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Have you ever had the feeling that someone was staring at you from behind and, upon turning around, found you were correct? From time to time, most of us have had such a feeling, which appears to be a common part of the human experience. In surveys conducted in California (Coovet, 1913) as early as 1913, 68% to 86% of respondents reported having had the feeling of being watched or stared at on at least one occasion, and a more recent Australian survey (Williams, 1983) placed the figure at 74%. In a survey of San Antonio respondents recently completed as part of the present project, the figure was found to be approximately 94%.

Despite its widespread occurrence and familiarity, the staring experience has been subjected to surprisingly little scientific scrutiny. Is the presumed ability to detect an unseen gaze merely a superstition, a cultural myth without real substance, an overinflation of coincidental occurrences, or a response to subtle sensory cues? Or, alternatively, could the experience be a valid indicator of an exceptional yet poorly understood human capability?

In 1898, Titchener published a short article in which he addressed the "feeling of being stared at." Tichener mentioned that he had conducted a series of laboratory experiments at Cornell University on this topic and that the experiments had yielded negative results;

unfortunately, he reported no details regarding those experiments. Titchener indicated that such experiments "have their justification in the breaking down of a superstition which has deep and widespread roots in the popular consciousness". He attempted to provide a psychological interpretation of the prevalence of the "staring" belief based on nervousness in social situations, attracting the attention of the starer, turning, and noticing the starer's gaze.

In 1912-1913, experimental research on staring detection was carried out by Coover at Stanford University. Coover (1913) reported the results of a study in which each of 10 subjects made 100 guesses of whether he or she was being stared at by an experimenter seated behind the subject in the same room; the subject kept his or her eyes closed and "shaded with one hand." The staring versus nonstaring schedule was determined by tossing a die. The duration of a staring or nonstaring trial was 15-20 sec; the 100 trials were distributed over three to four hourly sessions that were spaced one week apart. Overall, the subjects' accuracy of guessing did not depart significantly from chance. Coover discussed qualitative differences in the subjects' imagery and subjective impressions that he thought were correlated with the degree of confidence or certainty of their guesses, but did not substantiate his conclusions with quantitative data. He interpreted his findings as support for Titchener's claim that the belief in staring detection was empirically groundless.

In 1959, Poortman of Leyden University (Netherlands) reported a preliminary staring detection study in which he himself served as a subject for 89 trials (distributed over a 13-month period) and attempted to guess whether or not he was being stared at by another experimenter. The same person served as experimenter throughout the tests. Poortman was seated in a separate room adjoining that of the starer, with his back to the starer. Staring and nonstaring trials were of 2 to 5 min duration and were randomly scheduled by means of card shuffles. Poortman achieved a 59.55% accuracy rate which he called "suggestive and highly promising. "A reanalysis of Poortman's data by the present authors yields a one-tailed p = .04. Poortman also provided several interesting observations of psychological conditions that appeared, in his own experience, to facilitate or to impede accurate staring detection.

In the Coover and Poortman experiments, test conditions were poorly controlled. The subject and the starer were in the same room or in open adjoining rooms, and the subject could have discriminated staring from nonstaring periods by means of subtle, unintentional auditory cues. This cueing possibility was eliminated in two recent studies by Peterson (1978) and Williams (1983).

Peterson (1978) reported two preliminary pilot studies and a formal experiment conducted at the University of Edinburgh. The pilot studies were relatively informal and were conducted in order to ascertain effective procedures that would later be used in the formal experiment. The formal experiment involved nine starer-staree pairs of participants. The starter and staree occupied separate, adjacent, closed cubicles. Special lighting and the use of one-way mirrors permitted visual access in one direction only--that is, the starer could see but could not be seen by the staree. Isolation was increased further by requiring the staree to listen to sound-masking white noise through headphones. The staree pressed a pushbutton whenever he or she felt "stared at"; the button presses marked a chart recorder and provided "time on target" measures. The staring and nonstaring periods were scheduled randomly by means of special equipment. The actual test trials were preceded by brief training periods in which the staree received feedback in an attempt to develop an appreciation of internal cues that might be associated with staring detection. The members of each dyad reversed roles during the experiment so that each person had an opportunity to serve as both starer and staree. There were 36 experimental sessions overall, each of 6-min duration; each session contained three 30-sec staring periods. Analysis of results indicated significantly accurate detection of staring ($p = .012$, two-tailed).

