechanisms. Research has shown that it is possible to gain statistical access to future unrealized events.[43] This implies that information may propagate backward in time, an idea that is a current topic of interest in the general relativity community.[44,45,46] If these physics speculations in the literature prove to be true, then causality must have a slight statistical aspect. In other words, usually effects *follow* causes, but *occasionally* physics allows for effects to occur *before* causes. The research plan includes subcontracts to general relativists who are able to develop specific testable theories about stochastic causality. The tests will be conducted using traditional physics experiments where possible and AC experiments when necessary. In particular, what 4−D volume must be considered so that the average direction for causality is forward?

(U) A second possibility for a possible transmission mechanism is the vector and scalar potentials from standard electricity and magnetism theory. It is still an open question whether or not propagating waves constructed exclusively of these potentials exist; however there is enough evidence of their innate existence to warrant their investigation as potential mechanisms.[47]

(U) **Detector—Figure 11.3:** Basic research on human detectors (i.e., receivers) has been the primary focus of parapsychology research community. As the name implies, a substantial emphasis has been on the psychological and/or personality variables and their correlations with AC performance. For the most part, this has not been particularly successful. While there is substantial statistical evidence for AC, its correlation with these variables have been weak or non−existant. The research plan includes focusing its detector research primarily on the central nervous system. As mentioned in the introduction, the preliminary results are encouraging.[11] The goal is to locate a set of neurons that may be activated by AC stimuli (i.e., AC−evoked response). The five other senses can serve as a model. If AC is sensed by an additional sensorial system, it is likely that the early neuronal processing will be similar to the early processing by the other systems.

(U) Another area of interest to basic research of the human detector involves the mechanisms of memory. Memory and imagine has traditionally been a source of noise in AC experiments, and understanding its structure might provide ways in which to reduce this noise.[14]

(U) Continuing the analogy, all psychological, and possibly all physiological aspects of a human detector (i.e., receiver) can be considered as the detector efficiency. This view has the advantage of allowing the general problems of basic research to be parsed into potentially non−interacting subsections.

(U) If the mechanisms of AC are understood, then, in principle, the human receivers might be replaced by physical hardware. The very long−term goal of the detector research is to produce such a device, but in the near−term, the goal is to verify the neurophysiological preliminary results, and to understand the impact of psychology/physiology on the detector efficiency and thus its impact on AC performance in general.

(S/NF) **Support and Develop Applications—Figure 11.4:** The implications of basic research of anomalous cognition are profound in at least two different domains. If the mechanisms could be understood, the applications appear limitless. Even if nature restricts the ultimate accuracy of a single AC response, understanding the limitations can also yield a variety of useful applications. In addition, by definition, we will know how to create operational units staffed by highly trained AC−receiver personnel. In the

extreme, we may be able to augment or possibly replace the human receivers with appropriate hardware.

(U) Academically, the advances seem limitless, as well. The precognition data tells us that we have a profoundly incomplete understanding about the nature of space–time. If an additional sensorial system can be verified, then we will also have a similarly incomplete picture of animals. To what degree does evolution and, for humans, accepting personal responsibility for one's actions and health have to do with a putative AC sensorial system? Psychology, communication, health, and longevity are just a few of the affected areas. The potential for time travel, either physically or informationally provides fascinating speculation for history and general human evolution.

(U) To realize many of these speculations, AC basic research is a long–term activity. A near–term goal of the research plan is to gain enough insight into the central nervous system so that biofeedback–like training can improve AC reception.

1.1.9 Communication (U)

(U) Research has demonstrated that by using appropriate protocols, it is possible to "send" and receive a simple binary message using AC abilities.[48] Usually the techniques involve a redundancy coding scheme to enhance slightly above–chance guessing. For example, suppose the chance probability of guessing the color of a standard playing card is 50%. Suppose also that an AC receiver is successful at guessing the color correctly 60% of the time. In one experiment where the raw binary hitting rate was 60%, redundancy coding increased the hit rate to 100%. In that study, 50 binary bits were guessed correctly without a single error.[48]

(S/NF) The current research plan includes improving the communications potential of AC. Earlier redundancy coding efforts were very inefficient, and modern communication theory can significantly improve the technique. Besides the possibility of a "secure" communications channel, it is possible that kidnapped victims and POWs could "send" information about their circumstances to specifically trained receivers.

1.1.10 Countermeasures (U)

(S/NF) Countermeasures can be examined from both the AC and AP perspectives. If the basic research about the source and/or transmission characteristics prove correct, then countermeasures are possible within the context of AC primarily through jamming and deception. Countermeasures will remain part of the application potential of the CSP's basic research program.

2 Anomalous Perturbation (U)

(U) The areas of research under the general heading of *anomalous perturbation* (AP) can be divided into two broad categories: macroscopic and microscopic. Macro–AP involves a mental interaction with "human–sized" objects, whereas micro–AP implies an interaction with microscopic amounts of matter including individual atoms, single biological cells, or nanotechnology–size devices.

(U) Research of anomalous perturbation is problematical in that the definition of AP is a negative one: *After all known sources of perturbation have been eliminated, what is left is defined as AP.* To isolate a physi-

cal/biological system completely from all known sources of perturbation is very difficult. Yet, subjective and laboratory reports of large-scale, putative AP effects continue to appear in the open literature.

