Journal of the Society for Psychical Research **62: 311-323 (1998)**

THE SENSE OF BEING STARED AT: EXPERIMENTS IN SCHOOLS

by RUPERT SHELDRAKE

INTRODUCTION

Many people have had the experience of turning round with the feeling that someone is looking at them from behind, to find that this is in fact the case. Conversely, many people have found that they can sometimes make people turn around just by looking at them. Surveys show that between 70 and 97% of the population in Europe and North America have had personal experience of this phenomenon (Braud, Shafer and Andrews, 1990; Sheldrake, 1994; Cottrell, Winer and Smith, 1996). Indeed it seems to be well known all over the world.

In spite of its familiarity, there has been very little research on this subject, with fewer than a dozen reported experimental investigations over the past 100 years, including some that are buried in unpublished student theses.

The first two reports, by Titchener (1898) and Coover (1913) were negative. Both investigators were sceptics. Titchener, one of the founders of experimental psychology in the United States, carried out experiments with himself as the looker. His subjects were students who claimed they could sometimes tell when they were being looked at. He gave no details of these experiments save to say that they were negative, fully confirming his expectations. He continued:

> If the scientific reader object that this result might have been forseen, and that these experiments were, therefore, a waste of time, I can only reply that they seem to me to have their justification in the breaking down of a superstition which has deep and widespread roots in the popular consciousness. No scientifically-minded psychologist believes in telepathy. At the same time the disproof of it in a given case may start a student upon the straight scientific path, and the time spent may thus be repayed to science a hundredfold. (Titchener, 1898; p. 897).

Coover (1913), following Tichener's lead, carried out a series of experiments with his students at Stanford, and obtained statistically non-significant results. He concluded that the widespread belief in the feeling of being stared at was "groundless".

As far as I know, no further experiments were reported in the scientific literature until Poortman (1959) described some trials he carried out with a woman friend. He was right more often than wrong in guessing when she looked at him.

The experimental design used by Coover and Poortman, involves subjects and lookers working in pairs. The subject is looked at from behind in a series of trials, randomly interspersed with an equal number of control trials when the subject is not looked at. At the end of each trial period, the subject says whether or not he or she is being looked at. The response is scored right or wrong and written down, and the next trial begins.

Nearly two decades passed after Poortman's report before Peterson (1978), in an unpublished Master's Thesis at the University of Edinburgh, described experiments in which the looker and the subject were separated by a

one-way mirror. The looker was invisible to the subject, and sat in a closed booth that reduced, if not elimated, any possible cues from the looker to the subject through sounds and smells. The subjects were right significantly more often than not.

The next student project, by Williams (1983) at the University of Adelaide, Australia, found a statistically significant effect when subjects and lookers were in entirely different rooms. The subject was looked at through closed-circuit TV.

Almost all subsequent published research has involved closed circuit TV, with the additional sophistication that the subjects are not even asked to guess whether they are being looked at or not. Electrodes are attached to the subjects' fingers and their galvanic skin response is recorded automatically, both when the subject is being looked at through closed circuit TV and in the randomly interspersed control periods. As in lie-detector tests, this is a simple way of monitoring responses of the autonomic nervous system. Does looking at the subjects, or not looking, significantly affects the subjects' unconscious responses?

In most investigations these experiments have given significant positive results (Braud, Shafer and Andrews 1990, 1993a, 1993b; Schlitz and LaBerge, 1994). In another study there were tendencies in a positive direction, but these were not statistically significant (Howat, Delanoy and Morris, 1994). Wiseman and Smith (1994) found a significant positive effect, but they speculated that this might be an artefact. Wiseman et al (1995) obtained overall nonsignificant results, but found a puzzling, statistically significant correlation between subjects' ability to detect an unseen stare and their reported level of luckiness.

