RELATIONS BETWEEN ESP AND MEMORY IN LIGHT OF THE FIRST SIGHT MODEL OF PSI

By James C. Carpenter, Ph.D.

ABSTRACT

Although less active recently, the study of ESP in relation to memory has been a relatively active concern for parapsychology. Methods, questions and findings have been varied, and in need of clearer conceptualization for work to proceed usefully. The first sight model of psi functioning is proposed as having promise in this regard. I sketch the basic premises of the model, and argue here that various findings, including the positive correlation of secondary memory with ESP, the negative correlation of primary memory with ESP, the importance of alerting participants to the pertinence of ESP in the context of memory tests, the additive and subtractive effects of attempts to influence recall with ESP, and the effect of degree of familiarity of test material on ESP, among other trends, are congruent with the expectations arising from the model.

INTRODUCTION

During a roughly 20-year period beginning in 1967, the problem of the relation between memory and ESP was a relatively active research topic for our small field, with over 40 studies accumulating. There were many different operations used for both memory and ESP, and several different kinds of questions were asked. The work developed idiosyncratically within parapsychology, and unfortunately made little reference to the burgeoning field of memory research in mainstream cognitive psychology. The various results reported appeared contradictory, at least if viewed superficially, and this, along with the loss of interest in forced-choice ESP test methods (upon which the studies mostly relied) may have led to a decline of activity in this area. The current paper reviews this collection of reports in light of the first sight model of psi functioning (Carpenter, 2004, 2005b).

BACKGROUND

Psi/Memory Theory and Phenomenology

Theories of psi proposed by Roll (1966) and Irwin (1979) have emphasized the importance of memory traces as vehicles for psi expression. Roll's ideas were influenced by H. H. Price (1949/1967) who stressed that memory traces are essential for all experience, including psychic. By this concept, ESP has no medium of its own for carrying information. A psychic stimulus evokes a memory trace, and this bit of memory is what carries the psychic information to consciousness. An implication of this idea is that the more strongly an item is placed within the associative network, the more likely it can carry ESP information.

This paper explores the relation between ESP and memory by reviewing most of the experimental literature on the topic, and by offering some possible syntheses of that literature in terms of the first sight model of psi.

The summary given here of this model, and some attendant theoretical constructs, is necessarily brief in this context. Many features of it may seem odd or arbitrary to those who are accustomed to understanding parapsychological work in different terms. They are referred to my earlier papers (Carpenter, 2004, 2005b) for a fuller explication and justification of the approach.

Sketch of the First Sight Model

The basic premise of this model is that psi is a basic, continuously active constituent of the development of all experience. This model assumes that all organisms are preconsciously engaged with reality beyond their physical, sensory boundaries. All such distal engagements are termed "psi." Since extrasensory information (distal in time or space) is available to an organism before proximal, sensory information, the development of all experience may be thought of as beginning at the psi level of functioning. Thus psi is *first sight* (as opposed to "second sight," in the colloquial phrase). Just as every perception is known to have a process of development that is largely preconscious (Gollwitzer, 1990, Solley & Murphy, 1960), all other modes of experience are assumed to have similar preconscious developmental histories.[1] The chain of preconscious development of a perceptual experiencebegins with the psi level of engagement with the extended world. These engagements are preconscious and anticipatory. They are the leading edge of the preconscious processes by which the mind assembles all its experience.

Like other preconscious processes, psi is assumed to be personal and purposeful, not mechanical and impersonally automatic. Even though unconscious, it is more aptly viewed as part of what an organism *does* than as something that merely happens to it.

It is assumed that the psi level of engagement is constantly active. We use it to help efficiently anticipate and understand our developing experience. By it we also are helped to avoid undesirable circumstances and find desirable ones. Psi is not a degraded or disguised form of consciousness. It is an aspect of the preconscious process that leads to consciousness.

Generally, psi apprehensions are invisible to consciousness. However, like subliminal apprehensions, they arouse nexi of meaning and feeling that anticipate developing experience. If the process of the development of an experience is interrupted (as by showing a stimulus too briefly to be perceived, or keeping a potential experience locked away in another room) then these activated networks can be seen to be inadvertently expressed in fantasies, associations, spontaneous behaviors, moods, dreams, etc. Such material may be seen as alluding to the potential meaning apprehended extrasensorily (or sometimes alluding away from it). Some states of mind are better for expressing and noticing these inadvertent expressions than others.

The model assumes that the mind democratically and unconsciously draws upon all available sources of information in arriving at an orientation to developing experience. That is, psi experiences are expected to be drawn upon, along with memories, subliminal stimuli, and elements of imagination in contributing to the formation of the ongoing flow of experience. It is in this sense that the first sight approach is a *model*. A model in science is essentially an analogy, a presumption that things that are understood about one thing may be usefully carried over in attempting to understand some other thing. If psi contributes to the development of all of our experience, how does it do so? This model proposes that psi processes function in basically the same ways that other preconscious processes do, and that patterns of functioning that have been found with, for example, subliminal perception, will obtain in regard to extrasensory perception as well Such a presumption must be tested empirically to determine its value. It is worth noting that there are beginning efforts in this integrative direction in other areas of psychology that are studying preconscious processes, as for example in the work of Avramova & Stapel (2008) showing that preconscious processes effecting mood also effect assimilation in judgements, and of McElroy, Seta & Waring (2007) showing that preconscious processes involving self esteem have impact upon the risk-level of decisions. For further justifications of this application of modeling in this context, see Carpenter (2005b).

Beyond this general model, there are a number of theoretical propositions that are attendant to the first sight model. Psi is assumed to be bimodal (Rao, 1962, 1964). In regard to any potential experience, one's stance either may be toward the thing or away from it (a posture of approach or avoidance). A stance toward the thing will lead it to contribute additively to experience. A stance away-from will lead to a subtractive contribution to experience (the potential meaning will be decisively avoided in the forming experience). The terms *assimilation* and *contrast,* drawn from general psychology,

[1] For prior conceptual and empirical work on the preconscious functioning of psi, see Schechter (1977) and Stanford (1978, 1991).

are useful in this context. Another term for additive participation of an element in an experience is *assimilation.* Subtractive participation is termed *contrast.* Assimilation and contrast are well studied in the formation of judgements (e.g. DeCoster & Claypool, 2004), and in the gestalt study of percepts (e.g. Kohler, 1947). Events outside the focal boundary of an experience may be thought of as parts of its *context*. The model assumes that patterns of assimilation and contrast should often apply similarly whether the elements of context are subliminal, remembered or extrasensory. It is known that elements of context sensed to be more similar to the experience that is forming, or to the intentions guiding it, are more likely to be assimilated into it. (Bodner and Masson, 2002; Jaskowski *et al, 2003);* Schwartz and Bless, 1992). On the contrary, elements sensed to be dissimilar, or in some way contrary to the person's intentions in the task, are dis-assimilated (or rendered into contrast and excluded from the experience). The more well-defined an experience is, the more likely it is that contextual elements will not be assimilated and will be subject to contrast instead. This is because a more precise and highly defined experience implies a stricter criterion for "similar enough," leading to the exclusion of more potential elements. Conversely, a vaguely-defined experience will evoke looser criteria, and be less exclusive, leading to more liberal assimilation (e.g. „a cloud of small things" is a highly indeterminate experience, whereas „a swarm of bees" is a well-defined one) (DeCoster, 2004, Stapel & Winkielman, 1998; Stapel & Koomen, 2006; Stapel & Spears, 1996; Suls & Wheeler, 2007). In an ESP experiment, assimilation will be expressed as psi-hitting scores, and contrast as psi-missing scores. A state of mind that is unfocused and receptive is more amenable to the assimilative expression of extrasensory apprehensions. States that are highly focused and characterized by clear, cognitive work will make it likely that such apprehensions will be subject to contrast and excluded from expression. If this latter situation involves an ESP test, the contrast will express as psi missing.