(U) The former program analyzed 10-years of research literature and found that a definite conclusion about the existence of macro-AP was not possible and concluding anything about its existence from the "field" literature was even more difficult.[49] Also in that program, many different physical systems were examined. After careful experimentation, the program was still unable to confirm the existence of macro-AP in the laboratory.[8,9] In a related effort, a single quantum measurement experiment involving photons showed that consciousness was not a *necessary* condition for reality.[10]

(U) A schematic block diagram, which outlines the research approach for macro-AP, can be found in Figure 12 in which each figure element is keyed to the text.

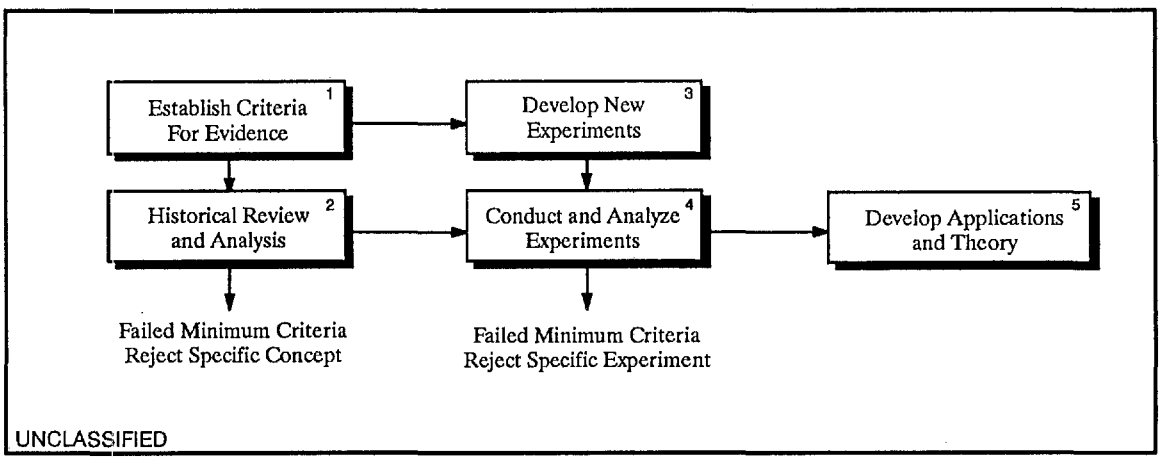

Figure 12 (U) Basic Research (AP) (The numbers are keys to text paragraphs.)

(U) **Establish Criteria for Evidence—Figure 12.1:** The first step in researching macro-AP is to examine the historical literature once again to determine if their are reasonable candidates for replication. Because careful AP research tends to be expensive, the criteria should be quite restrictive. For example, it probably is not worth the effort to attempt a replication of an experiment that was poorly conducted in the first place. Rather, experiments should be chosen because they were well done and yet still report some AP effect. The research plan includes a careful construction of a set of criteria that is based upon previous work and the advise of experts from appropriate disciplines.

(U) Research of microscopic anomalous perturbation is more substantial. A recent report in *Foundations of Physics* analyzed over 800 individual micro-AP experiments involving random number generators.[50] In these experiments, it is generally claimed that an unknown micro-AP process perturbs the generating hardware to produce distorted output statistics. The report further analyzed an extensive set of alternative hypotheses to explain the robust, combined statistical result, and found that none were sufficient to account for the data. However, the heuristic model, *Decision Augmentation Theory*, has convincingly shown, that these effects are due to a form of AC rather than AP.[12]

(U) **Historical Review and Analysis—Figure 12.2:** Once criteria have been established for evidence of macro-AP, then the research plan calls for a detailed review and analysis of the literature. The analysis includes careful consideration of possibly subtle, but other known influences. For example, could elec-

trostatic effects account for the claimed macro–AP? Studies that fail the minimum criteria for acceptance will be no long considered.

(U) **Develop New Experiments—Figure 12.3:** If enough circumstantial evidence can be found in the historical literature, then a number of new tests should be developed. Among these are included nanotechnology–size devices as AP targets, the Mössbauer effect, and single α–particle perturbation. The current research plan calls for developing protocols for AP studies on these target systems and the development of other potential target systems (e.g., inertial guidance systems).

(U) **Conduct and Analyze Experiments—Figure 12.4:** The research plan includes conducting AP experiments with new target systems and replicating experiments with older targets. These experiments require considerable time and resources, since little is known about the appropriate protocols or about the AP agents (i.e., who can perform a macro–AP task). In addition, significant engineering effort is required to validate each device as a potential AP target. Because of the negative definition of AP, it is critical to isolate each device from potential environmental interactions (e.g., stray E&M fields). After the devices have been citified, then putative AP agents will be asked to perturb the systems. Predetermined acceptance criteria are needed, and if any positive effects are observed, other laboratories must also replicated the experiments.

(S/NF) **Develop Applications and Theory—Figure 12.5:** Even more speculative at this time is the development of applications of putative macro–AP phenomena. *If* macro–AP can be verified, then a host of applications arise. For example, distorting an inertial guidance system at the moment of lift off of an ICBM; remote control of Mars or Lunar landers; and a thought–controlled switch for communications are just a few. The research plan does not include much attention for developing potential macro–AP applications, rather the predominant effort will be expended upon verification.

(U) The future research of micro–AP should begin with attempts to falsify the predictions of the Decision Augmentation Theory in a variety of target systems.

