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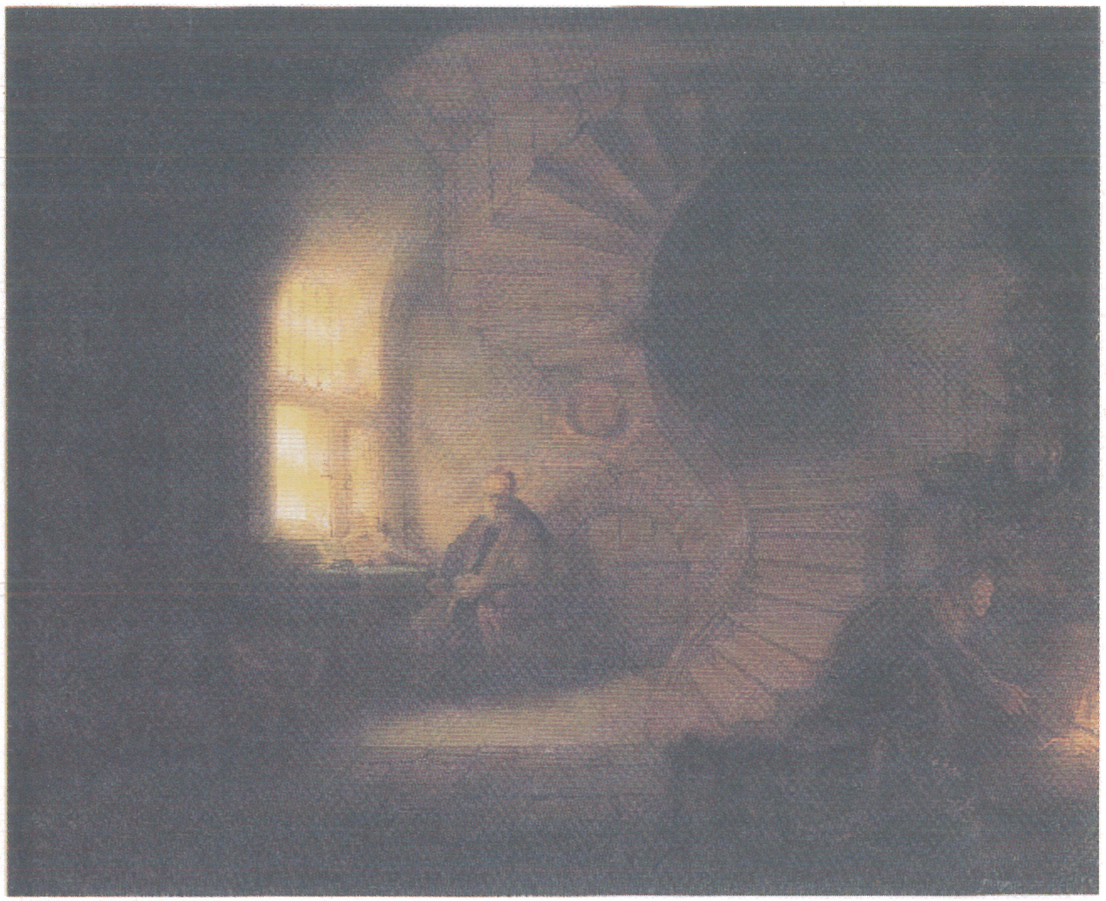

Cover picture: *Philosopher in Meditation* by Rembrandt, 1632. Musée du Louvre, Paris.

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Guest Editorial

One of the most rewarding features of an academic career is the periodic opportunity to take sabbatical leave. I was granted such leave for the 2002 calendar year and was able to utilise the time very productively. The large part of the year was devoted to writing a monograph on the psychology of paranormal belief (soon to be published by the Parapsychology Foundation). In addition it was possible to leave the shores of Australia and visit parapsychological laboratories in the Northern Hemisphere, something I have great difficulty in organising during normal teaching years. One of my visits was to Bob Morris, Caroline Watt, and their colleagues at the Koestler Laboratory, Department of Psychology, University of Edinburgh, and the other was to Adrian Parker in the Department of Psychology, University of Gothenburg. In the latter laboratory I involved myself in the auto-Ganzfeld research being undertaken by Adrian and his students, most notably Anneli Goulding.