In a recent closed-circuit TV experiment conducted in Wiseman's laboratory at the University of Hertfordshire, Schlitz obtained her usual positive results while Wiseman himself, a sceptic, obtained non-significant results (Wiseman and Schlitz, 1997). Subjects from a common pool were randomly assigned to the two experimenters, who were themselves the lookers, and the experiments were conducted under identical conditions. This evidence shows a striking experimenter effect, perhaps because of the transmission of positive or sceptical attitudes by the respective experimenters as they explained the experiment to the subjects before the trials began, and/or because of the differing effectiveness of the two experimenters as lookers.

I believe that this kind of laboratory research has an important role to play. But I also think that it is worth looking again at simple experiments of the kind described by Coover and Poortman, since these allow far more people to be tested, and open up research on this topic to much wider participation.

I have developed a version of this basic Coover-Poortman experiment which can be carried out by people working in pairs at home, at school, or indeed almost anywhere (Sheldrake, 1994). The procedure involves people working in pairs, with the looker sitting behind the subject. In a randomized series of trials, the looker either looks at the back of the subject's neck, or looks away and thinks of something else. These experiments are so simple that students can do them either as projects or classroom experiments in schools.

At least two student projects have already been carried out following this procedure. The first was by Michael Mastrandrea, an eighth-grade student, in Nueva Middle School, Hillsborough, California, and gave statistically significant positive results, with 54.1% correct guesses, 4.1% above the level expected by chance (Mastandrea, 1991). In Port Hope, Ontario, Canada, Jasmine James and Elaine Yau, senior students at high school, won the first prize in their local Science Fair with a staring experiment that again gave statistically significant positive results, with 55.0% correct guesses (James and Yau, 1996). Both these projects were, of course, carried out under the guidance of science teachers.

Several teachers in Germany and the United States have organized such experiments with their students, and have kindly sent me their results, which I describe in this paper.The overall conclusion from these experiments is that there is indeed a highly significant tendency for people to know when they are being looked at.

A re-examination of the supposedly negative findings of Coover (1913) shows that his data in fact agree well with the results reported here.

METHODS

The basic experimental procedure is as follows. People work in pairs, one (the subject) sitting with his or her back towards the other (the looker). The distance between them is 2 metres or more. It is important to choose a place where there are no reflective surfaces (such as mirrors or windows) that would enable the subject to see the looker. The looker is equipped with a score sheet, a pen or pencil, a coin, and in some cases a means of making a mechanical sound, such as a clicker or bleeper.

In a series of trials, in a random sequence, the looker either looks at the back of the subject or looks away and thinks of something else. The random sequence is decided by tossing a coin before each trial: heads means "Look"; tails means "Don't look". The looker indicates to the subject when a trial is beginning by a click or bleep, and the subject then guesses whether he or she is being looked at or not. Alternatively, the signal for the beginning of each trial is given to whole class by the teacher.

The looker records the result on a score sheet with two columns, the first headed "Looking (heads)", the second "Not looking (tails)", entering a tick or a cross in the appropriate column, depending on whether the guess is right or wrong. (For a specimen score sheet, see Sheldrake, 1994). The looker then tells the subject whether the answer was correct or not. This feedback helps to maintain the subject's interest, and may also enable subjects to learn how to respond more accurately.

In one school, in Freiburg, Germany, the experiments were not carried out with looker-subject pairs as described above. Instead, the students were tested as subjects in groups of three, with their teacher as the looker.

Usually subjects indicate their guess within 10 seconds, but if they have not done so already are asked to do so after 20 seconds. The procedure is therefore quite fast, and most pairs can easily complete 10-20 trials within 10 minutes. They can then exchange roles and carry out a new series of trials. The numbers of right and wrong guesses from each series of trials carried out by each looker-subject pair are tabulated in three columns; "Looking", "Not looking" and "Total", enabling the total number of right and wrong guesses in each column to be obtained. For each series of trials by each looker-subject pair, in each column, the data are also scored as follows:

\+ if there are more right guesses than wrong guesses,

\- if there are more wrong guesses than right guesses, or

= if the number of right and wrong guesses is the same.