3 Integration (U)

(S/NF) Research of anomalous mental phenomena must be integrated not only within its own community, but, more importantly, within the broader range of physical and behavioral sciences in the universities and national laboratories. In addition, intelligence applications should also be integrated with that special user community.

3.1 Research Integration (U)

(U) Figure 13 shows a number of disciplines that are specifically related to AC and AP research. The bi–directional arrows indicate that an exchange of data and ideas are possible between the disciplines shown and the Cognitive Sciences Program (CSP). For example, some of the current ideas in meta–analysis of behavioral data that are popular within the psychology community came for the traditional parapsychological research community.[51] Yet most all of the psychological screening techniques that are popular with the CSP were developed within traditional psychology.

(U) A brief justification for each of the disciplines shown in Figure 13 follow below. The research plan intends to initiate subcontracts to respected researchers in these fields to facility basic research of anomalous mental phenomena.

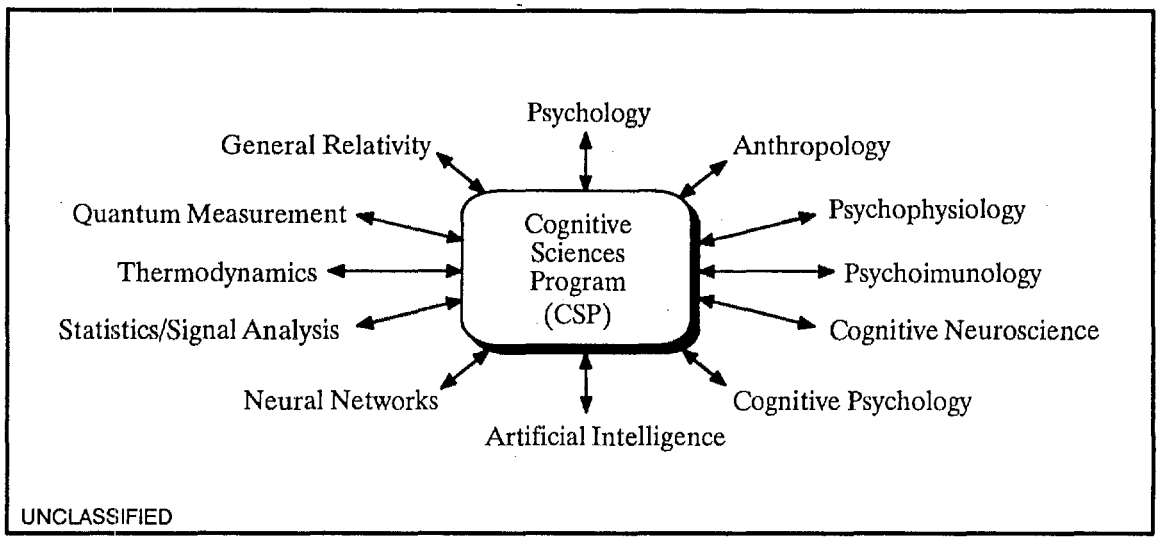

Figure 13 (U) Integration of Scientific Disciplines

(U) In 1990 the American Anthropological Association (AAA) formed a new division, the *Society for the Anthropology of Consciousness* (SAC), This division has established a technical journal to support interdisciplinary, cross–cultural, experimental, experiential, and theoretical approaches to the anthropological study of consciousness. The current research plan includes collaborative research with members of this division who may be able to contribute to the applied research issues of receiver selection, training development, and protocol development; and the basic research issues of transmission, detector, and source theories by providing cross–cultural examples. These members might also be useful in the assessment of foreign data.

(U) The psychophysiology of vision has already contributed to the earlier program.[35] Much of what is currently known about the mechanisms and techniques of subliminal perception comes from this discipline. The current research plan calls for a collaborative effort with researchers in an attempt to understand how the central nervous system process subliminal stimuli. This should assist in the CSPs search for an AC evoked response in the brain.

(U) The relationship between mind and body is currently discussed in the research literature as well as in the popular press.[52] Researchers at the California Institute for Transpersonal Psychology (CITP) have been active in investigating the role of mental attitudes and body chemistry. While there may not be a direct link with AC, and exchange of techniques and experimental designs would be helpful. Thus the current research plan includes collaborative research with (CITP) and other appropriate laboratories to explore the potentials of psychoimunology.

(U) *The Journal of Cognitive Neuroscience* contains at least one article of interest to the CSP each issue. This discipline is where most of the cognitive work with the neuromagnetism is conducted. The CSP has already discussed the possibility of a collaborative effort with researchers at the NIH.

(U) Stanford University has been conducting research on internal mental imagery. The manipulation and control of this imagery is extremely important in understanding the source of internal noise during an AC session and a collaborative effort with Stanford should yield immediate results in noise reduction.

(U) As was mentioned in Section 1.1.6 (i.e., Analysis) on page 33, artificial intelligence has been studying both element with regard to AC analysis—natural scenes and natural language. While artificial vision may not yield immediate results, some of the aspects of scene analysis would contribute.

(U) Neural networks have already been used successfully in AP research.[53] These networks are particularly good at recognizing subtle patterns in complex data, and are being applied in the subjective arena of decision making in business.[54] In order to improve AC analysis, the CSP will conduct a collaborative effort with SAIC scientists who are active in neural network research and with selected individuals who have had success with highly subjective data.