The experimental design was improved even further by Williams (1983) at the University of Adelaide (South Australia). Williams provided excellent sensory isolation of her starers and starees by stationing them in separate, closed rooms 60 ft apart. Instead of using a one-way mirror, the starer watched the subject by means of a closed-circuit video camera/monitor arrangement. Twenty-eight starees participated in the study and indicated their staring detection guesses by means of button presses. Each staree experienced 52 twelve-second staring trials and 52 twelve-second nonstating trials; the two trial types were scheduled randomly by means of signalling tapes created on the basis of random numbers. Conventional measures of accuracy, as well as sensitivity measures (d[prime]) derived from signal detection theory, yielded significant results (p = .04, one-tailed).

Three of the four empirical studies reviewed above yielded suggestive evidence that persons are able to consciously discriminate periods of staring from those of nonstaring, even in cases in which the possibility of subtle sensory cues has been eliminated. In fact, an examination of the tabulated results reveals that scoring actually improved as test conditions were made more stringent, especially if success is measured in terms of effect size (defined as z score or z score equivalent divided by the square root of the number of contributing score units; see Rosenthal, 1984).

TABLE 1
SUMMARY OF PREVIOUS STARING DETECTION EXPERIMENTS

Investigator	Affiliation	Design features	Scoring rate (%)	Effect size
Titchener (1898)	Cornell U.	No data reported	--	--
Coover (1913)	Stanford U.	Same room	50.20	.004
Poortman (1959)	Leyden U.	Adjoining rooms	59.55	.18
Peterson (1978)	U. of Edinburgh	One-way mirrors	54.86	.42
Williams (1983)	Adelaide U.	Closed-circuit TV	51.31	.32

However, the effect, although consistent, was not particularly striking. A plausible reason for this is that the testing method used in these studies was not the most appropriate one. The laboratory experiments were designed to encourage deliberate conscious guessing in order to identify staring periods. Such a procedure would be expected to maximize possible cognitive interferences and distortions of subtle internal staring-related cues; it would be difficult or impossible for the staree to avoid the use of guessing strategies, response biases, intellectual analysis and interpretation, and so forth. In the everyday life context, on the other hand, staring detection frequently takes the form of spontaneous unconscious behavioral and bodily changes. Often, such changes are reported to be rich in physiological content (for example, tingling of the skin, prickling of neck hairs) and automatic movements (for example, spontaneous head-turning, unplanned glances). Higher cognitive functions seem to play minor roles in these stating detection contexts.

On the basis of these considerations, it was hypothesized that an experimental design based on more unconscious autonomic nervous system reactions might be more sensitive to stating detection than would one based on conscious motor guessing. Therefore, we designed an experiment in which we would be able to monitor sympathetic autonomic nervous system activity (using electrodermal recording techniques) in the staree during staring and nonstaring periods to determine whether those periods could be unconsciously differentiated. We used spontaneous phasic skin resistance response (SRR) activity as an indicator of the subject's degree of sympathetic autonomic arousal or activation. Our equipment automatically corrected for drift in baseline level (basal skin resistance) so that our measures would be sensitive to changes in the subject's state and would not be biased by individual differences in baseline. As in the Williams (1983) study, separable closed rooms and a closed circuit television system were used to eliminate conventional communication channels between starer and staree. We also sought to compare the autonomic staring detection ability of two groups of subjects. One group (tested in Phase 1) consisted of untrained subjects. Another group (tested in Phase 2) consisted of subjects who had undergone special training designed to help them increase their sensitivity to internal physiological reactions, to increase their understanding of what it might feel like to be "interconnected" with other persons, and to help them deal with their possible psychological resistances to such interconnectedness.

METHOD

Subjects

Thirty-two subjects participated as starees in this experiment. The subjects were unselected (perhaps a better description would be "self-selected") persons from the local community who were interested in our experiments and who had become aware of them through various media (local radio, newspaper, and newsletter) descriptions and through information provided by previous subjects. The participants ranged in age from 22 to 71 years; there were 24 females and 8 males. The 32 subjects were tested in two phases. Phase 1 involved 16 subjects who were "untrained." Phase 2 involved 16 subjects who had been "serf-" selected from the same general subject pool; these subjects, however, were tested following their participation in a "connectedness training" program (see section on Procedure) conducted by the third author (S.A.). The second author (D.S.) played the role of both experimenter and starer throughout the experiment; she, too, participated in the connectedness training following Phase 1 and preceding Phase 2.