At least in regard to extrasensory apprehensions, the model holds that in terms of any potential experience these two modes tend to switch at some rate. They may be relatively stable, and stay predominately in a single mode (hitting or missing) or they may switch rapidly. The more slowly they switch, the more behavior is likely to express some reference to the potential experience that is psi-apprehended (the reference may be additive or subtractive). Conversely, rapid switching will make it very unlikely that any discernable reference will be made to the psi information in the consequent response or experience. In an ESP test, this rate of switching will effect the size of scoring deviations. If switching is slow or stable, the deviations will be large. If switching is rapid, the deviations will be small. If some extrasensory apprehension continues to seem relevant to forming experience, our expectation is that switching will be slow and either an assimilative or dis-assimilative expression of the apprehension may be discerned. Potential meanings that are important in terms of a person's central concerns are likely to evoke slow switching and, in an ESP test, extreme scoring. If an apprehension seen as irrelevant continues to seem irrelevant, switching is expected to become rapid, and no expression of it will be permitted. This potential meaning will be "bound" outside of expression and awareness. The model assumes that most such potential meanings are "bound" in this manner at each moment.[2]

Similar Function of Memory and Psi in the First Sight Model

This model hypothesizes that ESP mingles with other preconscious processes in shaping experience. Psi is not assumed to function uniquely in the human psyche, like an unpredictable "wildcard" with magical properties. To the contrary, the model assumes that both memory and ESP (and other preconscious functions) all work together smoothly and continuously, and should show many similar patterns of functioning. It also assumes that remembered material and extrasensory material should be drawn upon conjointly in anticipating and shaping experience, although their mutual influence may sometimes be additive and sometimes subtractive as a functon of different conditions..

[2] These theoretical ideas about switching of psi-hitting and psi-missing modes of scoring (or, more generally, assimilation or contrast in regard to extrasensory apprehensions), may seem strange and arbitrary to many readers. They developed out of work on run-score variance effects in ESP testing (e.g. Rogers & Carpenter, 1966), and the specific model for explaining variance effects was first proposed in Carpenter (1977, 1983). The concepts are further delineated in Carpenter (2004, 2005b).

The questions that have been studied in past reports will be grouped in 3 general categories.

1. Are ESP and memory similar processes? If so they should be positively correlated when tested in the same or similar situations, and should follow similar internal patterns of functioning.
2. Can ESP "stimuli" influence memory retrieval? Testing this involves adding some element of ESP to a memory task.
3. Does remembered information influence the attempt to retrieve ESP information? Testing this involves examining the effect of some variable of memory in the context of an ESP task.

In examining these questions it will be important to remember that „memory" is not a simple concept, so these are not simple questions. In fact it comprises many different processes and operations in different research contexts. Prior work in parapsychology has often not appreciated this complexity and this has probably contributed to inconsistency in findings.

ARE ESP AND MEMORY SIMILAR PROCESSES?

If memory and extrasensory perception are similar processes, then they should be positively correlated within the performance of given participants tested in similar situations. They should also show similar patterns of functioning in terms of other variables.

Are ESP and Memory Correlated Capacities?

The first report on this question described 3 series that attempted to confirm a serendipitous observation of a positive correlation between participants' scores on memory and ESP tests. The effect was significantly confirmed (Feather, 1967). Attempts at replication by other investigators gave mixed results. Two studies produced significantly positive confirmations (Kanthamani & Rao, 1974; Rao, 1978), and 2 yielded significant negative relationships (Parker, 1976; Rao, Morrison & Davis, 1977). Several other studies yielded non-significant trends in both directions. A review at the time (Palmer, 1978) noted that this mixed-picture was provocative and seemed potentially important, but the researchers themselves had offered little conceptual clarity.

Some clarification of the mixed findings that had accumulated by the late 1970's was suggested in a subsequent review by H. J. Irwin (1979), who noted that researchers had not made reference to the important distinction between primary (or short-term) and secondary (long-term) memory. Primary memory (now usually referred to as working memory) is a relatively conscious, effortful matter in which one is actively holding some item in mind through rehearsal and then attempting to reproduce it. Secondary memory is a less effortful process of calling up or otherwise responding to some item of information previously learned. One important operational difference that has been used in many studies in assessing the two types is the use of some interpolated task between memorization and recall in tests of secondary memory, while tests of primary memory are given immediately after learning without an interpolated distraction. When the studies that had been reported were broken down in terms of this distinction, tests of secondary memory (like Feather's original studies) tended to confirm the positive correlation, while tests of primary memory tended to show negative relationships. Some other studies used designs that Irwin thought gave room for participants to rely on either memory strategy, depending upon their personal proclivities; these studies tended to give mixed or null relationships. While Irwin was not sure at the time how best to interpret this pattern of results, we may say in retrospect that they are consistent with the expectations that would be drawn from the first sight model.

Expectations of First Sight Model

The model assumes that psi apprehensions are available for positive influence of inadvertent pre-conscious processes, and hence for possible assimilation into the formation of experience, if the unconscious posture toward the event is predominantly "toward“ and if any switching of directional tendency is relatively slow. A "toward“ posture requires that the content of the apprehension seems pertinent to the person’s needs and interests in the moment and seems relatively congruent with the primary nature of the experience as it is developing. A slow rate of switching requires that this sense of positive pertinence is relatively unitary or stable. An open, "free-floating“, relatively undefined state of mind facilitates these conditions, whereas cognitive work on clear, conscious content inhibits them (the better defined an experience is, the less likely it is that elements of context will be sensed as pertinent and assimilated). Assimilation of psi-based material is highly similar then, to the activity of retrieving or responding to elements from secondary memory; whereas the consciously effortful process of retaining and reproducing primary memory should act to exclude the extrasensory.

We may distinguish among 4 different situations, and state the model’s expectations in regard to each. All of them presume that the information to be accessed by ESP is different from the information that is being recalled.

- In *primary (short-term) memory*, active cognitive effort is required for successful recall of material. Hence, anyone carrying it out successfully should be excluding extraneous implicit contextual elements (including extrasensory) at the same time. However, if someone is doing poorly at the task they are presumably being less successful or employing less concentration, and might be expected to be more amenable to extraneous influence in their responses. Hence a negative relation is expected between the two tasks in a given situation.
- In *secondary (long-term) memory*, reproduction or recognition of material previously learned requires a more passive inner searching of experience, associations, images, etc. In the context of an ill-defined ultimate experience, this posture facilitates a broadly inclusive sampling of contextual elements, making assimilation of potentially pertinent material (from whatever source) more likely. Someone carrying it out successfully must be rather passively and openly searching a broad range of inner associations, images, and sensations, looking for some sense of fit, and this is the same sort of posture most likely to facilitate the expression of extrasensory apprehensions. Hence, in a given situation, the two tasks should be positively correlated.
- However, if some information is very securely learned, other considerations enter in. In the extreme case, highly rehearsed memorization is called *overlearned.* An example is one’s own name. In this case, the item to be recalled is so well learned that any cue toward it calls the information up immediately with no searching required. In this case, the task to remember leads to immediate cognitive closure. Cognitive closure is assumed by the model to elicit the exclusion of extraneous information by either contrast or by rapid switching of directional tendencies. In this case then, being tested successfully with such material should be *exclusive* of the expression of psi apprehensions, and high memory scores should be accompanied by negative ESP scores, while in the unusual instances in which one may be amnesic about such material, a posture of inner searching might be expected. Hence, a negative correlation is expected.
- In the opposite extreme, material to which one was never conscious of being exposed has never been consciously rehearsed at all, and is termed *incidental memory*. This type of unrehearsed, secondary memory is generally assessed by noting inadvertent responses to information to which one has been exposed incidentally (like recalling the items in a room through which one recently passed without paying particular attention). In this case, trying to consciously recognize the information is experienced as mere guessing, similar to the experience of taking an ESP test. Because success at this task requires a posture that is the same as that assumed to facilitate extrasensory expressions, a positive correlation between the two is expected.

Summing up then, the model leads us to expect that tests of primary memory should be correlated negatively with measures of extrasensory perception. Tests of secondary memory should generally be positively correlated with extrasensory perception, but how well-learned the material is (or strength of

association) is an additional consideration. Positive correlations are most strongly expected when material is rather poorly learned (as in incidental memory, in the extreme case), whereas material that is overlearned should show a negative relationship.

Reported Patterns of Correlation

By way of further support for this hypothesis, and of Irwin's observation, two subsequent reports (Kreiman, 1978; Weiner & Haight, 1980) both used designs testing primary memory without an interpolated task, and both yielded significant negative relationships. One study (Stanford, 1970) looked for a relationship between ESP and incidental memory, and it reported a significant positive relationship, as this model would predict.