(U) Statistics is the heart of AC research in that most of the results are usually quoted in statistical terms. Hypothesis testing has traditionally been the primary focus, but there are other possible approaches that should be explored (e.g. Bayesian Statistics). Statistics researchers at Harvard have already expressed interest in contributing to the CSP research effort.

(U) A major portion of the CSP's effort will be a search for an AC evoked response in the brain. Sophisticated signal processing is required in that magnetic signals from the brain can not be easily characterized by standard statistical practices.[11] Thus many of the traditional signal analysis methods are invalid. Los Alamos National Laboratory has expressed interest in contributing in this domain.

(U) Classical statistical thermodynamics may be the heart of understanding the nature of an AC source of information. As was mentioned in Section 1 (i.e., Historical Background) on page 4, a physical property called entropy may be related to what is sensed by AC. The CSP intends to collaborate with a variety of university physics departments to calculate the appropriate parameters.

(U) Researching the nature of quantum reality (i.e., reality at the atomic scale or smaller) involves understanding the mechanisms and definitions of what constitutes a measurement. The earlier program published results providing valuable insight into the role of consciousness in determining quantum reality; however, a number of single−neutron experiments, which can explore the same idea, should be conducted. Researchers at an Austrian university in Vienna, have been studying the effects of very "cold" neutrons.[55] Their experiments are particularly suited for the study of conscious effects on single particles.

(U) As was mentioned in Section 1.1.8 (i.e., Basic Research) on page 37, physics research has indicated that it may be possible for information to travel backward in time.[45] It is well known that the laws of physics allow for time reversal on the micro−scale; however, one of the current problems in modern physics is to understand why, at the macro−scale, time seems to be unidirectional. If we assume that the Second Law of thermodynamics is valid, then we must determine the constraints placed upon the *prima fascia* evidence for precognition. The first implication is that causality, itself, must have a fundamental statistical component. If this were true, then the difficulties associated with macro−time reversal (e.g., redundant histories) vanish. Stochastic causality has been the topic of investigation within the general relativity community, and he physics department at the California Institute of Technology has been one

center for this research. The CSP will collaborate with them to calculate time–reversed information flow parameters.

3.2 Integration into the Intelligence Community (U)

(S/NF) In Section 1.1.7 (i.e., An intelligence Analyst Training School) on page 36, we discussed how AC data, in support of operational activity, should be considered as just one additional source of HUMINT data. If the research plan, which is described in this document, is successful, then it is appropriate to consider integrating this new capability in to the general intelligence community. If the data are considered as HUMINT, then the infrastructure already exists for seamless integration into the intelligence community.

SG1B

VI RECOMMENDATIONS (U)

(S/NF) This report has described a comprehensive, multi-facited, integrated, long-term basic and applied research plan. If all the topics, including a number of subcontracts to the general research community, are fully implemented in parallel, the plan entails an effort of approximately 175 man-years (i.e., approximately $30M) over the next five years. This includes a prime contractor, a large variety of subcontractors, appropriate hardware, support, and significant collaboration with appropriate government agencies in support and development of intelligence applications.

(S/NF) The CSP suggests a dynamic effort that builds upon the previous and current program toward the fully implemented research endeavor in the next few years. A vigorous program can be initiated with a support level of approximately $7.5M for fiscal years 1992 and 1993. This would allow the continuation of the current CSP effort and allow enough time to expand the subcontractors, consultants and SAIC personnel in order to accomplish the research outlined in this plan.

(S/NF) The overall plan provides for many milepost checks not only to effectively guide the research, but also to establish fiscally responsible asymptotes for the research and development effort. The CSP further recommends that the government maintain significant policy oversight and direct that the technical effort be closely monitored by a panel of scientific experts. In addition, in this proposed program the CSP will be in full compliance with all laws and federal regulations of the Department of Defense and the Department of Health and Human Services.

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VIII GLOSSARY (U)

1 Introduction (U)

(U) Anomalous mental phenomena (AMP) can be divided into two broad categories, anomalous cognition (AC) and anomalous perturbation (AP). Anomalous cognition (AC) includes phenomena that are described in the parapsychological literature as extra–sensory perception (ESP), telepathy, clairvoyance, and precognition, while anomalous perturbation (AP) includes psychokinesis, teleportation, levitation, and materialization.

(U) The beginnings of AMP research date back to the early 1880s. As suggested by the name parapsychology, AMP research had its roots in the field of psychology. Today, however, AMP research has become an ever increasing multi–disciplinary and multi–national effort. One of the primary problems of such a vast effort is that of defining conventional terms that can cut across all of the various disciplines and national boundaries.

2 Objective (U)

(U) The purpose of this glossary is to provide definitions for most of the technical terms found in this research plan and, where possible, to provide cross references to like–terms used by other major researchers of AMP around the world. The following abbreviations will be used to indicate terms which are primarily used in the following countries:*

- [PRC] People's Republic of China
- [CZECH] Czechoslovakia
- [NETH] Holland
- [FR] France
- [HUN] Hungary
- [USSR] Soviet Union
- [US] United States

(U) The following abbreviation will be used to denote terms, found within this research plan and used specifically by the Cognitive Sciences Laboratory, as opposed to those used primarily by other AMP researchers within the United States and Western Europe. (It may be assumed that unmarked terms are used generally within the United States and Western Europe, although the specific country or countries of primary usage is unknown.)