Statistical analysis was carried out using the chi-squared test to compare the number of + and - scores. The = scores were disregarded. The null hypothesis was that by chance alone the number of + and - scores would be equal.

For the comparison of two sets of scores (for example the scores in the "Looking " and "Not looking" columns) 2 x 2 contingency tables were used (Campbell, 1989). The significance was assessed by the chi-squared test, with the null hypothesis that the proportions of right and wrong guesses in both sets were equal

The experimenters, schools and procedural details were as follows:

America

-

The teachers were participants in an interdisciplinary graduate programme of Southern Connecticut State University, called LEARNscience, and were working towards a Master's degree in Science Education. This research was organized by James Trifone, the Academic Coordinator.

1. MaryEllen McKee, Old Greenwich School, Greenwich, CT. The subjects were Grade 3 students (8-9 years old), and Ms McKee was the looker. The signal for the beginning of each test was given by a click from a mechanical clicker.

2. Bonnie Maur, Chalk Hill Middle School, Monroe, CT. The looker-subject pairs were grade 6 students (11-12 years old). The looking trials for all pairs took place simultaneously, and Ms Maur signalled the beginning of each test for the whole class by means of a buzzer.

3. Kathleen Robinson, Stepney Elementary School, Monroe, CT. The subjects were Grade 3 students (8-9 years old). The signal for the beginning of each test for the whole class was given by the ringing of a bell.

4. Tracy Tishion, Whisconier Middle School, Brookfield, CT. Some of the subjects were Grade 5 students (all 10 years old), tested in the classroom, and some were friends and members of her family. She was the looker. The signal for the beiginning of each test was given by ringing a bell.

5. Elaine Bamford, Eric G. Norfeldt Elementary School, West Hartford, CT. The looker-subject pairs were Grade 4 students (9-10 years old). The looking trials for all pairs took place simultaneously, and Ms Bamford signalled the beginning of each trial for the whole class by means of a clicker.

Germany

-

1. Helmut Lasarcyk, at Stormarnschule, Ahrensburg, Schleswig-Hollstein. One experiment was carried out with Grade 8 students (13-14 years old), and three with Grade 12 students (17-18 years old). Both classes did the experiment on January 19, 1996, and the Grade 12 students were tested again on March 5 and May 5 1996, but with different combinations of students in pairs. The signal for the beginning of each test was given by standard clicking noises from Biros.

2. Dolfi Wilke, at Geshwister-Scholl-Schule, Konstanz, Baden-Württemberg. The experiment was carried out with 11-16 year old students on June 16 1995. The signal for the beginning of each test was given by a mechanical clicker.

3. Rolf Robischon, at Johannes-Grundschule, Freiburg im Breisgau, Baden-Württemberg. The experiments were carried out with Grade 3 students (8-9 years old), whom Herr Robischon had been teaching since the were in the Kindergarten. Three students at a time served as subjects, with Herr Robischon as the looker. In each experiment there were 24 trials, and two experiments (with different subjects) were conducted on March 8, March 22, April 26 and May 3,1995. The 3 students sat with their backs to Herr Robischon and with their eyes closed. In each trial, one of the children was looked at while the others were not. The random sequence in which they were to be looked at was noted in advance, before the subjects had been selected.

The beginning of each trial was signalled by Herr Robischon saying "Anfang" (start), and the end by his saying "Danke" (thank you). Thus all 3 subjects heard the same words in the same intonation at the same time. The children put their hands up at the end the trial period if they thought they had been looked at, and kept them down if they thought they had not.

Four children were tested in 4 experiments each; 2 children were tested in 2 experiments each; and 4 children were tested only once each. In the data shown in Table 4, the results for the 2 children tested twice were combined, as were the data for the 4 children tested once.