All the studies just cited examined the relation between independent tests of ESP and memory given in the same situation. A different line of work examined the correlation of ESP and memory not only in the same situation, but in the same response (Kanthamani & Rao, 1974, 1975), and our model would expect that the same pattern of results should hold there as well. These were dual-aspect tests, in which participants were given lists of paired associates to memorize and then tested on their recall with a response sheet that also required a binary choice in the manner of responding, the latter aspect serving as an ESP test. For example, a list of trigrams (such as FAM or QEN) were each paired with meaningful words and memorized. Then in the memory test, the trigrams alone were presented, with the participant asked to write the associated word. The additional aspect was provided by two possibilities of writing the response, as, for example, in one of two adjoining spaces next to the trigram. The choice of space, participants were told, would serve as an ESP test, as one of the spaces had been picked randomly as a target. One additional variable was sometimes controlled in these studies: association strength. Some of the trigram-word pairs had high association strength (e.g. SOS – help) and some had low association strength (e.g. JUQ – tree). The experimenters expected that ESP and memory would be positively correlated within the trial, that is that memory responses that were correct would tend to be paired with ESP responses that were also correct, and vice versa. Their expectations were born out in a generally consistent way across several series. Palmer (2006) calculated tests for overall significance from their series and found that recall-correct trials were associated with significant psi-hitting, and recall-incorrect trials were associated with significant psi-missing, and the two differed significantly from each other. These series all employed a distraction task of several minutes between memorization and recall, and also provided additional distraction with each trial by the requirement of the ESP response in terms of a placement decision. This makes it appear likely that secondary memory was primarily being sampled. An important additional finding was that in studies in which association strength was controlled, the effect was contributed entirely by the pairs with low association strength. Again, as the model would predict, when something is not too securely learned (lower association strength), the pertinence of the ESP target appears to be enhanced, and it is more likely to be positively expressed in the response.

This effect of a within-trial correlation of memory and ESP was significantly confirmed in one of two series reported by O'Brien (1976). Instead of controlling association-strength, O'Brien controlled degree of normative usage in his word lists. He found that the correlation was evident only with the more rarely used words. Emmerich (1976) also reported a conceptual replication, in that he asked participants to give both a primary and secondary associate to each cue word (they had previously studied a list of jokes from which the cue words were drawn) and also elicited an ESP response in terms of the choice of writing the associates in one of two spaces. He found that memory and ESP correlated significantly and positively when considering the secondary associates, but not the primary associates, as he predicted. This showed again that less securely learned material, evoking less immediate responding, was more likely to carry ESP information. A failure to confirm the effect in a design closely modeled after that of Kanthamani & Rao was reported by Lieberman (1975). Harary (1976) also failed to confirm the effect in a study that departed from all the others in using group testing, suggesting that the heightened meaningfulness provided by individual testing may be important for the expression of the effect. Gambale (1976) and Gambale, Margolis, and Cruci (1976) also failed to confirm the effect, although they used a design that would have permitted participants to make their ESP responses after and separately

from their memory responses if they chose, and this would seem likely to bring in the problem highlighted by Irwin (1979) in mixing primary and secondary memory.

Summing up this last line of work, it appears that there is considerable evidence that secondary memory and ESP are positively correlated within the response, particularly when memory is not very strong, and that expression of the effect may be heightened by experimental designs that preclude the employment of primary memory, and by heightening the meaningfulness of the experimental situation by individual attention.

The Importance of ESP Priming in the Context of Secondary Memory

It may be an important matter whether or not participants are informed that they are taking a test of ESP. If they are told, we may say that this extrasensory aspect of potential experience is being primed by the information. Such contextual priming has been found to be important in the processing of subliminal or implicit cues (Blair, 2002), and the logic of our model leads us to expect a similar pattern with ESP. This issue may be examined in a series of studies of the relationship between memory and ESP scores in which ESP items (with unfamiliar content) were imbedded in the context of academic examinations. Students were asked to indicate with each response whether they were completely certain of the correct answer or not. The initial study found a positive correlation between scores on the real items for which answers were not certain, and the scores on the ESP items (Rao & O'Brien, 1977). This confirms the relationship described above, in that ESP and secondary memory were positively correlated as long as recall was not so certain as to be immediate. A number of attempts to replicate this effect were reported with mixed results. Rammohan (1990) reviewed this literature, and although she did not carry out a meta-analysis, she detected a strong trend in which the positive relationship was found in studies in which students were alerted to the presence of the non-academic, ESP questions, but negative relationships tended to be found when the ESP aspect of the situation was not revealed. The three significant positive relationships reported were all designs in which the ESP aspect of the situation was revealed, while the one significant reversal was in a study in which that was not revealed. Rammohan then carried out two more series to test this hypothesis, one in which the information was revealed and one in which it was not. In both series she found significant relationships in the directions she predicted.

This pattern appears sensible in light of the first sight model. If ESP is not understood to be pertinent (and perhaps particularly in the anxiety-arousing context of an academic examination), preconscious contextual material sensed to be irrelevant to the task at hand would be expected to be subjected to contrast and expressed subtractively in responses by those who are remembering their academic material effectively (high memory accompanied by low ESP). On the other hand, those who are remembering poorly might well cast about for inner "hints" about right answers, and these persons would preconsciously cast a broader net, assimilating more contextual material. Such a situation would produce a negative correlation. However, if extrasensory material is made more salient by the information that some items will be testing for it, then this information should serve as a prime leading that type of apprehension to be sensed as being pertinent, and assimilated additively. Given that ESP apprehensions are understood to be important in the situation, those recalling uncertain but previously seen information effectively would be expected to respond equally well to extrasensory apprehensions, while those remembering poorly should be equally poor with ESP – hence a positive relationship should obtain. It would be interesting to replicate Rammohan's finding by comparing academic test performance to another testing situation that is more playful and in which the results hold no personal consequences. We might predict that in the latter case, not knowing about the extrasensory element might not arouse such a strict contrast response in those remembering well.

Similar Patterns of Functioning

Use of Association. When attempting to recall something about which one is not certain, one searches inwardly, holding open a certain anticipatory "space" in which images, thoughts, associations, and feelings are scrutinized for a sense of correctness or pertinence. One consults the internal associative

flow of images and feelings, looking for a doorway to the lost item. Actually, both memory studies and parapsychological ones suggest that such associative scanning is a matter of degree, and subject to individual differences. One line of ESP research elicited measures of strength-of-association among a set of target and response words, and used this set in both memory and ESP tests. The investigators were particularly interested in responses that were incorrect. Some participants, in their wrong memory answers, tended to use instead some close associate to the correct response, as if their memories were not exactly right, but were searching the correct neighborhood. Other participants showed no such tendency to rely on close associates when their memories were in error. Then the investigators examined the ESP performance of these two groups of participants. In several studies it was found that those who responded incorrectly with close associates on the memory test tended to do likewise on their ESP tests when incorrect responses there were examined. Likewise, participants who did not respond with close associates in one situation did not do so in the other (Rao, 1978; Rao, Morrison & Davis, 1977; Rao, Morrison, Davis & Freeman, 1977). Partial support was also reported in a further study (Rao, Kanthamani & Palmer, 1990). Palmer (2006) has pointed out that a possible artifact may have inflated some of these results (although not all), but if the effect is found to be reliable, it may be taken as one indication of similar processing of ESP apprehensions and long-term memory.

Effect of anxiety and attitude. Although not studied together in the same situations, additional evidence of similar functional processing can be found in the similar effects of anxiety and attitude upon both memory and ESP.

In a review of several studies, Palmer (1978) found a relatively consistent tendency for various measures of trait anxiety to bear a negative relationship with ESP scoring, particularly in the context of individual participant-experimenter interactions. This trend has continued since (e.g., Carpenter, 2005a; Sargent & Harley, 1981). Anxiety has also been found to degrade the efficiency of recall. Two mechanisms by which this has been thought to occur are by a narrowing of the band of associative encoding and recall (e.g., Mueller, 1979) and by the interference of extraneous, intrusive thoughts (e.g., Sarason, 1984). In regard to narrowing the band of association, it is known that highly anxious persons are overly responsive to the aspects of situations that might connote danger, and less than normally responsive to other aspects of experience, which degrades attentional resources (Fox, Russo & Georgiou, 2005). The first sight model proposes that the same processes that degrade attentional resources and memory recall also inhibit the accurate response to ESP apprehensions.