* (U) A cross–reference summary can be found in Table 1.

- [CSP] Cognitive Sciences Program

3 Definitions (U)

(U) It should be noted that no judgements have been made here as to the validity of putative phenomena or methods described by the following terms. These definitions are given solely as they are used within the AMP literature.*

Abstract Technique. [CSP] A target designation/AC response technique which involves a stimulus/response pairing. A Receiver, while participating in an AC task, is presented with a stimulus (e.g., the word "target") and responds with whatever is in his or her mind at that moment. The resulting full AC response may consist of a series of these relatively short stimulus/response pairs.

Accuracy. The percent of the target material that is described correctly.

Active–Agent Telepathy. See *Mental or Behavioral Influence of an Agent (MOBIA)*.

Agent. See *Sender.*

Analysis Dimensions. Specific issues of interest in the analysis of AMP responses.

Analyst. [CSP] An individual who provides a qualitative analysis of a response to its intended target. For research tasks, this individual is always blind to the target. See *Judge.*

Anomalous Cognition (AC). [CSP] A form of information transfer in which all known sensorial stimuli are absent. Includes phenomena that are described in the parapsychological literature as extra–sensory perception (ESP), telepathy, clairvoyance, and precognition.

Anomalous Mental Phenomena (AMP). [CSP] The scientific study of Anomalous Cognition and Anomalous Perturbation. See also *PSI, Psychoenergetics, Parapsychology, Exceptional Functions of the Human Body (EFHB).*

Anomalous Perturbation (AP). [CSP] The perturbation of matter in which all known physical interactions are absent. Includes psychokinesis, teleportation, levitation, and materialization.

Anpsi. PSI in animals.

Anthropic Science. [PRC] The scientific study of the ultimate capabilities of the human body or human potential. See also *Somatic Science.*

Apport. An object alleged to arrive by paranormal means in a closed space, including the supposed passage of matter through matter. See also *Teleportation.*

Association Theory of Telepathy. Theory proposed by Carington which holds that if two ideas are associated in one mind, this association may become effective in another mind which is presented with one of these ideas. See also *K–Idea, K–Object.*

Auditory Feedback. [CSP] Feedback consisting only of direct auditory stimuli.

Automatism. Any complex sensory or motor activity carried out by a person without his conscious direction and usually when in a dissociated state.

Automatist. A person who practices or experiences automatism. Sometimes used as a synonym for *Sensitive, Receiver,* or *Mental.*

Beacon. An individual who, while receiving direct sensorial stimuli from an intended target, acts as a putative transmitter to a remote individual (i.e., Receiver) who is attempting to receive the same information via AC. See *Agent, Sender.*

Biocommunication. [USSR] See *Telepathy.*

Bioenergetics. [USSR] See *Anomalous Mental Phenomena (AMP).*

* (U) Many of the following definitions can be found in *Handbook of Parapsychology,* Ed. Benjamin B. Wolman, Van Nostrand Reinhold Company, New York (1977) UNCLASSIFIED.

Bioholography. [USSR] See *Psychometry.*

Bioinformation. [USSR] See *Extrasensory Perception (ESP).*

Biolocation. [USSR] See *Clairvoyance, Search, Dowsing.*

Biolocational Effect. [USSR] See *Search, Dowsing.*

Biolocational Method [USSR] See *Search, Dowsing.*

Biological Radiocommunication. [USSR] See *Telepathy, Biocommunication.*

Biophysical Effect [USSR] See *Search, Dowsing.*

Biophysical Method [USSR] See *Search, Dowsing.*

Call. The response made to a target in an anomalous cognition (AC) experiment.

Checker. See *Analyst, Judge.*

Clairvoyance. Extrasensory awareness of objects or objective events. See *Extrasensory Perception (ESP), Remote Viewing, Paranormal Cognition.*

Confidence. [CSP] An analysis dimension that has to do with a historical body of information on the strengths and weaknesses of individual receivers. It might be, for example, that Receiver X has a 65% success rate at identifying the location of missing individuals. From this information a confidence rating could be determined for information provided by Receiver X on similar targets.

Designated Target. The target that is chosen from a target packet to be the intended focus of an AC experiment.

Déjà Vu. An illusion of memory in which one experiences a new event or scene as if it had been lived through before.

Displacement. Anomalous cognition (AC) responses to targets other than those for which the calls were intended.

Dowsing. A form of motor automatism in which a dowsing rod or other device is used to indicate the location of concealed items (e.g., water, oil) by following the direction in which the rod turns in the user's hands.

Dynamic Target. [CSP] A target consisting of moving and/or changing stimuli (e.g., film and/or laser disk technology).

Encrypted Coordinates. [CSP] A target designation technique in which a coded form of geographical coordinates is used.

Entropy. Entropy is a measure of disorder or chaos.

Entropy Theory. [CSP] Theory suggested by May. The idea that calculated changes of classical thermodynamic entropy for AC targets might correlate with the quality of AC responses.

Exceptional Functions of the Human Body (EFHB). [PRC] See also *Extrasensory Perception (ESP), Anomalous mental phenomena (AMP).*

Extrasensory Perception (ESP). See *Anomalous Cognition (AC), Paranormal Cognition.*

ESP Projection. An out–of–the–body experience during which the individual is seen at a distant point and/or brings back a vertical description of what he observed at that point. See also *Remote Viewing, Traveling Clairvoyance.*

Feedback. [CSP] Target information used to debrief an AC task participant.

