CORRESPONDENCE

MADAM,—Professor Beloff's recent review article (Beloff, 1974) is important (1) in emphasizing the possibilities of using physiological measures to find psi-conducive states or conditions; and (2) in pointing out the possibilities of using physiological responses themselves as the 'read-out' of psi messages, in addition to or instead of conscious responses. He overlooked two experimental reports on using physiological responses as indicators of psi, however, and I would like to draw them to the attention of the interested readers.

One is a study of mine in 1963. In individual sessions, 11 college student subjects sat in a soundproof chamber, trying to guess when 'subliminal stimuli' were presented. There were no subliminal stimuli in the usual sense of the term, only events to be detected by ESP. At random intervals: (a) an agent in a different soundproof chamber received a very painful electrical shock, during which time he tried telepathically to influence the subject to respond; or (b) the shock was delivered to a resistor which passively absorbed it without alerting the agent. The subjects' skin resistances (GSRs), finger pulse volumes (optical plethysmograph), and brain waves (EEGs) were continuously recorded, and the EEGs were electronically analysed. Physiological responses during the (a) and (b) conditions were compared against control conditions occurring ten seconds later.

The physiological responses were significantly related to both (a) and (b) stimuli, showing a pattern for the group generally indicative of a higher pattern of activation compared to control periods, viz.: (1) a faster and more complex EEG pattern; (2) more frequent GSRs; and (3) more frequent changes in finger pulse volume. The subjects' conscious guesses as to when a stimulus had occurred showed no deviation from chance, so there was ESP only on the physiological response level, one of the routes of information flow in ESP responses modelled in a later paper of mine (Tart, 1966a). Technical details of this study are available in the original paper (Tart, 1963).

In my original design of the study, I conceived the shocking of the agent to be the extrasensory stimulus, and the delivering of the shock to the resistor to be a control condition. As I had to act as agent (no other volunteers being available), the painful electrical shock I received had immensely more personal importance than shocks to a resistor in a control room! On reflection, however, the responses to the event of the resistor being shocked made sense:

the subjects had been instructed in a very general way to look for 'something' or 'somethings', and the action of the experimenter in switching on the shock stimulus to the resistor was just as much of a 'something' from some points of view as my receiving the shock. The possibility of electrical leakage from the shocking apparatus during the (a) and (b) events was carefully excluded.

Recently Targ and Puthoff (1974) reported a similar study, using a flashing light to drive the agent's EEG and electronically analysing the EEG of subjects in a shielded room. One of six subjects showed EEG responses to the flash.

In my most recent modelling of the ways ESP can manifest (Tart, 1973), I have become convinced that we respond to many more extrasensory stimuli than we realize, but the information/response seldom transfers into conscious awareness. Thus importance of investigating physiological responses as ESP indicators cannot be over-estimated. Indeed, the application of learning theory (Tart, 1966b), which has worked so well for aiding conscious ESP responses (Tart, 1975), ought to be applicable to training physiological responses: when a subject shows a physiological response to an ESP target, he could immediately be given feedback and perhaps a pleasurable reward. This could also be coupled with overall physiological monitoring on optimal conditions for the subject to make a try at ESP in.

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