Attitude toward the test and toward the material being accessed have also been found to affect both ESP scores and memory efficiency. In both cases, positive attitudes have been associated with positive access to the material, and negative attitudes have been associated with poorer access to the material. Although not always a significant predictor, attitude toward the possibility of ESP in the test situation has been a relatively robust correlate of ESP performance (Palmer, 1978, 1982; Schmeidler, 1988; Schmeidler & McConnell, 1958). Attitude toward the target material has also been found to be important, with higher scoring often reported with material that is more important to the participant (e.g., DaSilva, Pilato, & Hiraoka, 2003; Kanthamani & Rao, 1975). In memory research not involving ESP at all, a meta-analysis of several decades of work (Roberts, 1985) concludes that a more positive attitude toward memory content does predict better memory performance, particularly when delayed recall is being tested. As with the correlation of memory and ESP, it appears that it is in regard to secondary memory that similarity of processing with ESP can be seen.

DOES ESP AFFECT MEMORY RETRIEVAL?

The first sight model predicts that extrasensory apprehensions commingle with memory "traces" at a preconscious level, and should often be discernable either additively or subtractively in the experience of remembering. By the logic of our model, this is in a sense an untestable proposition, since we are assuming that extrasensory apprehensions are always available, and no control condition can be devised in which they are not. But it is still an empirical question how such apprehensions might be used in the effort to remember, and what things might influence such usage. What happens when an experimenter

inserts an ESP "source“ into a memory task? Several considerations are probably important, among them whether the information "primed“ by ESP (for example, a sending agent) is congruent with what was learned or contrary to it, whether or not the participant is told about the ESP dimension of the situation, and how important and desirable correct remembering and ESP-guessing are to the participant in that situation. In all the reports discussed in this section, participants were given memory tests in which certain questions were also "loaded" by having ESP targets associated with them, sometimes congruent with the material to be remembered, and sometimes contrary to it.

One line of work was begun by Johnson (1973) on the contribution of ESP to performance in academic examinations, a "real-life“ test of memory. In his 3 series, he attached sealed envelopes to the response sheets of essay tests in his psychology courses. In all series he deceived the students about the unusual envelopes, explaining them as something that would speed up test scoring. In two series, the envelopes contained typed information that was correct, applying to half the test questions (chosen randomly). No information was provided pertinent to the other questions. In the third series, half the questions contained misleading information associated with half the questions, and no information pertinent to the others. He found that the students performed better when they were "primed“ by correct information relative to no information, and performed more poorly when they were "primed“ by incorrect information. Some findings supportive of the effect of correct ESP targets '"boosting“ the efficiency of memory of the appropriate items have been provided by Braud (1975) and Schechter (1977), although the evidential value of these studies is weakened by the inadequately random assignment of targets to participants (Stanford, 1991). Negative scoring on ESP targets that are contrary to correct memory targets was also demonstrated by Stanford (1970). In this complex study, ESP targets were assigned to multiple-choice memory items, sometimes congruent with information that had been viewed previously, and sometime incongruent. His participants showed significantly poorer memory performance when the ESP targets were incorrect in terms of memory.

Kreiman (1980) reported a similar intrusion of ESP targets into memory performance in a test situation in which grades were not at stake. His participants were students in a parapsychology course, and he knew them to be highly interested in the topic of ESP. They were given a short time to memorize a list of words and then tested on their recall. Twenty of the 50 words were randomly picked for each participant to be ESP targets, and this list was given to them in a sealed, opaque envelope. Thinking that the psi-intrusion should be greatest when memory is poorer, he divided each participant’s response list in half, and predicted psi-missing on the ESP items in the first halves, and psi-hitting in the second halves. Participants knew that some items would represent an ESP test as well as a memory test, but not which were which, and they were not told of his plan to split their responses. His predictions were confirmed. Some non-significant trends toward confirming this effect were reported by Weiner & Haight (1980) (who used precognitive ESP targets with no "prime" in the form of a target list) and Schmeidler (1980, 1981). However, Schmeidler also found that when she carried out a study with participants that were most like Kreiman’s (believers in ESP who found the test interesting) the effect was confirmed significantly. She later refined the hypothesis further, and found that when she tested ESP believers who were in a good mood, and restricted the psi-hitting prediction to the bottom quarter of their response lists, the prediction was confirmed significantly in two of her three series, and in all three series pooled. The one non-significant trend was produced by a series in which the ESP aspect of the test was not revealed to the participants, suggesting again that alerting participants to the importance of ESP information may facilitate its expression. Lieberman (1976), using a different design, also confirmed the expectation that ESP hitting should be better when memory is weaker, and negative when memory is stronger, but only when his subjects were tested individually (the effect reversed to a non-significant degree when groups were tested). We might speculate that the individual testing situation heightened the participants’ interest in the task, making their motivation more comparable to Kreiman’s and Schmeidler’s more highly engaged participants.

While more work in this area needs to be done, this collection of findings suggests several things. First, information intended by an experimenter (or teacher) to serve as ESP targets can be inadvertently expressed in participants’ responses to a memory test. When memory is strong, the expression is likely to be subtractive, as if the unneeded psi information is being subjected to contrast and avoided. When

memory is relatively poor, the expression is likely to be additive, as if in the context of uncertainty the participant consults the ESP apprehensions with more positive, unconscious interest. Additional priming seems to make the intrusion more likely, whether priming the source by attaching odd and somehow important envelopes to answer sheets or by alerting participants to the presence of a test of ESP that is somehow part of the situation. The latter factor seems to most influence participants who are personally and positively engaged by that possibility. However such priming apparently is not always necessary, as shown by the results of Stanford (1970).

DOES MEMORY AFFECT ESP PERFORMANCE?

How might memory enter as a variable into a person's attempt to express and recognize some information that has been apprehended extrasensorily? The first sight model holds that previously learned information must mingle somehow with extrasensory apprehensions, at least when the learned material is sensed to be pertinent to the ESP task. In tests of ESP that are not also memory tests, the material used for targets will always have some degree of familiarity to participants, depending upon each person's history of exposure to the material and personal use of it. Material that is familiar enough to feel relevant to the task at hand should be eligible for assimilation. However, ideas so well learned that they predictably evoke fixed associations and patterns of response should be associated with rapid cognitive closure and cause ESP apprehensions to be turned away. Some work pertinent to this question was reviewed in the last section, in which the same items on a test served as responses to both remembered material and ESP targets. One generalization that can be drawn from that is that some exposure may be helpful to ESP hitting, but material that is so well learned as to be immediately and accurately retrieved is more likely to be associated with psi-missing.

Some studies suggest that some prior exposure to material to be used as ESP targets, as opposed to no exposure at all, can be helpful to psi-hitting. Kanthamani (1965) found that English-speaking participants who were unfamiliar with Hindi scored positively in ESP tests using English targets and negatively with Hindi targets (the test involved blindly matching sealed cards, so no linguistic understanding was involved in the response with either type of target). In a later study she found (Kanthamani& Rao, 1975) that meaningful 3-letter syllables (e.g. UFO) evoked psi-hitting as targets, and nonsense syllables (e.g. KEQ) evoked psi-missing. Nash & Nash (1968) tested participants with personally meaningful words and with digits picked by the experimenter and found better performance on the words. In some cases, targets that were more meaningful to the participants (and in that sense, better known to them) evoked psi-hitting relative to arbitrarily provided targets. Dean (1962) found that participants reacted physiologically to names of friends when they were used as targets, but did not react to names of persons known only to the experimenter or to names drawn randomly from a phone book. Rao (1962) compared targets chosen by participants to ESP cards and found hitting with the personal targets and missing with the arbitrary symbols. However, this pattern of preference has sometimes been found in reverse. Skibinsky's (1950) participants were tested with symbols and with names of intimates. They scored significantly negatively (and more extremely) with the names and at chance with the symbols. Rao (1963, 1964) found that chosen or otherwise more meaningful targets sometimes seemed to induce missing rather than hitting, depending upon other variables. The responses were made by consciously guessing target content.

Our model suggests that some of these targets (e.g., Skibinsky's names of intimates) may have been too meaningful to evoke positive scoring as targets, inasmuch as they may have evoked instead a clear set of conscious meanings that served to exclude extrasensory material. In this case, more meaningful material would be expected to evoke more extreme scoring (as it did for Skibinsky), but sometimes in a negative direction.