Figure of Merit (FM). The product of accuracy and reliability. The figure of merit (FM) is a sensitive measure of AC. To obtain a high FM, a large fraction of the target material must be describe correctly (i.e., high accuracy) with little incorrect information (i.e., high reliability).

Focusing Effect. See *Target Preference, Response Bias.*

Force Fields. Term proposed by Joseph Brozeck. See *Anomalous Perturbation (AP).*

Forced Choice. A type of AC response which consists of a choice that must be made between a number of possibilities presented to the AC Receiver. For example the Receiver may be presented with a number of photographs and asked to select the photograph which has been chosen as the designated target.

Free Response. [CSP] A type of AC response which consists of a free, uninhibited, reporting of internally perceived information by the AC Receiver.

Geographical Coordinates. A target designation technique.

Geomagnetic Fields. [CSP] The magnetic field produced by the rotation of the Earth in conjunction with solar activity which may have an effect on AMP.

Heliobiology. [USSR] Term proposed by Chizhevskii. The hypothesis that cosmic energy affects the human and animal organism directly.

Hypnosis. An altered state of consciousness in which is induced by a hypnotist.

Hypnotic Susceptibility. A test to measure to what degree an individual is susceptible to hypnosis.

Immediate Feedback. [CSP] All feedback is presented to the Receiver after the AC task is complete.

Intermediate Feedback. [CSP] The Receiver is presented with a certain amount of feedback as the AC task is taking place (e.g., biofeedback).

Judge. An individual who conducts analyses of AC responses (especially when rank–order analysis is used). See *Analyst*.

K–Ieda. Term coined by Carington to refer to an idea (other than that of the target) shared by an agent and percipient and thought to facilitate telepathic transmission of the target by means of association. See also *Association Theory of Telepathy*.

K–Object. An object associated with an agent and present with the percipient during an experiment to enhance the shared K–idea and thus facilitate telepathic transmission of the target by means of association. See also *Association Theory of Telepathy*.

Lucid Dreams. An altered state of consciousness. A dream state in which the dreamer realizes that he or she is dreaming, and in which the dreamer has a certain amount of control within the dream.

Map Dowsing. A form of dowsing in which the dowsing rod or other device indicates the location of concealed items (e.g., water, oil) on a map of the area rather than in the geographical area itself.

Majority Vote. An evaluation method in ESP testing in which the symbol called most often by a Receiver (or group of Receivers) for a given target is defined as the response to that target. See also *Redundancy Coding, Repeat Guessing Technique*.

Meditation. An altered state of consciousness. A state of deep, continued reflection.

Mental. See *Receiver, Sensitive*.

Mental or Behavioral Influence of an Agent (MOBIA). Term suggested by Stanford as a new term for "active–agent telepathy"; he proposes that the agent can play an active role in telepathy and that such "telepathy"is really a form of psychokinesis. See *Mental, Receiver, Sensitive*.

Metapsychics. [FR] See *Psychical Research, Anomalous Mental Phenomena (AMP)*.

Mind Reading. See *Telepathy*.

Minus Function. Observation by Ehrenwald that PSI phenomena are likely to occur during sleep and other deficit states of the organism, thus leading him to postulate that PSI is a compensatory extension of normal capacities.

Mixed Feedback. [CSP] Feedback consisting of more than one type of the stimuli

Monitor. [CSP] An individual who is with the Receiver while AC is in progress and helps to facilitate the AC task. This individual is always blind to the information which is hoped to be elicited by AC during scientific experiments.

Multiple Aspect Target. A target with two or more features, each of which may be guessed correctly or incorrectly by the subject.

Nonreduction Method of Analysis. A method of analysis in which the AC response is not to be reduced into quantitative bits. For example a forced choice response type clearly cannot be broken down into smaller bits since this kind of response consists only of a yes/no decision on each of the target possibilities. Non–reduction forms of analysis end with a quantitative measure of AC information transfer based on first place matches of the response with the correct target.

Optional Stopping Hypothesis. Raised as a counterhypothesis to the occurrence of experimental PSI, it argues that enhanced deviations may be obtained in what is actually a chance series if testing is stopped at a favorable point.

Outbound Target. [CSP] A target consisting of dynamic multisenorial stimuli provided via visitation of an actual target site.

Packet. [CSP] A number of targets that are classified as belonging to the same group for the purpose of rank–order judging.

Paragnost. [NETH] See *Receiver.*

Paramnesia. A distortion of recognition or memory. See *Deja Vu.*

Paranormal. A synonym for *Receiver* or *Parapsychological.*

Paranormal Cognition. See *Extrasensory Perception (ESP), Remote Viewing, Clairvoyance.*

Paraphysics. The study of the physics of Anomalous mental phenomena (AMP).

Parapsychic. J.B. Rhine's term for a high scoring subject in PSI research.

Parapsychical. A synonym for *Paranormal*; attributed to the operation of *PSI.*

Parapsychology. The branch of psychology which deals with the study of Anomalous mental phenomena (AMP).

Partial Feedback. [CSP] Only some information about a target is available to be used for debriefing an AC task participant. For example, only a single photograph of a real target site is available for AC feedback.