During a memorable month in Gothenburg I was invited also to be a guest editor of the *Journal,* giving me first-hand experience of the diverse editorial processes associated with the production of a major academic publication in the field of parapsychology. I must record my profound gratitude to Adrian Parker for granting this valuable opportunity and for his sage guidance throughout the execution of the task. As I had anticipated, the editorial experience was something of a mixed blessing. It brought an enriching range of professional interactions with several European parapsychologists, but there were also some seemingly inevitable frustrations of frequently reminding one or two contributors to do as they were asked and of having to plead with referees to complete their evaluations of manuscripts within the tight schedule of my visit to Gothenburg. In any event, it seems to me the ultimate outcome of these joint efforts is impressive. I do hope readers profit from this issue of the *Journal* as much as I did in its compilation. The individual contributions are of high quality and collectively they convey something of the stimulating diversity of interests being pursued in contemporary parapsychology.

In the first paper of this issue Johan Gerding, Rens Wezelman and Dick Bierman describe a putative case of poltergeist activity in a Dutch village during 1995 and they report their efforts to establish independent objective evidence for the occurrence of psychokinetic effects at the location of the outbreak. Their study illustrates some of the intrinsic difficulties of parapsychological fieldwork and testifies to the merit of seeking to integrate case material with scientifically controlled investigation.

James Houran, Richard Wiseman and Michael Thalbourne also turn their attention to spontaneous parapsychological experiences: in this instance, experiences associated with a reportedly haunted site under Edinburgh's South Bridge. The investigators found experients and non-experients could be discriminated by a set of perceptual-personality variables. Rather more interestingly, two distinct types of haunt experience were identified, termed by the authors "psychological" and "physical". In recent years there have been very few statistically sophisticated investigations of the phenomenology of apparitional or haunt experiences, and in this respect the study of the Edinburgh vaults is a noteworthy contribution to the literature.

The following paper reports one of my own studies of belief in the paranormal, conducted with the able assistance of June Young. (It should be noted that the

acceptance of this paper for publication and its ordinal position among the other contributions to this issue were determined solely by Adrian Parker; I properly had no editorial input to these decisions.) Although researchers have recently devoted considerable attention to the question of *why* people embrace or reject paranormal beliefs there has been little consideration of *how* paranormal beliefs are formed. In the latter context this study identified the importance of a habitual intuitive-experiential style of information processing. An understanding of paranormal belief is of relevance both to the possible selection of participants in laboratory psi research and to an understanding of the nature of spontaneous parapsychological experiences. Additionally, in the broader arena of the study of human behaviour, the nature of paranormal belief is of legitimate interest in its own right.

Zofia Weaver's contribution is an historical one, and it must be acknowledged such works have been relatively infrequent in past issues of the *Journal*. This interesting paper extensively documents the activities of mediums and the efforts of psychical researchers in Poland during the first half of the twentieth century. At a time when contemporary parapsychologists are vigorously debating the direction of the discipline in its second century it is valuable to cast our eye over the history of parapsychology and its early existence as psychical research. Zofia Weaver has made a substantial contribution to the field by documenting some events in psychical research for which few other parapsychologists can access original documents.

Next, Harald Walach, Stefan Schmidt, Rainer Schneider, Christian Seiter and Holger Bösch report some of their parapsychological studies conducted in Freiburg and discuss the implications of their findings for the philosophical assumptions underlying contemporary science. Arguably one of the most significant features of parapsychological research is that it prompts an examination of the applicability of theoretical physics to human experience and perhaps more importantly, it provides an instructive context for a critical discussion of the tenets of postmodernism.

Finally Adrian Parker contributes with "Cognitive Psychology's Day in Court" which is an critical review of the gains and limitations of cognitive psychology in explaining away spontaneous phenomena as represented in Houran and Lange's recent major work: Hauntings and Poltergeists: Multidisciplinary Perspectives.

This issue of the *Journal* includes also a research note (by Michael Thalbourne,) and reviews of two recently published books that are of potential relevance to professional parapsychologists.

Each issue of the *Journal* will appeal to readers for a variety of reasons. For me the current issue will always remain first and foremost a cherished souvenir of my 2002 visit to Sweden. I am confident other readers will find more substantive reasons for cherishing this issue.