Apparatus

The experimental apparatus consisted of silver/silver chloride pal-mar electrodes (7.0 mm in diameter), a skin-resistance amplifier (Lafayette Model 76405), and an analog-to-digital converter interfaced with a microcomputer. A color video camera (Hitachi Camcorder VM-2250) in the staree's room permitted the staree to be viewed by the starer in a distant room without the possibility of sensory cueing. The camera's radio frequency (RF) output was boosted by a 10 dB amplifier, then conveyed via heavy duty 300-ohm impedance twin-lead cable to a 19-inch color TV monitor (Sony Trinitron KV-1114) situated in the starer's room. Additional details concerning equipment, room layout, and physiological monitoring are given in Braud and Schlitz (1989).

Procedure

The experimenter met with the subject in the Mind Science Foundation's library, where the subject completed the Myers-Briggs Type Indicator (MBTI, Form F: see Briggs & Myers, 1957), a 55-item personal history survey (Participant Information Form [PIF]) developed at the Psycho-physical Research Laboratories (Psychophysical Research Laboratories, 1983), and a brief staring questionnaire. The staring questionnaire asked whether the subject had ever felt an unseen person staring at him or her and whether such an experience took the form of a physical sensation or a conscious thought; the questionnaire also asked that the subject describe the experience. After completing these assessments, the subject was taken to the starer's room, shown the television monitor, and informed of the details of the procedure.

Next, the experimenter led the subject to the staree's room, which was located in an entirely different suite area across an outside corridor. The two rooms were separated from each other by two inner hallways, an outer corridor, and four closed doors. Neither room had any windows. The physical separation and geography of the rooms, along with a firm experimental protocol that precluded auditory cueing, assured that conventional sensorimotor communication between these two rooms, under the conditions of the experiment, was not possible. The staree's room was brightly illuminated by means of overhead fluorescent lights. The camera, which was continuously active throughout the entire session, was mounted on a tripod 6 ft away from the subject's chair, at eye level, and at an angle of approximately 45 degrees left of center (from the subject's point of view). The camera's zoom lens was set so that the subject's shoulders, neck, and head would be visible on the monitor in the starer's room. The camera's autofocus function was disabled in order to eliminate distracting camera lens movement noises that otherwise might have resulted from automatic tracking of subject movements; this also eliminated possible distracting changes in the subject's image, from the starer's point of view.

The subject was seated in a comfortable recliner chair (which remained in an upright position throughout the experiment), and the experimenter attached two silver/silver chloride electrodes filled with partially conductive electrode gel to the subject's left palm by means of adhesive electrode collars. The subject was asked to sit quietly for the next 20 min, to refrain from unnecessary movements (especially of the left hand and arm), and to think about whatever he or she wished during the experiment. The subject was told that the camera would be on throughout the 20-min session, but that the experimenter would watch the monitor only at certain randomly determined times during the experiment; at those times, the experimenter would stare intently at the subject's image on the monitor and would attempt to gain the subject's attention. The subject was asked not to try to guess consciously when those periods (of which the subject was, of course, kept blind) might be occurring, and was told that we were exploring whether any unconscious physiological reactions might be associated with remote staring. The experimenter then left the subject alone in the staree room and went to the distant starer's room, closing all doors behind her.

In the starer's room, the experimenter recorded the subject's basal skin resistance and then, prior to starting the microcomputer that controlled the session events, retrieved from a hidden location a sealed opaque envelope that contained the random sequence of staring and nonstaring periods that would be used for that session. Thirty-two such envelopes had been prepared previously by W.B., who had used a computer's random algorithm to generate the random sequence of the 10 staring and 10 nonstaring periods for each session. In a hidden location known only to him, W.B. kept his own copies of the 32 random sequences. The microcomputer program controlled the timing of the various events of the experiment and recorded the subject's electrodermal activity during each of 20 thirty-second recording periods. Each of the 20 recording periods was signalled by a low-pitched tone (audible only to the experimenter, through headphones); a 30-sec rest period followed each recording period. The experimenter consulted the contents of the session envelope to learn which of the 20 recording periods were to be devoted to staring and which were to serve as the nonstaring, control periods. In consulting her sheet of random epoch sequences, the experimenter used a method of occluding her view of all epoch instructions, other than the present one, so that she could devote full attention to her assignment for that epoch without being distracted by instructions for subsequent or earlier epochs. If the random sequence indicated a staring period, the experimenter silently swiveled her chair around so that it faced the TV monitor, she stared intently at the subject's monitor image throughout the 30-sec recording period. During nonstaring periods, she kept her chair turned away from the monitor so that she could not see the monitor's screen; she busied her mind with matters unrelated to the experiment. All reflective surfaces had been carefully covered so that inadvertent glimpses of the monitor screen were not possible.