Evidence for a different but perhaps related negative effect has come from a series of studies initiated by Stanford (1967) on response bias. Stanford reasoned that when participants demonstrate an

associative bias, such that some target alternatives come much more readily to mind than others, ESP guesses that conform with that bias are less likely to be correct than calls that use the response alternatives that are biased against. He drew an analogy to signal-detection theory (the weak ESP signal is drowned out by the "louder noise" of the strong associative habit) and related this to the common experience of noticing some unusual element in a familiar situation. He carried out analyses of data from some high-scoring participants in past research, and found evidence for the hypothesis. For example, the remarkably scoring Pavel Stepanek, who called the colors green and white, called green more frequently than white. Although his scoring was highly significant on both types of call, it was much higher on the less frequent white calls. Stanford went on to produce some data of his own in several studies to support the hypothesis (Stanford 1967, 1970, 1973), and others have confirmed it as well (Glidden, 1974; Morris, 1971; Palmer & Johnson, 1991; Sargent, 1982). However, some studies have found no effect (e.g., Shrager, 1978). No meta-analysis has been reported, but the negative effect of strong response tendencies has been found often enough that it would seem to represent a frequent if not invariable phenomenon. Pertinent evidence is also provided by several earlier studies that introduced new test material into a series of ESP tests that had been ongoing, using small sets of forced-choice material that had become very familiar. In most cases, the fresh material (which had not accrued any associative habits) quickly and significantly produced improved scoring (Cadoret, 1952; Hallett, 1952; Pratt & Woodruff, 1939; Thouless, 1949).

Putting these two lines of work together, we have evidence that psi-hitting in an ESP test is made more likely by some associative familiarity or meaningfulness to the participant, but if it is so entrenched that it evokes response rigidity, it is likely to be associated with negative scoring (this is discussed more fully below, when I deal with the issue of competing interpretations of results). One study by Stanford (1973) demonstrated both these effects at once in an interesting way. He gave his participants a word-association test using cue words that had strong norms for a primary (most frequent) and secondary (next most frequent) associate. He randomly assigned an ESP target to each trial, either the primary or secondary associate (trials were only scored for ESP if one of the two was given). He predicted that some degree of associative strength would facilitate ESP and expected this to be demonstrated by superior hitting when the target was the primary associate. The results bore out this expectation. However, he also expected a response-bias effect. He predicted that the opposite trend, greater hitting on secondaries than primaries, would be found with participants who gave a preponderance of primary responses (those who had a strong response bias for primaries). This prediction was confirmed.

In sum, the studies reported on the effect of degree of prior learning on ESP performance do conform in large measure to the expectations that arise from the first sight model. Some degree of familiarity with target material facilitates a sense of pertinence to the task at hand and makes psi-hitting more likely. An extreme degree of familiarity, accompanied by highly predictable cognitive associates and behavioral responses, leads to such rapid closure that psi-missing is likely. The first sight model suggests that with cognitive closure, the target material is subjected to the process of contrast, and held decisively outside of the response, as evidenced by deviations significantly below chance in that situation. The meaningfulness of target material, inasmuch as this reflects personal familiarity and pertinence, may often predict hitting, but actually the model predicts (Carpenter, 2005) more generally that scoring with particularly meaningful material should generally be more extreme, and in a positive direction only if other factors make the content seem desirable in the task context. Most of the research reviewed has not reported scoring extremity, however, so this expectation could not be evaluated.

WHAT IS THE MEANING OF EXPERIMENTAL FINDINGS?

None of the studies reviewed in this paper were carried out with the first sight model in mind. It had not been described in the literature when they were carried out. Is it reasonable, then to turn findings that were collected with other ends in mind to the service of this model?

Viewed pragmatically, all experimental findings are neutral as to interpretation. They are raw pieces of fact awaiting construal. Still, some researchers might fairly object to their own construals being dismissed in favor of those of a latter-day reviewer.

Many findings, in fact have been presented in this literature almost bare of interpretation. When Feather (1967) reported a positive correlation between memory scores and ESP scores, and when Johnson (1973) described finding that ESP "primes" that were correct in terms of memory information acted to boost test scores of material that students had tried to remember, no interpretations of just why ESP and memory should bear these sorts of relations with one another were offered at all. Many other findings have been as naked or almost as naked of construal. Sometimes interpretations have been tentatively suggested, but not developed or further tested, as when Rao, Morrison & Davis (1977) reported a finding contrary to previous ones in that their participants' ESP scores correlated negatively with memory scores, instead of positively as they had found before and expected again. They indicated that the poor attentiveness that may be evoked by group testing might have been responsible somehow, but did not spell out just why this would have such an effect. No confirmations of this hypothesis have been reported. When Irwin (1979) offered an important clarification of the mixed results reported in terms of the direction of relationship between ESP and memory by distinguishing between procedures testing working memory from those testing long-term memory (as described above), he still could offer no interpretation as to why memory and ESP should be related in these ways. He briefly considered, and then rejected, an interpretation based on some speculations about the meaning of ESP scores, and then suggested that real understanding of the relationships would have to await greater understanding of what ESP scores measure. The first sight model does offer one cogent interpretation of what ESP scores measure, and may prove Irwin right by also offering an explanation of the pattern of different relationships that he found.

Irwin noted that there was one group of studies that used similar procedures and found mixed and often null results in terms of the relation between ESP and memory scores. This was a set of studies reported by Rao and his colleagues (Rao, 1978; Rao, Morrison & Davis, 1977). As described previously, Irwin suggested that the inconsistency could be attributed to the fact that the learning period that immediately preceded testing was unusually long with a relatively large number of items, so participants could be free to follow individual proclivities in terms of employing either working memory or long-term memory in responding to the test. In Rao (1978) this inconsistency of results was shown clearly by two groups of participants who were tested identically, with one showing a null relationship and the other a strong positive one. Rao noted that the two sets were analyzed separately, one by human checking followed by computer scoring, and the other by computer scoring only, and speculated that this different scoring procedure might somehow have influenced the results. He also noted another difference between the groups, but attributed little significance to it. The first group that produced the null relationship, was given a lecture on parapsychological research and then immediately given the procedure of memorization followed by testing. The second group had an intervening period between the lecture and testing in which most participants viewed a biofeedback demonstration while a few others watched a film. These participants showed the positive relationship between ESP and memory. The first sight model would suggest that these activities (in particular the biofeedback demonstration) encouraged a less cognitive, more inwardly-exploring kind of set (Carpenter 2004) which would tend to prime the use of both long term memory and access to ESP information. In addition, the use of any intervening procedure at all would, as Irwin argued, make working memory less accessible at all. On the other hand, a lecture on research followed immediately by testing would tend instead to prime a more cognitive, self-critical set that our model would consider to be likely to be conducive to the employment of working memory for at least some participants, and provide no intervening task to make working memory unavailable Compare the utility of these two explanations. The first sight understanding is a way of accounting for this effect as well as all of the differential memory relationships described by Irwin and reported subsequently. Different manners of checking results, on the other hand, apply to only very few studies and have not been found to show any consistent effects, and in any case just why scoring procedure should effect the relationship between memory and ESP performance is not specified at all.

More sophisticated interpretations have been presented in some reports on ESP and memory, and it is important to remember that these should be considered alongside of those offered here. Sometimes

one construal may fare better than another. As one example, consider in more detail the innovative research of Stanford (1973) mentioned above, in which a word-association protocal was used as an ESP test. One of his series used cue words that were known to have strong primary and secondary associates. These two classes of responses were used as ESP targets, assigned randomly. Whenever a participant gave a response that was one or the other, it could be scored in terms of the ESP target (primary or secondary) associated with that trial. Stanford was testing two hypotheses with this series. One was a prediction from Roll's (1966) theory which held that ESP must always be expressed by the arousal of memory traces (since the ESP "stimulus" is not available sensorially, there is no straightforward sensory channel by which it can come to awareness, so to become conscious at all it must be by way of stimulating memory material). An implication of this position is that information that is more well-remembered (represented here normatively by the primary associates) should be a more sensitive carrier of ESP information than information that is less well-remembered (the secondary associates). Thus, he expected an overall tendency for higher ESP scoring when the targets were primary associates. At the same time, Stanford expected that another tendency would tend to push scoring in the opposite direction: the response-bias effect. As noted above, Stanford had pulled together a number of observations (e.g. Stanford, 1967) to reveal a rather general pattern: whenever a strong tendency for a certain class of response exists, correct ESP information is most likely to be expressed whenever the person's response *deviates* from the bias. He called this the *response-bias* effect. Since in general, there is in the population a bias toward responding to the words he was using with primary rather than secondary associations (as determined by the norms that established the primary and secondary categories for the words), this effect should act to produce higher scoring on the secondary responses. Stanford tested both of these expectations at once in an ingenious way. He looked for confirmation of the memory-trace hypothesis by comparing the rates of scoring overall when participants were giving primary vs. secondary responses. He predicted that scoring should be higher overall on the primary responses and this is the result he obtained. To test the response-bias hypothesis, he predicted that participants who demonstrated, *as individuals*, a preponderance of primary to secondary responses, should have better scoring on their secondary responses than on their primary responses, since they were particularly biased toward the primary associates. As a secondary test of the response-bias effect, he also predicted that longer average reaction time in responding should be associated with better scoring on primaries than on secondaries, with shorter average reaction time showing the opposite pattern, since brief reaction time is known to be associated with sampling from the top of the associative hierarchy. He found both of the expected relationships. What about the persons who did not show a preference for responding with primaries? As expected by the memory-trace hypothesis, they showed a strong tendency to score better when giving primary associates. To sum up, across all his data, Stanford found confirmation for the memory-trace hypothesis: scoring was higher when responding with more highly-associated words. For those individuals who exhibited a strong personal response-bias in favor of the normative primaries, however, the pattern was reversed, and he found evidence for the response-bias effect. They scored better when they deviated from their bias and responded with less strongly-associated words.