-

RESULTS

Basic experiments

The pattern of results was very similar in the United States and Germany (Tables 1 and 2). In both there was an extremely significant excess of positive over negative scores in the looking trials, no significant difference between the positive and negative scores in the not-looking trials, and an overall positive result, which was highly significant statistically.

Table 1

Staring Experiments in Schools in Germany

Above: Numbers of right and wrong guesses (percentage of right guesses shown in parentheses). Below: total number of subjects with more right than wrong guesses (+), more wrong than right guesses (-) or equal numbers of right and wrong guesses (=).

Location	Looking		Not looking		Total	
	right	wrong	right	wrong	right	wrong
Ahrensburg	274	147	196	223	470 (55.9%)	370
	41+ 7– 3=		20+ 28– 3=		30+ 13– 8=	
Konstanz	242	141	191	194	433 (56.4%)	335
	31+ 8– 9=		18+ 24– 6=		28+ 13– 8=	
TOTALS	516 (64.2%)	288	387 (48.1%)	417	903 (56.2%)	705
	72+ 15– 12=		38+ 52– 9=		58+ 28– 13=	
Statistical comparison of + and – p =	1×10^{-9}		NS		0.001	

Table 2

Staring Experiments in Schools in Connecticut, USA

Above: Numbers of right and wrong guesses (percentage of right guesses shown in parentheses). Below: total number

of subjects with more right than wrong guesses (+), more wrong than right guesses (-) or equal numbers of right and wrong guesses (=).

Location	Looking		Not looking		Total	
	right	wrong	right	wrong	right	wrong
Brookfield	135	100	129	116	264	216
	8+ 4– 0=		7+ 4– 1=		8+ 2– 2=	
Greenwich	28	33	21	38	49	71
	3+ 6– 1–		1+ 6– 3=		2+ 5– 3=	
Monroe, Chalk Hill	85	48	82	55	167	103
	10+ 2– 3=		9+ 3– 3=		11+ 3– 1=	
Monroe, Stepney	163	87	134	118	297	205
	13+ 1– 0=		7+ 7– 0=		10+ 4– 0=	
West Hartford	82	38	81	59	163	97
	9+ 1– 0=		5+ 3– 2=		8+ 0– 2=	
TOTALS	493	306	447	386	940	692
	(61.7%)		(53.7%)		(57.6%)	
	43+ 14– 4=		29+ 23– 9=		39+ 14– 8=	
Statistical comparison of + and – p =	1×10^{-4}		NS		6×10^{-4}	

A comparison of the pattern of results from America and Germany showed that they were not significantly different from each other (Table 3). The large excess of positive over negative scores in the combined results (97+ 42-) was very significant statistically ($p = 3 \times 10^{-6}$).

Table 3

Comparison of the Results from Germany and the United States

Total number of subjects with more right than wrong guesses (+), more wrong than right guesses (-) or equal numbers of right and wrong guesses (=).

Experiments	Looking		Not looking		Total	
	right	wrong	right	wrong	right	wrong
Germany	72+ 15– 12=		38+ 52– 9=		58+ 28– 13=	
United States	43+ 14– 4=		29+ 23– 9=		39+ 14– 8=	
Statistical comparison of Germany and America	NS		NS		NS	
GRAND TOTALS	115+ 29– 16=		67+ 75– 18=		97+ 42– 21=	
Statistical comparison of + and – p =	1×10^{-10}		NS		3×10^{-6}	

Repeated experiments with selected children

In the experiments carried out by Rolf Robischon, in Freiburg im Breisgau, Germany the subjects were 8-9 year old students who knew him very well: he had been teaching them since they were in the Kindergarten. He tested them three at a time with himself as the looker, in each trial looking at one of the children and not at the other two. In a preliminary experiment (where the tests were done with groups of 5), there were 59.2% correct guesses. Those with the highest scores were selected as subjects for the subsequent experiments.