Throughout the session, the experimenter received no information about the subject's ongoing electrodermal activity; the latter was continuously and automatically assessed by the computer system. The equipment sampled the subject's spontaneous phasic skin resistance responses (SRR) 10 times each second for the 30 seconds of a recording epoch and averaged these measures, providing what is virtually a measure of the area under the curve described by the fluctuation of electrodermal activity over time (that is, the mathematically integrated activity). At the end of the experimental session, the computer printed the electrodermal results for each of the 20 recording periods. The experimenter filed away the printout, without looking at the electrodermal measures, then went to the staree's room and discussed the experiment with the subject in general terms. Neither experimenter nor subject had any knowledge of the numerical results for the session. Only after all 32 sessions had been completed did W.B. analyze the results and give the experimenter feedback. The experimenter later provided feedback to those subjects who requested it.

The first 16 subjects who participated in Phase 1 of the study had no special preparation. The 16 starees of Phase 2, however, had participated in approximately 20 hours of "connectedness training" provided by the third author (S.A.), in which the participants engaged in intellectual and experiential exercises involving feelings of interconnectedness with other people. The training began with a group viewing of a video-tape based on Peter Russell's book, The Global Brain (1983). This was followed by discussions of the videotape, lectures by S.A., and experiential exercises in which participants became increasingly comfortable and adept at "connecting" with each other. The latter took the form of stating into another person's eyes for long periods of time, becoming comfortable with this, observing how one's physiological reactions came to more closely resemble those of the other, and conversing and retrieving information while maintaining eye contact (rather than averting the gaze upward or sideways, as would usually occur during memory retrieval and cognitive processing; see Bakan, 1980). Individual and group discussions were devoted to learning about and dealing with psychological resistances that interfered with the process of connectedness or with feelings of "merging" with another person. The experimenter/starer for the present study (D.S.) actively participated in all training sessions. The participants were aware that the training would be followed by an experiment involving physiological detection of staring, but were not aware of any more details of the study than were the 16 untrained subjects of Phase 1.

In the present study, we simply explored the possible effects of the connectedness training. We did not make any predictions about scoring direction in the two phases and therefore planned to use two-tailed tests in their evaluations. On the one hand, it could be argued that the training could increase the sensitivity of Phase 2 subjects to any effects that might occur in Phase 1. Alternatively, the training might result in a qualitatively different reaction pattern in Phase 2.

RESULTS

For each subject, electrodermal activity was measured during 10 staring and during 10 nonstaring periods. Rather than compare these multiple scores within a given subject, we reduced the activities for an entire session to a single score for each subject and performed statistical tests using subjects, instead of multiple period scores, as the units of analysis. We used the more conservative session score (a kind of single, majority-vote score) in order to bypass criticisms based on possible nonindependence of multiple electrodermal measures taken within a given session. Although it would be possible to analyze individual epoch scores using, for example, a repeated measures analysis of variance procedure, such an analysis assumes that the autocorrelations among the measures within each session (i.e., within each subject) are constant across epochs, and that the same autocorrelation applies to all sessions (subjects). Because these assumptions may not be met in these experiments, we preferred to use the more conservative session-based (rather than epoch-based) analyses, even though the former are more wasteful of data and result in tests with reduced statistical power.

For each of the 32 sessions, a total score was calculated for all 20 recording periods (10 staring and 10 nonstaring). This total score was divided into the sum of the electrodermal activity scores for the 10 staring (S) periods; the process was repeated for the 10 nonstaring (N) periods. In the absence of a remote staring effect, these two ratios [S/(S + N), N/(S + N)] should approximate 50%. A remote staring effect would be indicated by a significant departure of the scores from the 50% mean chance expectation (MCE). Single mean t tests were used to assess the departure of the ratios from MCE. (50%). This is approximately equivalent to calculating dependent (matched) t tests to compare the raw scores for each subject for staring versus nonstaring periods. We have consistently used ratio scores in our various projects as a method of "standardizing" scoring so that scoring magnitude could be more meaningfully compared for the different dependent measures (response systems) with which we work.