Passage of Matter through matter. See *Apport, Teleportation.*

Percipient. See *Receiver, Subject.*

Physiological Response. [CSP] A type of AC response which consists of macro– and/or micro–physiological indicators of AC. For example, a Receiver's brain could be monitored by a magnitoencephlagraph (MEG) for a response (N100) to some remote event (e.g., a bomb blast).

Postcognition. See *Retrocognition.*

Post–Hoc. [CSP] When information is provided after the fact.

Prayer. An altered state of consciousness. A devotional state of deep reflection.

Precognition. When information is provided about an event that has not yet occurred, or about a target that has yet to be chosen. This AC information is accessed without the possibility of a prediction or inference based on currently known clues, queues, or patterns.

Premonition. See *Precognition.*

Prevision. See *Precognition.*

Protocol. A template for conducting a structured an AMP session. Protocols will consist of differing elements depending on what research issue or what operational information is to be addressed.

PSI. See *Anomalous mental phenomena (AMP).*

PSI Field Hypothesis. Theory proposed by Roll which postulates that events connected with physical objects produce changes in the "PSI fields" surrounding the objects such that these fields may be apprehinded by ESP.

PSI Gamma. Neutral term for extrasensory perception (ESP) proposed by Thouless and Wiesner. See *anomalous cognition (AC)*.

PSI–Hitting. The use of PSI so that the target at which the subject is aiming is hit significantly more often than would be expected by chance.

PSI Kappa. Neutral term for psychokinesis (PK) proposed by Thouless and Wiesner. See *anomalous Perturbation (AP)*.

PSI Mediating Vehicle. Any symbol, image, or object which enables the Receiver to bring information received by ESP into conscious awareness.

PSI Missing. The use of PSI so that the target at which the subject is aiming is missed significantly more often than would be expected by chance.

Psychical Research. The systematic study and investigation of phenomena which cannot be described or explained in terms of established physical principles; older term for parapsychology.

Psychobiophysics. [USSR] See *Parapsychology*, but including certain phenomena that are not now generally accepted as parapsychological.

Psychoboly. Term coined by Tanagras to denote psychokinesis, especially when used for malevolent purposes, as in alleged "evil–eye" phenomena.

Psychoenergetics. [USSR] See *Parapsychology*.

Psychokinesis (PK). The influence of the mind on external objects or processes without the mediation of known physical energies or forces. See *anomalous Perturbation (AP)*.

Psychometry. Term coined by Buchanan which literally means "soul measurement"; refers to tests in which a receiver holds an object and obtains impressions relating to its history and/or events in the lives of persons who have been in contact with it. See also *Biohologography*.

Psychotronics. [CZECH] See *Parapsychology*, but including certain phenomena that are not now generally accepted as parapsychological.

Physiological Response. A type of AMP response consisting of macro– and/or micro–physiological indicators of AC. For example, a Receiver's brain might be monitored by a magnitoencephlagraph (MEG) for a neurological response (N100) to some remote event (e.g., a light flash).

Qi. [PRC] The underlying information carrier of EFHB.

Random Behavior Trial. Term used primarily in connection with anpsi experiments to indicate those trials on which the animal reacts, for no apparent reason, in a way contrary to its usual habits or customary patterns.

Rank–Order Judging. An analysis method in which a single AC response is judged against a packet of n (n=number) possible targets by a judge (analyst). This judge is blind as to which of the possible targets within the target packet is the actual designated target. The analysts task, in this case, is to determine which of the possible targets best matches the Receiver's response. The best match receives a rank–order of 1, while the next best receives a rank–order of 2, and so on to n.

Reading. A synonym for *Protocol* or *Response*.

Real–Time. [CSP] When information is provided about any subject (e.g., person, place, thing, event) as it exists at that very moment in time which could not have been learned or inferred by currently known means.

Receiver. [CSP] An individual who attempts to perceive and report information about a target in the absence of all known sensorial stimuli (i.e., the individual experiencing AC).

Reduction Method of Analysis. [CSP] A method of analysis in which both the response and target are reduced to quantitative bits according to the dimensions of interest. Analysis dimensions are chosen based on the original AC task. For example, if the original task was to determine the unknown function of a known building, then the primary analysis dimension would be function. It

should be noted here that there will almost always be a need to use more than one analysis dimension at a time.

Redundancy Coding. See *Majority Vote* and *Repeat Guessing Technique.*

Reliability. The percent of the response material that is correct. A highly reliable receiver is one who has little incorrect information in his/her response.

Remote Viewing (RV). [CSP] A type of AC task in which a Receiver attempts to access information about an unknown target in a known location via AC.

Repeat Guessing Technique. See *Majority Vote* and *Redundancy Coding.*

Respondent Dependence. [CSP] An analysis dimension that deals with the idiosyncrasies of an individual Receiver's AC response style.

Response. Any means by which a Receiver externalizes AC information. This externalization can be in one or more forms depending on the AC task type (e.g., recorded, spoken, written, drawn, modeled, etc.).

Response Bias. A tendency of the Receiver to show specific behavior patterns in response to certain targets, or target types (e.g., to call certain target symbols frequently and to avoid others). See *Target Preference, Focusing Effect.*

Response Bias Hypothesis. Theory first developed by Stanford postulating that bias against a given response increases the likely hood that this response, when made, will be a hit.

Retrocognition. Knowledge of a past event which could not have been learned or inferred by normal means.