The results (Table 4) show that some of these selected children were remarkably good at knowing whether or not they were being looked at. The best two, Benjamin and Dirk, were right 93.8% and 87.5% of the time respectively. In the overall results for all the children, 71.2% of the guesses were correct, and the total scores (21+ and 1-) were highly significant statistically ($p = 2x10^{-5}$).

Table 4

The results of a series of experiments carried out by Rolf Robischon in Freiburg im Breisgau, Germany with 8-9 year-old children selected for their sensitivity to being looked at.

In these experiments Herr Robischon was the looker, and three children at a time were the subjects. The children kept their eyes shut throughout. In each trial, in a random sequence, one of the children was looked at and the other two were not looked at. For each child there were therefore approximately twice as many non-looking as looking trials.

Above: Numbers of right and wrong guesses (percentage of right guesses shown in parentheses). Below: total number of subjects with more right than wrong guesses (+), more wrong than right guesses (-) or equal numbers of right and wrong guesses (=).

Subject	Looking		Not looking		Total	
	right	wrong	right	wrong	right	wrong
Benjamin	30	3	57	6	87 (93.8%)	9
	4+ 0– 0=		4+ 0– 0=		4+ 0– 0=	
Dirk	29	5	55	7	84 (87.5%)	12
	4+ 0– 0=		4+ 0– 0=		4+ 0– 0=	
Sandra	21	12	41	22	62 (64.6%)	34
	2+ 0– 2=		3+ 1– 0=		3+ 1– 0=	
Simone	25	8	36	27	61 (63.5%)	35
	4+ 0– 0=		2+ 1– 1 =		4+ 0– 0=	
Marc (2) Daniel (2)	15	14	48	19	63 (65.6%)	33
	2+ 1– 1=		4+ 0– 0=		3+ 0– 1 =	
Alexander Christoph David Jonas	20	10	33	33	53 (55.2%)	43
	2+ 0– 2=		2+ 1– 1=		3+ 0– 1=	
TOTALS	140 (72.9%)	52	270 (70.3%)	114	410 (71.2%)	166
	18+ 1– 5=		19+ 3– 2=		21+ 1– 2=	
Comparison of + and – p =	1×10^{-4}		6×10^{-4}		2×10^{-5}	

These results are not directly comparable with those carried out in other schools because they involved a different procedure, with the children being tested in groups of 3, and looked at by their teacher, whom they knew very well. Moreover the repetition of the tests may have enabled the children to improve by practice. But they indicate that with a combination of sensitive subjects and effective lookers, far higher scores can be achieved than with unselected lookers and subjects.

DISCUSSION

The overall pattern of results

-

The results of these experiments summarized in Tables 1 and 2 show a remarkably consistent pattern, even

though they were conducted in different schools, in different countries, with children of different ages, and with different methods of signalling the beginning of a trial.

First, there were more correct (56.9%) than incorrect guesses (43.1%). And more subjects scored positively than negatively. Overall, 97 subjects made more right than wrong guesses, 42 made more wrong than right guesses and 21 had an equal number of right and wrong guesses (Table 3). For the purpose of statistical analysis, the null hypothesis is that by chance alone the number of subjects with positive scores should equal the number with negative scores. In fact the number with positive scores is very significantly greater than the number with negative scores, with only a 3 in a million probability of being due to chance (Table 3).

Second, there was a striking difference between people's responses in the trials when they were being looked at and in the control trials, when they were not being looked at. When they were being looked at, they were right more often than not. Overall, this effect was highly significant, with odds against chance of 10 billion to one (Table 3). In the control periods their guesses were not significantly different from chance.

I have myself conducted experiments with a total of 242 looker-subject pairs, and the pattern of results was essentially the same as that in these school experiments. In the looking trials there was very significantly more subjects with positive then negative scores, 159 as opposed to 63. In the not-looking trials there was no significant difference. Overall, there were 141 subjects with positive scores and 70 with negative scores, with odds of a million to 1 against this result being due to chance (Sheldrake, in preparation).