First, an analysis was performed on the staring/total-activity ratios of the 16 untrained subjects of Phase 1. A single mean t test indicated that the 16 untrained starees exhibited significantly greater spontaneous electrodermal activity during staring periods than during nonstaring, control periods. The mean percent electrodermal activity for staring periods was 59.38%, rather than the 50.00% expected by chance. The single mean t test comparing the 16 percentages with 50% MCE was 2.66 which, with 15 degrees of freedom, has an associated two-tailed $p = .018$, and a calculated effect size = .59; the 95% confidence interval is bounded by the values 51.86% and 66.90%. Thus, these subjects were significantly more activated (in terms of sympathetic autonomic activity) by remote staring than by the nonstaring, control periods.

Next, a parallel analysis was performed on the scores for the 16 Phase 2 subjects who had experienced connectedness training prior to their experimental sessions. A single mean t test indicated that the 16 trained starees exhibited significantly less spontaneous electrodermal activity during staring periods than during nonstaring, control periods. The mean percent electrodermal activity for staring periods was 45.45%, rather than the 50.00% expected by chance. The single mean t test comparing these 16 percentages with 50% MCE was 2.15 which, with 15 degrees of freedom, has an associated two-tailed $p = .048$, and a calculated effect size of .50; the 95% confidence interval is bounded by the values 40.94% and 49.95%. Thus, these trained subjects were significantly more calmed (in terms of sympathetic autonomic activity) by remote staring than they were by the nonstaring, control periods.

If the scores for the subjects of the two phases are directly compared by means of an independent-groups t test, a significant difference is found between the untrained and the trained subjects ($t = 3.39$, $df = 30$, $p = .002$, two-tailed). It should be noted that the latter test was post hoc and was carried out simply to quantify the obvious difference in scoring patterns observed for the two phases.

Secondary analyses were performed to test the equivalence of the Phase 1 and Phase 2 subjects in terms of their personality (MBTI) and physiological (electrodermal activity) characteristics; a summary of these analyses is presented in Table 2. For the MBTI scores, group means are presented for the continuous scores of the extraversion/introversion

(E/I), sensing/intuition (S/N), thinking/feeling (T/F), and judging/perceiving (J/P) dimensions. A score of 100 represents the mid-point of each continuum. Scores less than 100 indicate tendencies toward extraversion, sensing, thinking, and judging; scores greater than 100 indicate tendencies toward introversion, intuition, feeling, and perceiving. For electrodermal activity scores, group means are given for the sum of spontaneous skin resistance responses integrated over all 20 recording epochs (total SRR) and for the subjects' initial basal skin resistance (BSR) in ohms. High total SRR scores and low BSR scores are associated with increased sympathetic autonomic arousal, whereas low total SRR scores and high BSR scores are associated with decreased sympathetic arousal. Analyses indicated that the Phase 1 and Phase 2 groups did not differ significantly on any of these six measures.

We are now able to supplement the findings previously summarized in Table 1 with the results of the present investigation at the Mind Science Foundation, using closed-circuit TV and autonomic measures.

A more detailed statistical summary of all relevant staring detection research is presented in Table 4. If effect size is taken to be the most appropriate measure of the strength of an obtained outcome (Rosenthal, 1984, 1990), it appears that the autonomic recording method of the present study does indeed yield stronger results than do the conscious-guessing measures of staring detection used in previous studies.

TABLE 2

GROUP MEANS AND STATISTICAL COMPARISONS OF PERSONALITY AND PHYSIOLOGICAL CHARACTERISTICS OF PHASE 1 AND 2 SUBJECTS

	MBTI Continuous Scores(a)				Electrodermal activity	
Phase	E/I	S/N	T/F	J/P	Total SRR	BSR ohms
1 (untrained)	87.12	123.00	106.75	117.00	605.19	343,506
2 (trained)	98.75	133.69	98.06	103.50	656.06	289,047
t	1.49	1.44	1.23	1.52	0.54	0.82
p	.15	.16	.28	.14	.60	.42

Note. All ps are two-tailed.

a E/I denotes extraversion/introversion; S/N, sensing/intuition; T/F, thinking/feeling; J/P, judging/perceiving.