How should these findings be best construed? In order to make a comparison, I must make an assumption not explicitly justified by Stanford's report. He gave no means for scoring by different groups in his study, but reported only correlational analyses. I will assume that the better scoring for certain classes of responses relative to the lower scoring for other classes (e.g. primaries better than secondaries, overall) represents a psi-hitting tendency for one and a psi-missing tendency for the other. I assume this because Stanford does not report significantly high scoring for his data overall, and it is conventional in parapsychological reports to note such overall tendencies when they are found. Therefore, :"better" scoring in one case vs "poorer" scoring in another must represent a tendency to hit in one and miss in the other, rather than hit very highly in one and produce chance scores in the other. Both the memory-trace and the response-bias hypothesis generate predictions of hitting vs. chance-level scoring, and offer no predictions about psi-missing. The first sight model predicts both.

The memory-trace hypothesis comes from the assumption that stronger memory traces should be more ready vehicles for expressing ESP information. Relative to them, weaker memory traces should simply be less effective vehicles, and thus less likely to show a tendency to give correct information. The

theory is mute in terms of responses that show a positive tendency to express counter-factual information. The case with the response-bias hypothesis is a bit more complicated. Stanford (1966, 1973) has construed the response-bias effect in terms of signal-detection theory (e.g. Swets, *et al,* 1964). Use of this theory with ESP requires us to assume that extrasensory information presents to the organism as an occasional weak signal occurring within a noisy background (like a personally significant phrase uttered by someone nearby at a party in which many conversations are going on simultaneously). To have a strong bias for certain classes of response means that a hearer will, in terms of the example given, tend to "hear" certain things quite frequently, and therefore will tend to misinterpret what is heard in accord with his or her bias. There will be a high rate of "false alarms" in favor of the bias. If a signal is relatively weak relative to the contextual noise, this tendency to mis-hear in favor of the bias will override the tendency to hear what the signal actually is, reducing the accuracy of the response. If there is no strong bias in responding, there will be fewer "false alarms" and the weak signal will have a greater opportunity to rise to awareness and be correctly perceived. Thus, low-bias listeners should be better able to discern the weak ESP signal accurately, and show psi hitting in their responses. High-bias listeners should be responding so strongly in terms of their bias, that the information coming from the ESP "signal" should be unable to rise to consciousness, and the responses should show only a chance level of association. Again, there is no prediction that is generated of negative scoring in any situation.

If the Stanford (1973) study had been framed in terms of the first sight model a different sort of reasoning would have been employed. ESP information is not an occasional signal but a constant presence each bit of which is either approached or avoided in regard to the formation of every experience. Thus, the ESP target is always an active constituent in every ESP response (in this case, in the choice of every associate). According to the model, the unconscious choice to approach a bit of psychic information is a function of unconscious intention. All things being equal, more meaningful material will tend to be approached more frequently, and less meaningful information will tend to be avoided, because more meaningful material tends to be unconsciously presumed by the participant to be more likely to be important and personally salient. Thus in general, more meaningful material should evoke a tendency to psi-hit and less meaningful material should evoke a tendency to psi-miss, and primary associates (being generally more meaningful) should tend to express hits and secondary associates should tend to express misses. However, another important determiner of approaching or avoiding the extrasensory material is the presumption that extrasensory information, as a general source, is likely to be useful or not in the particular situation. If one has a strong bias for certain classes of response, irrespective of subtleties in the available information, then at a moment when the motivation to express the bias is dominant, the extrasensory domain will be eschewed in favor of the pressing motivation to express responses congruent with the bias. To eschew this whole domain, in this model, is not to be simply oblivious to it, but rather to subject it to contrast and demonstrate a tendency to produce responses that definitely avoid it (express it less frequently than chance would predict). Thus when a high-bias person is generating a pro-bias response (in this case, a primary association) the extrasensory domain *as a source* will be subjected to contrast and this will be expressed as a negative reference to that material, or a psi-missing score. However, when the same person is producing an association that is not driven by the bias, he or she would be expected to be freer to sample from a broad domain of alternatives, and a positive reference to the part of the situation that is represented by the ESP target would be expected. This is because this person is willingly participating in an ESP study, and presumably has a general motivation to succeed in that committment by expressing the target correctly. This would be expressed as a tendency to hit the target in the non-bias responses. Thus, if my assumption about the group means is correct, Stanford's results would be predicted by first sight theory more precisely than by either the memory-trace or the response-bias/signal-detection lines of reasoning, in that tendencies to miss are as much accounted for as tendencies to hit.

In addition to specific comparisons that may be made between the explanations offered with a specific study and explanations drawn from the first sight model, the general utility of the model should be noted. Many of the various proposals may serviceably account for their particular sets of results, but none of them has the general capacity to account for almost all of these findings in the way that the first sight model does. Checker differences, or testing situations that may vary in terms of aroused interest, or

interactions with experimenter gender, or a great many other proposed variables may be cogent possible interpretations of certain studies, but none of these ideas pertain to most studies, and they have not been found to have general explanatory power. The first sight model accounts for a great many findings and makes them understandable in a common set of terms.

There are also many cases in which particular hypotheses appear to be largely true, but are also found alongside contrary results that seem inscrutable. The first sight model offers higher-order explanations that subsume the apparent contradictions. As just one example, recall the several studies that found higher ESP performance with more meaningful material (e.g. Kanthamani, 1965), and the contrary results of Skibinsky (1950) who found negative and significantly extreme scoring with his more meaningful targets. The first sight model offers a much more integrative set of interpretations, embraces and incorporates the general finding and accounts for Skibinsky's negative scoring as well. It also offers a meaningful interpretation of the extreme scoring, for which Skibinsky did not attempt to account at all.

DISCUSSION

In our research literature, the idea that ESP and memory might be related processes arose serendipitously in an unpredicted correlation observed in a pilot study that had other objectives (Feather, 1967). Attempts to confirm the relationship led to interesting but conflicting results, and efforts to conceptualize the matter began trying to catch up.

The first sight model holds that psi apprehensions are continually ongoing, and in their ordinary, everyday functioning, serve unconsciously to anticipate and guide the development of all of our experience. As the mind constructs its experience toward the end of usefully construing it, it unconsciously consults incoming information from whatever source in the light of implicit questions that were posed by earlier sources in the process. These preconscious processes have been studied for a long time, at least since the Wurzburg school of the early 20th century (Gollwitzer, 1990). This model asserts that the earliest source of potential information comes from our nonlocal engagement with reality that we term psi. All of this preconscious processing happens very quickly as conscious experience flows along. Psi in its most common expression is thus assumed to be quite a normal process, quickly deployed and quickly abandoned, and normally invisible to conscious experience.

The normalization of psi is one aim of the model. I hope with it to suggest ways that the problems of parapsychology should be studied within the context of all that is known of cognitive, sensory and perceptive functions. It proposes that patterns found with other preconscious psychological processes should obtain with psi processes as well. And it implies that the study of such normal psychological processes cannot be complete without reference to psi processes.

As we attempt to know what we are trying to remember (or what we are perceiving, creating, feeling, or intending) the anticipatory questions of any one stage call up ideas from our personal associative network of images, words, feelings, values and motives for what help they might offer. Thus, in this model, psi questions and memory attempts to answer, all in the light of other input that might be developing in the moment.