Comparison with previous experiments

In the light of these results, it is interesting to look again at the results of the two previous reports of experiments of this type, those by Coover (1913) and Poortman (1959). I have scored their data by the same system I used for the school results (Table 5). It turns out that Coover's results are similar to those described here, both in the overall score (5+ 3- 2=) and in the marked tendency for people to be right when they were being looked at (7+ 2- 2=) whereas they were around chance levels in the not-looking trials (5+ 5- 0=). Unfortunately, Coover, following Tichener's strongly sceptical lead, pronounced his results negative, and probably helped set back research on this subject for decades.

Poortman's findings were positive, but the pattern of results differs from Coover's and those summarized in Tables 1 and 2. The guesses were correct slightly more often when the subject was *not* being looked at. They were, however, conducted with the same looker-subject pair on a series of occasions, and therefore differ from Coover's and the classroom experiments, in which each looker-subject pair was tested only once. This repeated testing could have enabled the subject to learn the difference between the feeling of being stared at and the feeling of not being stared at. The schoolchildren in Freiburg were also tested repeatedly, and they too performed about as well when they were not beeing looked at as when they were (Table 4).

Could these findings be artefacts?

What do these results mean? Can people really tell, by some unexplained power, when they are being

looked at from behind? Or could the data have arisen as an artefact or as a result of subtle cues?

One possible artefact could arise if the subjects were biassed towards guessing that they were being looked at, whether they were or not. In fact subjects did guess they were being looked at more often than not. From the data in Tables 1 and 2, the overall proportion of "looking" guesses was 55.9%. But if this bias were expressed equally in both looking and not-looking trials, it would be reflected in an excess of correct guesses in looking trials, offset by an excess of incorrect guesses in the control trials. The total scores should show no significant deviation from chance. But in fact the positive scores in the looking trials were *not* cancelled out by equal and opposite negative scores in the not-looking trials, and the overall results were positive. The positive scores in the looking trials were highly significant statistically, whereas there was no significant difference in the not-looking trials (Tables 1,2 and 3).

Can these results be explained by subtle sensory cues? One possibility is that the some subjects see what the looker is doing by means of peripheral vision. For anyone who has actually been a subject in such experiments (as I have myself on many occasions) this is implausible, because it is not in fact possible to see what the looker is doing, seated directly behind one's back. Nevertheless, I am currently testing this possibility in further experiments in which the subjects are blindfolded.

The possibility that sensory cues are transmitted by sounds or smells from the looker, or by infra-red radiation from the looker's face, are harder to rule out conclusively in tests such as these where the subject and looker are in the same room. To test this possibility, I am carrying out further experiments in which the subjects are viewed through closed windows. And there is already evidence from closed-circuit TV experiments that the effect still persists even when all possible sources of subtle sensory cues have been eliminated. (This research was summarized in the Introduction).

The most plausible way in which lookers could unconsciously have given subtle clues to subjects could have been by means of the clicker with which they signalled the beginning of each trial. Although this mechanical signal could not in itself have given any clues because of its standard sound, clues could have been conveyed by the position in which it was clicked, or by longer or shorter delays before it was clicked. Fortunately this argument can be tested empirically. In three of the American schools the individual lookers did not themselves signal the beginning of each trial. Rather, the teacher signalled to the whole class when each trial was beginning. Thus no subtle cues could be conveyed by lookers to subjects through the signalling process. In spite of the elimination of this possible source of artefact, in these schools (Chalk Hill, Stepney and West Hartford) there was a high proportion of positive scores: taken together, there were 29 subjects who were more often right than wrong, and 7 more often wrong than right, in other words over 4 times more positive than negative scores. By contrast, in the other American schools, there were only 1.4 times more positive than negative scoresand if the German schools (Table 1) are included as well, this figure is 2.3. Thus the evidence is strongly against this artefact hypothesis.