TABLE 3

SUMMARY OF PRESENT AUTONOMIC STARING DETECTION EXPERIMENTS

Subjects	Scoring rate	Effect size
Untrained	59.38%	.59
Trained	45.45%	-.50

The statistical values of Table 4 may be used in a preliminary meta-analysis of all staring-detection studies reported to date. The table lists the statistical test presented in the original report, the one-tailed p value associated with that test, the z-score equivalent of the one-tailed p value, the number of units contributing to the analysis, and the effect size (calculated by dividing the equivalent z score by the square root of n). Combining all six tabulated entries yields a mean z = 1.07, a Stouffer z = 2.62 (with associated one-tailed p = .0044), and a mean effect size = .17. The Stouffer z procedure, an accepted method for combining probabilities of several studies testing essentially the same hypothesis, is described by Rosenthal (1984); this source also provides an excellent discussion of various effect size measures.

TABLE 4

STATISTICAL SUMMARY OF ALL STARING DETECTION EXPERIMENTS

Study	Test	p(a)	z	n	Effect size
Coover (1913)	z = 0.126	.4499	0.126	1000	.004
Poortman (1959)	z = 1.70	.044	1.70	89	.18
Peterson (1978)	t = 2.648	.006	2.51	36	.42
Williams (1983)	t = 1.77	.044	1.70	28	.32
Braud, et al. (1993)					
Untrained subjects	t = 2.66	.009	2.37	16	.59
Trained subjects	t = -2.15	.976	-1.98	16	-.50

a one-tailed

A comment is necessary regarding the effect size for trained subjects given in Tables 3 and 4. In the present research, we sought to determine whether the subjects would autonomically discriminate the staring from the nonstaring (control) periods; indeed, they were able to do this in both phases. No prediction was made regarding the direction of their differential autonomic response, that is, whether their electrodermal activity would be greater or less during staring periods (compared with nonstaring periods). For this reason, two-tailed tests were used for each phase, and results for both phases were "successful" (i.e., both scoring rates departed significantly from chance expectation). However, for purposes of meta-analysis, it is customary to use only one-tailed tests and p values in the tabulations. It is also customary to use a negative sign for a result that is inconsistent with the bulk of the results (see Rosenthal, 1984, p. 95). We have followed this convention when entering the results for the trained subjects (Phase 2) of this study. This provides a conservative estimate of overall results, because the autonomic discrimination of the trained Phase 2 subjects was just as effective as that of the untrained Phase I subjects, but happened to be in the calm as opposed to the active direction. This reversal of direction becomes understandable when considered in relation to the nature of the training experienced by these Phase 2 subjects. If the results of the Phase 2 subjects are also considered "positive", then the alternative values for summarizing Table 4 become: mean $z = 1.73$, Stouffer $z = 4.24$, $p = .000011$, mean effect size = .34.

It should also be pointed out that the units of analysis for the effect sizes reported in Tables 1 and 4 are not comparable for all studies. Effect sizes for the first two studies (those of Coover and of Poortman) are based on trial units, whereas those of the remaining studies are based on subject units. These differences should be kept in mind when evaluating these effect sizes.

DISCUSSION

Prior research yielded suggestive evidence that persons were able to discriminate staring and nonstaring periods by means of deliberate, conscious guesses. The aim of the present project was to determine whether staring and nonstaring periods could be differentiated by means of more "unconscious" physiological reactions. The electrodermal activity differences between staring and nonstaring periods indicated that such differentiation could indeed occur. We chose to measure spontaneous electrodermal fluctuations (that is, changes in skin resistance reactions) because such measurements are easy to make, are sensitive indicators, and are known to be useful peripheral measures of the activity of the sympathetic branch of the autonomic nervous system. The occurrence of many or of high amplitude skin resistance reactions (SRRs) is symptomatic of increased sympathetic activation or arousal, which may in turn reflect increased emotionality (see Edelberg, 1972;

Prokasy & Raskin, 1973; Venables & Christie, 1980). On the other hand, the occurrence of few or of low amplitude SRRs indicates decreased sympathetic activation or arousal, which may in turn reflect decreased emotionality and, therefore, a greater degree of emotional and mental quietude or calmness.

