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The following brief summary presents some conclusions and observations derived from an independent, and somewhat critical, study of extrasensory perception over the past several months. These opinions are based upon study of the literature, material presented at the Geneva Conference of the Parapsychology Foundation in August 1974 and, in particular, the work of Puthoff and Targ at SRI as reflected in their publications as well as their oral presentation in Washington. First some general observations and recommendations in this area are presented, then a brief comment on the SRI work, and finally some remarks about practical applications.

#### GENERAL OBSERVATIONS AND RECOMMENDATIONS

1. A large body of reliable experimental evidence points to the inescapable conclusion that extrasensory perception does exist as a real phenomenon, albeit characterized by rarity and lack of reliability. It appears as a low-capacity, high-noise information channel exhibiting data rates orders of magnitude less than normal perceptive processes. Almost by definition extra-sensory perception must involve in an essential way the operation of the human mind.
2. There exists no satisfactory theoretical understanding of these phenomena. Present theories, of which there are many, are both speculative and unsubstantiated. They range in content from the physical through the psychological to the metaphysical. One theory- that of the French physicist, Costa de Beauregard- offers the possibility of interpreting psi phenomena within a modest extension of established physical theory, but in general these efforts appear premature. At this stage of knowledge the most meaningful basic research consists of a search for correlates- physical, physiological, and psychological- to which the phenomena may be quantitatively related. Guidance must consist of general ideas which are not dependent upon possibly overspecific theoretical assumptions.

3. All the experimental evidence to date is consistent with the assumption that paranormal perception behaves as an information channel in the conventional sense of information theory. The information theoretic approach to investigation in this area has probably not been adequately exploited but offers definite possibilities of aiding understanding as well as practical advantages. The success of enhancement techniques such as redundancy, majority vote, etc. is indicative of the efficacy of even simple applications of information theory in parapsychological research.
  - a. Information theory in itself makes no assumptions of specific mechanism, but contains a body of concepts ( bit rate, redundancy, equivocation, etc.) by which experimental results may be quantitatively presented and analysed. Moreover these quantities have direct meaning in terms of applications.
  - b. Although problems of coding are of central concern in information theory, it is innately an input-output theory. Experiments can be devised to measure information rates in comparatively unstructured situations, independently of coding assumptions.
  - c. The very low information rates ( 0.01 to 0.1 bits/sec ) measured in extrasensory perception may explain the failure to detect physical energy or correlated physical variables associated with the phenomena. A signal lower in strength than thermal noise and only detectable through its high redundancy would exhibit a similar low rate of information transmission. Physical energy less than thermal noise would be very difficult to detect.
4. The complete ESP channel may or may not involve a detectable physical link, but it most certainly does involve a psychological one. Although difficult to quantify there do appear to exist some genuine psychological correlates of paranormal perception. Rather than detail these, mention is made of only one aspect which seems especially significant, namely the striking similarity between many psychological features of paranormal perception and normal, though subliminal perception. Clearly this suggests that similar processes may be operative in both cases and that studies of subliminal perception below the conscious threshold may be of relevance to the psychological part of paranormal perception.
5. The physiological correlates of extrasensory perception which have been measured are autonomic responses and therefore somewhat related to emotional responses. Variations of EEG alpha rhythm, galvanic skin resistance and blood capillary volume have all been identified in relation to extrasensory activity. There is some experimental evidence for believing that these physiological responses may be

*This assertion needs expansion*

more sensitive indicators of paranormal communication than consciously controlled responses. Presumably a large part of the noise in the paranormal channel originates by the interfering effect of conscious processes, and measurement of autonomic responses could short circuit a noisy part of the channel. Also the physiological responses themselves are directly accessible to physical, instead of only psychological, measurement.

#### THE RESEARCH AT STANFORD RESEARCH INSTITUTE

The work at SRI, using gifted individuals, has achieved some convincing and striking demonstrations of the existence of paranormal perception, and has demonstrated perhaps less convincingly the possible existence of psychokinetic influences upon sophisticated physical instrumentation. The careful and systematic use of sensory shielding in these experiments has excluded a large class of gross physical correlates of paranormal perception. The work has been less successful in showing unambiguous relations of inhibition or enhancement between paranormal performance and possible physical, physiological, and psychological conditions. The enhancement method used was selection of special individuals either through prior reputation or through preliminary screening. Thus the approach was one of enhancement through selectivity rather than enhancement (or inhibition) by deliberate manipulation of variables. This research produced some information, measurement of alteration of alpha rhythm amplitude and measurement of neurological profiles, relevant to the question of correlates but was not aimed primarily in this direction. The contribution to fundamental understanding was a minor part of this work, but it produced manifestations of extrasensory perception sufficiently sharp and clear cut to justify serious consideration of possible applications.

*This negates the "Reveries" assertion of P. & T.*

A separate point is that the high apparent bit rate of information transmission implied by successful replication of drawings or recital of detailed descriptions may be illusory. In no case was the percipient asked to replicate or describe unfamiliar or unknown objects. A low bit rate may trigger detailed stored associations which in themselves have high information content.

#### PRACTICAL APPLICATIONS

No matter how gifted the paragnost existing ignorance of the basis of paranormal phenomena together with the capricious and unreliable nature of the channel dictate that information derived from this source can never stand alone and must be used with caution. Extrasensory

information should at best supplement normal information or guide its collection, but should never serve in place of it. Even such limited use of this information channel would seem to require much more detailed investigation of its character and limitations. A certain bare minimum of understanding, or at least experience, is required to establish confidence. Experimental tests guided by a thorough information theoretic analysis, as alluded to earlier, offer the closest coupling with applications and the best prospect of usefully quantifying the capabilities of this information channel.