Finally, there is the possibility that some of the children were cheating. For example, the subjects might have peeped the see if the looker was looking at them or not, or the looker could have whispered or given some other signal. But if cheating was going on, the scores should have been boosted in both looking and not-looking trials. The same should be true if subtle cues were involved. Yet there were highly significant positive scores only in the looking trials, while in the not-looking trials the scores were no better than chance (Tables 1, 2 and 3). Cheating or subtle cues should not boost scores only in looking trials. A cheat would also know when not-looking trials were going on. And any cues that indicated when the looker was looking would - by their absence - indicate when he or she was not looking. Thus cheating and sensory cues are not plausible explanations for the pattern of response actually observed with these subjects.

Whatever the explanation of these results, they show a strikingly repeatable effect. That such simple experiments give consistent results is encouraging. Through further research it should be possible to discover either how this pattern of results arises as an artefact, or to establish that the sense of being stared at is a real effect that may have as yet no explanation in terms of established science.

Why is the effect so small?

If some people really can tell when they are being looked at from behind, why was the positive effect in most of these experiments so small, with only 56.9% correct guesses overall? There are several possibilities:

1. As in all other human abilities, people probably differ in their effectiveness as lookers and in their sensitivity as subjects. In most of the experiments conducted here, no attempt was made to select effective lookers or sensitive subjects. These results therefore represent an average over a wide range of abilities. By selecting effective lookers and sensitive subjects, a much larger effect could probably. There is already evidence that this is the case from the pioneering experiments of Rolf Robischon (Table 4).

2. The feeling of being looked at occurs in real-life conditions spontaneously, rather than when a person is consciously trying to detect it. Under the artificial conditions of experiments, the conscious mind may inhibit or interfere with a sensitivity that is normally unconscious.

3. If there is indeed a sense of being stared at, looking at someone may give a detectable stimulus. But when a person is *not* being looked at, there is no such stimulus. Thus there is an asymmetry between the looking and not-looking trials. In the not-looking trials, subjects are being asked to detect an *absence* of the feeling of being looked at, an artificial situation with no parallel in real-life experience. And indeed, under these conditions, naive subjects' guesses were no better than chance. However, with practice, subjects may learn to detect the difference between presence and absence of the gaze, and hence experienced subjects could become as successful under non-looking as under looking conditions. And this was the pattern of response shown by experienced subjects (Tables 4 and 5).

Table 5

Staring Experiments by Coover (1913) and Poortman (1959)

Numbers of right and wrong guesses (above) and numbers of experiments (below) with more right than wrong guesses (+), more wrong than right guesses (-) or equal numbers of right and wrong guesses (=). (The percentage of right guesses is shown in parentheses).

Author	Looking		Not looking		Total	
	right	wrong	right	wrong	right	wrong
Coover	257	225	245	263	502	498
	(53.3%)		(48.2%)		(50.5%)	
	7+ 2– 1 =		5+ 5– 0=		5+ 3– 2=	
Poortman	24	18	29	18	53	36
	(57.1 %)		(61.7%)		(59.6%)	
	6+ 4– 0=		6+ 1– 3=		8+ 2– 0=	

Implications

If further studies confirm the reality of the ability to detect an unseen gaze in a way that cannot be explained in terms artefacts, cheating or sensory information, the implications for our understanding of the nature of the human mind will be very far-reaching (Abraham, McKenna and Sheldrake, 1992; Sheldrake, 1994). Any hypothesis capable of explaining this effect would need to postulate an influence of the mind of the looker that acted at a distance on the person being stared at.

This effect also raises the question of its evolutionary origins Is it confined to human beings, or can animals also tell when they are being looked at by people or by other animals? So far, there seem to have been no experimental investigations of animals' abilities in this respect. But clearly this ability could be of evolutionary advantage, for example if it enabled animals to detect the gaze of an unseen predator. The feeling of being looked at could be deeply rooted in our biological heritage.