Right/Left Hemisphere Presentation. [CSP] When feedback is presented to the Receiver in such a manner that the information can be processed only by either the right or left hemispheres of the brain.

Run. A group of successive trials in PSI testing which may be of any predetermined length.

Scatter Effect. Ehrenwald's term for the finding that PSI responses are rarely in one–to–one agreement with the target, but may be displaced in time or space; the responses are likely to be scattered around the target rather than hitting the bull's eye.

Scatter Theory. Hypothesis proposed by Ehrenwald to account for the scatter effect by attributing it to the fact that PSI phenomena are biologically incongruous.

Score. The number of hits made in any given unit of trials, usually a run.

Search. [CSP] The ability to locate an intended target without the assistance of known sensorial stimuli. A search task involves gaining information on the unknown location of a known target via AC.

Second Sight. See *Clairvoyance.*

Secondary Effect. Term refering to significant PSI scoring revealed by effects such as consistent missing, displacement, etc., rather than by direct hitting on the target.

Selected Populations. [CSP] A population who's members have a particular skill which might involve or be related to the use of AC.

Selection Procedure. [CSP] A procedure used to identify AMP training candidates from various populations.

Sender. An individual who, while receiving direct sensorial stimuli from an intended target, acts as a putative transmitter to a remote individual (i.e., Receiver) who is attempting to receive the same information via AC. See also *Agent, Beacon.*

Sensory Automatism. Visual or auditory imagery, sometimes fully externalized, experienced by a person without his conscious direction and usually when in a dissociated state.

Sensory Depravation. An altered state of consciousness in which an individual is isolated from all external stimuli. Such a state might be accomplished in a sensory depravation tank.

Sensitive. See *Receiver, Mental.*

Series. Several runs of experimental sessions that are grouped in accordance with the stated purpose and design of the experiment.

Session. A unit of time within an AMP task comprising all the data collection trials, usually predetermined in number, carried out during one test occasion; an experiment or operational task may consist of one or more sessions.

Sitter. See *Monitor.*

Somatic Science. [PRC] The scientific study of the ultimate capabilities of the human body or human potential. See also *Anthropic Science.*

Space and Time. Term proposed by Joseph Brozek. See *Anomalous Cognition (AC).*

Specialty. A class of targets that is particularly successful for a given receiver's ability (e.g., people as opposed to buildings). See *Focusing Effect, Response Bias.*

Subject. See *Receiver.*

Subliminal Presentation. When feedback is presented to the Receiver so that it is just below his or her threshold of consciousness.

Supernormal. Older term for paranormal.

Supernormal Conditioning. Synonym for *ESP,* coined by Osty.

Target. Any subject that is the focus of an AC task (e.g., person, place, thing, event).

Target Designation. [CSP] Any method by which a specific target is identified to the Receiver as being the focus of a specific AC task against the backdrop of all other possible targets. The target designation technique is used specifically to focus the attention of the individual carrying out the AC task (i.e., Receiver)) onto the intended target.

Target Pack. [CSP] A set of possible targets from which the designated target for an AC experiment came and which will be used later for rank–oder–judging.

Target Preference. See *Focusing Effect, Response Bias, Specialty.*

Telekinesis. [CZECH,HUN,USSR] Older term for psychokinesis in the West, however still preferred in the USSR and Eastern Europe.

Telepathy. Extrasensory awareness of another person's mental content or state. See *Mind Reading, Thought Transference.*

Teleportation. A from of PK phenomena in which objects allegedly move over a distance and/or through other objects. See also *Apport.*

Telesthesia. Term coined by Myers to indicate perception at a distance. See *Clairvoyance ,Anomalous cognition (AC).*

Test Administrator. See *Monitor.*

Theta Phenomena. Term proposed by Roll to mean "relating to the question of survival," and to denote the inquiry into the possibility of survival.

Thought Transference. See *Telepathy, Mind Reading.*

Tracer Effect. Term coined by Ehrenwald to indicate the appearance in the manifest content of a dream, or other response, specific and distinctive features relating to a target event.

Training. A procedure that improves, to a significant degree, the output of an anomalous cognition task.

Training Candidate. [CSP] An individual who shows extraordinary natural AC ability (e.g., scores high marks while acting as a receiver in initial AMP tasks), and is considered for entry into an AMP training program.

Trance. A dissociated state characterized by lack of voluntary movement in which various forms of automatism may be expressed; usually exhibited under hypnotic or mediumistic conditions. See also *Automatism*.

Transformation of Matter. Term proposed by Joseph Brozek. See *Theta Phenomina*.

Traveling Clairvoyance. A form of clairvoyance in which the subject (often in a hypnotic trance) seems to "travel" to a distant location and describes scenes or events taking place there. See also *ESP Projection* and *Remote Viewing*.

Trial. In anomalous cognition (AC) tests, a single attempt to identify a target object; in anomalous perturbation (AP) tests, a single unit of effect to be measured in the evaluation of results.

Unselected Populations. [CSP] A groups who's members have no known direct or indirect experience of AC.

Vertical Dream. A dream presumptively paranormal in that it corresponds in some of its details to events beyond the dreamer's normal knowledge or sensory range.

Whole Feedback. [CSP] Complete information about a target is available and used to debrief an AC task participant. For example an AC task participant might be taken to a target site for feedback.

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