At this preconscious stage of experience, then, psi and memory must work hand in glove. The general expectation that arises from this model is that before experience has been construed, while it is still uncertain and moving toward meaning, both psi and memory should be seen to be contributing their parts, harmoniously and efficiently. Thus, they should be found to correlate positively (if one is contributing effectively, the other should be also), and their contributions should be generally additive, *until the point that some step in the assertion of meaning has made one or the other seem less pertinent to what is developing*. Then they will diverge, and one will contribute positively to the experience (be

assimilated) while the other will contribute negatively (be subject to contrast).[3] The various results just reviewed all appear to conform to this basic expectation.

Because psi apprehensions are assumed to begin the process of the development of perceptual experience, they should in one sense be the weakest source of influence. They pose the initial questions in the light of which preconscious information is examined; but as soon as some information from the more definitive sources (memory, sensation, desire) appear to contradict their implications, they will retreat obediently into the shadows of contrast, and from thence into the "bound" state of directional balance, where they will not disturb the further development of meaning. Thus the mind protects the "theater of consciousness" (Baars, 1997) from the infinite surround of things that might distract it.

The various findings of parapsychology sometimes have been thought to be so contradictory and disorderly that they must represent an unwitting exercise in self-deception (Blackmore, 1987) or else be a futile attempt to pin down some phenomena that are intrinsically elusive (Kennedy, 2001). It seems likely that our findings are not meaningless but still inchoate. If psi exists, it must be almost thoroughly unconscious in its functioning. If so we are like blind persons studying sight. Small wonder that our findings are inductive and groping. We can advance if we can imagine models and theories that tie together what we know and guide it forward. It is in this spirit that the first sight model is proposed. In a recent publication (Carpenter, 2005b) I have sketched how the model has some promise for organizing findings about psi in its relation to memory, perception-without-awareness, and creativity. This paper is a further elaboration of its utility in the area of psi and memory. A stronger case still may well be made by prospective studies that test new expectations drawn from the model with new data, and some of these are underway.

REFERENCES

ANDERSON, M.C., & GREEN, C. (2001). Suppressing unwanted memories by executive control. *Nature*, 410, 366-369.

BAARS, B. J. (1997). *In the theater of consciousness*. New York: Oxford University Press.

BLACKMORE, S.J. (1987). The elusive open mind: Ten years of negative research in parapsychology. *The Skeptical Inquirer*, 11, 244-255.

BLAIR, I. (2002). The malleability of automatic stereotypes and prejudice. *Personality and Social Psychology Review*, 6, 242-261.

BODNER, G.E., & MASSON, M.E.J. (2001) Prime validity affects masked repetition priming: Evidence for an episodic resource account of priming. *Journal of Memory and Language*, 45, 616-647.

BRAUD, W.G. (1975). Conscious versus unconscious clairvoyance in the context of an academic examination. *Journal of Parapsychology*, 39, 277-288.

BREWIN, C.R., & ANDREWS, B. (2000). Psychological defense mechanisms: The example of repression. *The Psychologist*, 13, 615-617.

CADORET, R.J. (1952). Effect of novelty in test conditions on ESP performance. *Journal of Parapsychology*, **16,** 192-203.

[3] Can memory contribute negatively to developing experience in a way analogous to psi-missing? Studies on repression and motivated forgetting suggest that this may be so (e.g. Anderson & Green, 2001; Brewin & Andrews, 2000; Singer, 1995).

CARPENTER, J.C. (1977). Intrasubject and subject-agent effects in ESP experiments. In Benjamin Wolman (Ed.), *Handbook of parapsychology* (pp. 202-272), New York: Van Nostrand Reinhold.

CARPENTER, J.C. (1983). Prediction of forced-choice ESP performance: Part I. A mood-adjective scale for predicting the variance of ESP run scores. *Journal of Parapsychology,* 1983, **47,** 191-216.

CARPENTER, J.C. (2004). First Sight: Part one, A model of psi and the mind. *Journal of Parapsychology,* **68,** 217-254.

CARPENTER, J.C. (2005a). Implicit measures of participants' experiences in the ganzfeld: Confirmation of previous relationships in a new sample. *Proceedings of Presented Papers: The Parapsychological Association 48th Annual Convention*, 36-45.

CARPENTER, J.C. (2005b). First Sight: Part two, Elaborations of a model of psi and the mind. *Journal of Parapsychology,* **69,** in press.

DASILVA, S.E., PILATO, S., & HIRAOKA, R. (2003). Ganzfeld vs. no ganzfeld: An exploratory study of the effect of ganzfeld conditions on ESP. *Journal of Parapsychology,* **67**, 250-251.

DEAN, E.D. (1962). The plethysmograph as an indicator of ESP. *Journal of the Society for Psychical Research,* **41**, 351-353.

DeCoster, J. (2004). A meta-analysis of priming effecgts on impression formation supporting a general model of informational biases. *Personality and Social Psychology Review,* **8**, 2-27.

DECOSTER, J., & CLAYPOOL, H.M. (2004). A meta-analysis of priming effects on impression formation supporting a general model of information biases. *Personality and Social Psychology Review,* **8**, 2-27.

EMMERICH, D. (1976). The effects of word associations on psi-memory interaction. *Journal of Parapsychology,* **40**, 56-57.

FEATHER, S. R. (1967). A quantitative comparison of memory and ESP. *Journal of Parapsychology*, *31*, 93-98.

FOX, E., RUSSO, R., & GEORGIOU, G. A. (2005). Anxiety modulates the degree of attentive resources required to process emotional faces. *Cognitive, Affective & Behavioral Neuroscience,* **5,** 396-404**.**

GAMBALE, J. (1976). Word frequency and association strength in memory-ESP interaction: A failure to replicate [Abstract]. *Journal of Parapsychology,* **40**, 339-340.

GAMBALE, J, MARGOLIS, F., & CRUCI, K. (1976). The relationship between ESP and memory – and attempted replication with modifications [Abstract]. *Journal of Parapsychology,* **40**, 340.

GLIDDEN, S.H. (1974). A random-behavior maze test for humans. *Journal of Parapsychology*, **38**, 324-331.

GOLLWITZER, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition,* (Vol. 2, pp. 53-92). New York: Guilford Press.

HALLETT, S. J. (1952). A study of the effect of conditioning on multiple-aspect ESP scoring. *Journal of Parapsychology,* **16,** 204-211.

HARARY, S. B. (1976). A study of psi, memory and expectancy. In J. D. Morris, W. G. Roll & R. L. Morris (Eds.), *Research in Parapsychology 1975.* Metuchen, NJ: Scarecrow Press, 121-126.

IRWIN, H. J. (1979). On directional inconsistency in the correlation between ESP and memory: *Journal of Parapsychology*, 43, 31-39.

JASKOWSKI, P., SKALSKA, B., & VERLEGER, R. (2003). How the self controls its „automatic pilot" when processing subliminal information. *Journal of Cognitive Neuroscience,* **156**, 911-920.

JOHNSON, M. (1973. A written academic exam as a disguised test of clairvoyance. In W.G. Roll, J.D. Morris, & R.L. Morris (Eds.) *Research in parapsychology 1972* (pp. 28-30). Metuchen, NJ: Scarecrow Press, 28-30.

KANTHAMANI, B.K. (H.) (1965). A study of the differential response in language ESP tests. *Journal of Parapsychology*, **29**, 27-34.

KANTHAMANI, H., & RAO, H. H. (1974). A study of memory-ESP relationships using linguistic forms. *Journal of Parapsychology, 38,* 286-300.

KANTHAMANI, H., & RAO, H. H. (1975). Response tendencies and stimulus structure. In J. D. Morris, W. G. Roll & R. L. Morris (Eds.), *Research in Parapsychology 1974.* Metuchen, NJ: Scarecrow Press, 154-177.

KENNEDY , J.E. (2001). Why is Psi so Elusive? A Review and Proposed Model. Journal of Parapsychology, 65, 219-245

KOHLER, W. (1947). *Gestalt psychology: An introduction to new concepts in modern psychology.* New York: Liveright Publishing.

KREIMAN, N. (1978). Memoria secundario y ESP. *Cuadernosde Parapsicología,* **3**, 3-12.