The potential for further experiments in schools

The results described in this paper show that a very simple experiment can give remarkably consistent results in schools, even in primary schools. The experiment concerns a phenomenon with which most children are familiar and in which many are interested. It also demonstrates how scientific methods can be applied to the the investigation of an unexplained effect. In further research it should be possible to eliminate any possible sensory cues by staring at the backs of blindfolded subjects through closed windows.

ACKNOWLEDGEMENTS

I am grateful to the students who took part in these experiments and to the teachers who carried them out, sent me their results and kindly agreed to my publishing their findings. I thank Professors Nicholas Humphrey and Michael Morgan for helpful discussions and advice on statistical analysis. This work was supported by the Institute of Noetic Sciences, Sausalito, CA and the Lifebridge Foundation, New York.

20 Willow Road

London NW3 1TJ

REFERENCES

Abraham, R., McKenna, T. and Sheldrake, R. (1992) *Trialogues at the Edge of the West*. Santa Fe: Bear and Co.

Braud, W, Shafer, D. and Andrews, S. (1990) Electrodermal correlates of remote attention: Autonomic reactions to an unseen gaze. *Proceedings of Presented Papers, Parapsychology Association 33rd Annual Convention*, Chevy Chase, MD, pp14-28.

Braud, W, Shafer, D. and Andrews (1993a) Reactions to an unseen gaze (remote attention): A review, with new data on autonomic staring detection. *Journal of Parapsychology 57*, 373-90.

Braud, W, Shafer, D. and Andrews (1993b) Further studies of autonomic detection of remote staring: replications, new control procedures, and personality correlates. *Journal of Parapsychology 57*, 391-409.

Campbell, R.C. (1989) *Statistics for Biologists.* Cambridge University Press, Cambridge.

Coover, J.E. (1913) The feeling of being stared at. *American Journal of Psychology 24*, 570-5.

Cottrell, J.E., Winer, G.A. and Smith, M.C. (1996) Beliefs of children and adults about feeling stares of unseen others. *Developmental Psychology 32*, 50-61.

Howat, S.J., Delanoy, D.L. and Moris, R. (1994) Remote staring detection and personality correlates. *Journal of Scientific Exploration 8* , 582.

James, J. and Yau, E. (1996) An experiment on the sense of being stared at. *Report submitted to the 1996 Science Fair,* Durham, Ontario.

Mastrandrea, M. (1991) The feeling of being stared at. *Project Report, Nueva Middle School,* Hillsborough, CA.

Poortman, J.J. (1959) The feeling of being stared at. *Journal of the Society for Psychical Research 40,* 4-12.

Schlitz, M and LaBerge, S. (1994) Autonomic detection of remote observation: Two conceptual replications. *Proceedings of Presented Papers, Parapsychology Association 37th Annual Convention,* Amsterdam, pp. 352-60.

Sheldrake, R. (1994) *Seven Experiments that Could Change theWorld*. London: Fourth Estate, Chapter 4.

Titchener, E.B. (1898) The feeling of being stared at. *Science New Series 8,* 895-7.

Williams, L. (1983) Minimal cue perception of the regard of others: The feeling of being stared at. Paper presented at the *10th Annual Conference of the Southeastern Regional Parapsychological Association*, Carrolltown, GA, Feb 11-12.

Wiseman, R. and Schlitz, M (1997) Experimenter effects and the remote detection of staring. *Journal of Parapsychology 61,* 197-208.

Wiseman, R. and Smith, M.D. (1994) A further look at the detection of unseen gaze. *Proceedings of Presented Papers, Parapsychology Association 37th Annual Convention*, Amsterdam, pp. 465-78.

Wiseman, R., Smith M.D., Freedman, D., Wasserman, T and Hurst, C. (1995) Examining the remote staring effect: Two further experiments. *Proceedings of Presented Papers, Parapsychology Association 38th Annual Convention*, pp. 480-490.