The results of both phases of the present study indicate reliable auto-nomic discrimination of staring and nonstaring periods, and the relatively large effect sizes suggest that autonomic detection may be a more powerful method than conscious guessing for the detection of staring effects. Phase I findings suggest that the starees were more activated during the staring than during the nonstaring epochs. Phase 2 findings suggest that those starees were more calm during staring than during nonstaring periods. The latter finding does in fact make sense in view of the training experienced by the Phase 2 subjects. That training was designed to allow persons to become more comfortable with staring and with connecting with other people; and it permitted the trainees to reduce at least some of their defenses or resistances to staring, being stared at, and sharing a mutual gaze. In the course of their training, many trainees reported that their staring encounters became quite positive and pleasant interactions, and they expressed disappointment when the encounters ended (see Kellerman, Lewis, & Laird, 1989, for the sometimes powerful effects of sharing a mutual gaze). We speculate that similar processes may have occurred during remote staring: The trained subjects of Phase 2 may have missed the contact with, and the attention of, the starer (with whom they had become increasingly familiar during the course of the training), and may have become more relaxed and calm when that attention was provided, albeit in remote form, during the staring epochs of the experiment. A useful analogy for the reader (from the domain of animal behavior studies) might be the alarm and distress that occur upon the removal of an imprinted object from the environment of an imprinted precocial fowl or other organism, and the distress-reduction that occurs when the imprinted object is reintroduced (see Bateson, 1966; Ratner & Denny, 1964). For the Phase 1 starees, who did not have the benefit of the connectedness training, being stared at (even in its remote form) may have been experienced in a more typical way, that is, as threatening (see Argyle, 1975, pp. 229-250; Argyle & Dean, 1965) and sympathetically activating (rather than calming).

These comments apply, not only to the starees, but also to the starer (D.S.). Although she attempted to behave identically and maintain identical attitudes in the two phases, when she began Phase 2, she had of course participated actively in the connectedness training and may well have been more comfortable and relaxed about attending to and connecting with her subjects in Phase 2 than she had been in Phase 1. This increased comfort and relaxation could have been reflected in the calming direction of the Phase 2 results. We deliberately included the starer in the connectedness training because the training was directed at changing dyadic relationships and the starer was a critical part of the dyadic effects we wished to explore in Phase 2.

It could be hypothesized that the different patterns of findings for Phase 1 and Phase 2 may have been contributed by a nonequivalence of initial characteristics of the subjects in the two phases. This hypothesis is not a convincing one inasmuch as the subjects for the two phases came from the same general participant pool and did not appear to differ importantly in terms of PIF characteristics, MBTI profiles, or overall electrodermal reactions (either basal skin resistance or total electrodermal activity for the session, both of which reflect general arousal level, nervousness, etc.). It would appear that the participants in the two phases were sufficiently similar in their initial characteristics to rule out differences attributable to those factors alone. The participants' training (that of the starees and of the starer in Phase 2) appears to have been more critical than possible initial differences in determining the qualitatively different outcomes of Phase 2. Further research will help clarify these issues.

The results of this physiological investigation, along with those of previous behavioral studies, provide evidence that persons are indeed able to respond to instances of remote attention (such as that provided by an unseen gaze) even under conditions that preclude conventional sensorimotor communication. The specific mechanism underlying these anomalous manifestations is unknown, although several physical and other models that do accommodate nonlocal interconnectedness of consciousness have been proposed (see, for example, Stokes, 1987). The present findings are consistent with a vast body of similar evidence collected within the field of parapsychology or psi research. Some of the most compelling evidence is provided in several recent melt-analyses (Harris & Rosenthal, 1988; Honorton et al., 1990; Radin & Nelson, 1989; Rosenthal, 1986; Utts, 1991), reviews (e.g., Child, 1985), and handbooks (Krippner, 1977-1982 and 1984-1990; Rao, 1984; Schmeidler, 1988; Wolman, 1977). Critical discussions of this evidence may be found in Kurtz (1985). The studies reviewed in the present paper indicate that these anomalous phenomena are not merely laboratory curiosities, but may be reliable and robust enough to have important influence in everyday life and may have important impacts upon, and implications for, a wide variety of psychophysiological and social psychological investigations.

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