LIEBERMAN, R. (1976). Role of varied time interval and association strength I memory-ESP interaction for group and individual testing. In J. D. Morris, W. G. Roll & R. L. Morris (Eds.), *Research in Parapsychology 1975.* Metuchen, NJ: Scarecrow Press, 126-129.

MORRIS, R.L. (1971). Guessing habits and ESP. *Journal of Parapsychology*, **35**, 335-336.

MUELLER, J.H. (1979). Anxiety and encoding processes in memory. *Personality and Social Psychology Bulletin,* **5**, 288-294.

NASH, C.B., & NASH, C.S. (1968). Effect of target selection, field dependence, and body concept on ESP performance. *Journal of Parapsychology*, **32**, 249-257.

O'BRIEN, D.P. (1976). Recall and recognition processes in a memory-ESP paired-associate task. *Journal of Parapsychology*, **40**, 57-58.

PALMER, J. (1978). Extrasensory perception: Research findings. In S. Krippner (Ed.), *Advances in parapsychological research 2* (pp. 59-243). New York: Plenum Press.

PALMER, J. (1982). ESP research findings: 1976-1978. In S. Krippner (Ed.), *Advances in parapsychological research 3* (pp. 41-82). New York: Plenum Press.

PALMER, J. (2006). Memory and ESP: A review of the experimental literature. *6 Simposio da Fundação Bial: Behind and Beyond the Brain.* Porto: Casa do Médico.

PALMER, J., & JOHNSON, M. (1991). Defensiveness and brain hemisphere stimulation in a perceptually mediated ESP task. *Journal of Parapsychology*, **55**, 329-348.

PARKER, K. (1976). A study of immediate memory and ESP. In J. D. Morris, W. G. Roll & R. L. Morris (Eds.), *Research in Parapsychology 1975.* Metuchen, NJ: Scarecrow Press, 130-134.

PRATT, J.G., & WOODRUFF, J.L. (1939). Size of stimulus symbols in extrasensory perception. *Journal of Parapsychology,* **3,** 121-158.

PRICE, H. H. (1949). Psychical research and human personality. *Hibbert Journal*, **47**, 105-130. (Reprinted in J. R. Smythies(Ed.), *Science and ESP*. New York: Humanities Press, 1967.)

RAMMOHAN, V.G. (1990). Psi in the academic context: Two further studies. *Journal of Parapsychology*, **54**, 229-244.

RAO, K.R. (1962). The preferential effect in ESP. *Journal of Parapsychology*, **26**, 252-259.

RAO, K.R. (1963). Studies in the preferential effect. I. Target preference with types of targets unknown. *Journal of Parapsychology,* **27**, 23-32.

RAO, K.R. (1964). The differential response in three new situations. *Journal of Parapsychology,* **28**, 81-92.

RAO, K. R. (1978). Further studies of memory and ESP. *Journal of Parapsychology, 42*, 167-178.

RAO, K.R., KANTHAMANI, H., & PALMER, J. (1990). Exploring normal/paranormal interaction within a memory-ESP testing paradigm . *Journal of Parapsychology*, **54**, 245-259.

RAO, K.R., MORRISON, M., & DAVIS, J.W. (1977). Paired-associates recall and ESP: A study of memory and psi-missing. *Journal of Parapsychology*, **41**, 165-189.

RAO, K.R., MORRISON, M., DAVIS, J.W., & FREEMAN, J.A. (1977). The role of association in memory recall and ESP. *Journal of Parapsychology*, **41**, 190-197.

RAO, K.R., & O'BRIEN, J.T. (1977). ESP performance in classroom and examination settings. *Journal of Parapsychology,* **41**, 1-9.

ROLL, W.G. (1966). ESP and memory. *International Journal of Neuropsychiatry,* **2**, 505-521.

ROBERTS, J.V. (1985). The attitude-memory relationship after 40 years: A meta-analysis of the literature. *Basic and applied social psychology,* **6**, 221-241.

ROGERS, D. P., & CARPENTER,J.C. (1966). The decline of variance of ESP scores within a testing session. *Journal of Parapsychology,* **30**, 141-150.

SARGENT, C.L. (1982). An unusually powerful response-bias effect. *Parapsychology Review,* **13**, 8-10.

SARGENT, C.L., & HARLEY, T.A. (1981). Three studies using a psi-predictive trait variable questionnaire. *Journal of Parapsychology*, **45,** 199-214.

SARASON, I.G. (1984). Stress, anxiety, and cognitive interference. *Journal of Personality and Social Psychology*, **46**, 929-938.

SCHECHTER, E.I. (1977). Nonintentional ESP: A review and replication. *Journal of the American Society for Psychical Research*, **71**, 337-374.

SCHMEIDLER, G.R. (1980). Does ESP influence the recall of partially learned words? [Abstract]. In W.G. Roll (Ed.), *Research in parapsychology 1979* (pp 54-57). Metuchen, NJ: Scarecrow Press.

SCHMEIDLER, G.R. (1981). ESP and memory: Support for Kreiman's summary hypothesis [Abstract]. In W. G. Roll (Ed.), *Research in parapsychology 1980* (pp. 118-120). Metuchen, NJ: Scarecrow Press.

SCHMEIDLER, G.R. (1988). *Parapsychology and psychology: Matches and mismatches.* Jefferson, NC: McFarland.

SCHMEIDLER, G.S., & MCCONNELL, R.A. (1958). *ESP and personality patterns.* New Haven: Yale University Press.

SCHWARTZ, N., & BLESS, H. (1992). Constructing reality and its alternatives: An inclusion/exclusion model of assimilation and contrast effects in social judgments. In L. L. Martin & A. Tesser (Eds.), *The construction of social judgments* (pp. 217-245). Hillsdale, NJ: Lawrence Erlbaum Associates.

SINGER, J.L. (1995). Repression and dissociation: Implications for personality theory, psychopathology, and health. Chicago: University of Chicago Press.

SKIBINSKY, M. (1950). A comparison of names and symbols in a distance ESP test. *Journal of Parapsychology*, **14,** 140-156.

SOLLEY, C. M., & MURPHY, G. (1960). *Development of the perceptual world.* New York: Basic Books.

STANFORD, R.G. (1967). Response bias and the correctness of ESP test responses. *Journal of Parapsychology*, **31**, 280-289.

STANFORD, R. G. (1970). Extrasensory effects upon "memory." *Journal of the American Society for Psychical Research.* **64**, 161-186.

STANFORD, R.G. (1973). Extrasensory effects upon associative processes in a directed free-response task. *Journal of the American Society for Psychical Research,* **67**, 147-190.Stanford, R. G. (1978). Toward reinterpreting psi events. *Journal of the American Society for Psychical Research.* **72**, 197-214.

STANFORD, R. G. (1991). An experimentally testable model for spontaneous psi events: A review of related evidence and concepts from Parapsychology and other sciences. In Stanley Krippner (Ed.) *Advances in Parapsychological Research, Volume 6.* Jefferson, NC: McFarland & Co., Publishers.

STAPEL, D.A., & KOOMEN, W. (2006). The flexible unconscious: Investigating the judgmental impact of varieties of unaware perception. *Journal of Experimental Social Psychology,* **42**, 112-119.

STAPEL, D.A., & SPEARS, R. (1996). Event accessibility and context effects in causal inference: Judgment of a different order. *Personality and Social Psychology Bulletin*, **22**, 979-992.

STAPEL, D.A., & WINKIELMAN, P. (1998). Assimilation and contrast as a function of context-target similarity, distinctness, and dimensional relevance. *Personalityand Social Psychology Bulletin* **24**, 634-646.

SULS, J., & WHEELER, L. (2007). Psychological magnetism: A brief history of assimilation and contrast in psychololgy. In D.L.Stapel & J. Suls (Eds.) *Assimilation and contrast in social psychology* (pp 9-44). New York: Psychology Press.

SWETS, J.A., TANNER, W.P., JR., AND BIRDSALL, T.G. (1964). Decision processes in perception. Chap. 1 in *Signal Detection and Recognition in Human Observers*. New York: Wiley.

THOULESS, R.H. (1949). A comparative study of performance in three psi tasks. *Journal of Parapsychology*, **13,** 263-273.

WEINER, D.H., & HAIGHT, J. (1980). Psi within a test of memory: A partial replication. In W.G. Roll (Ed.), *Research in parapsychology 1979* (pp. 52-53). Metuchen, NJ: Scarecrow Press.

727 Eastowne Drive, Suite 300B

Chapel Hill, NC 27514

jcarp@med.unc.edu