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The Druten Disturbances: Exploratory RSPK Research

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Abstract: A probable case of RSPK phenomena is reported, one that took place in the Dutch village of Druten in the spring of 1995. An analysis of reliable testimonies of neighbours, friends and police officers is presented; in particular the last of these sets of witnesses give relatively strong support to the reality of these phenomena in this case.

In order to find independent testimonial support for the reality of the Poltergeist case correlations were explored of the frequency of claimed poltergeist events with the behaviour of a field-RNG. The results showed there to be a marginally significant decrease in deviations from chance ($p<0.05$ two-tailed) whereas the post-hoc correlations were of insufficient strength to merit any conclusion. Additionally the RNG-PK runs showed some evidence for RNG-PK from the two adolescents in the family but not to such a degree as might be expected in a poltergeist agent. The article concludes with an analysis of the family dynamics which might be of relevance to the case and some recommendations are made.

Introduction

On Monday 15th May 1995, the Parapsychology Institute in Utrecht received a request for help from a Turkish family in the village of Druten in Holland. The phenomena this family experienced were recognized as classical poltergeist events: the flying about of stones, clods of earth, sand, and objects, some of them hitting people and smashing windows. Family members were frightened by these events which seemed to concentrate around Çetin, the 15-year-old son. Apart from Çetin, the family consists of his father Rafet (48 yrs), stepmother Saime (55 yrs), and half-sister Aynur (16 yrs). Other main characters in the event were Gülseren, the older half-sister of Çetin (25 yrs) who lives nearby, Dorus, a friend of Rafet, and neighbours Wies and Simon.

In doing our research, we tried to focus on as many aspects as possible. First of all, we gained and checked detailed eyewitness reports of the occurrences. Furthermore, a field RNG was installed, the persons involved did some PK-tests, and we gathered data on the situation of the family and Çetin in particular. The field RNG was intended to explore new ways of 'bringing the laboratory into the field' and finding a compromise between on the one hand the artificial, frustratingly unreliable modes of psi that are 'constructed' in the laboratory setting, and on the other hand the rich and context-dependent but uncontrollable psi experiences that are reported in spontaneous cases. The need for such a compromise is formulated in many

contemporary discussions on the direction of future parapsychological research (e.g. Braude, 1995; Delanoy, Morris, Watt, & Wiseman, 1993).

Procedures and Results

Eyewitness reports

The phenomena started on Thursday 11th of May 1995 and ceased on Sunday the 21st. The first weekend saw the flying about of such a multitude of stones that police assistance was called in. On Monday the 15th two researchers of the Parapsychology Institute were brought in (JG and RW), who arrived late that afternoon. They took some eyewitness reports and installed a video camera, focussing on Çetin and some spots where the phenomena seemed to concentrate. The next day JG was accompanied by DB. They installed a field RNG, explained the logbook system (see below), and recorded some testimonies on videotape. During his first visit JG felt his lower leg being touched, with no animals in the house and all persons far off. In an effort to become a part of the system, JG spent two nights (17th and 22nd May) at the house, and was present during daytime hours on 15th, 18th, 22nd and 23rd. Despite such efforts no further anomalous phenomena took place in the presence of the researchers, a frustrating finding well known from other RSPK cases (e.g. Rogo, 1974, p. 441). We contacted the family twice a day by telephone on those days in the first week when none of us was present. On Wednesday 21st June, four weeks after the RSPK phenomena stopped, we brought the family in contact with Mete Sabanoglu, a social worker of Turkish origin. This lowered the cultural and language barriers somewhat, allowing us to focus on some details of the testimonies. Also, Mr. Sabanoglu gathered some valuable information on the psychological and cultural background of the case (see Discussion).

Starting on Tuesday 16th May, the logbook registers a total of 110 phenomena that were classified as 'anomalous' by those involved. It is not possible to estimate what portion of this total number can be considered as reliable evidence of RSPK phenomena. The credibility of the witness reports is enhanced by two observations. First, being the centre of poltergeist activity in a quiet rural neighbourhood (with neighbours complaining and with press and total strangers crowding in and around the house prowling for psi) evidently brought no real gain to the family. On the contrary, family members were frightened by the disturbing events, while the father, Rafet, was convalescent with a heart condition. Second, most witnesses (Rafet, Saime, Aynur, Dorus, and Simon) mentioned the fact that Çetin tried to deceive them by imitating the events on some occasions. We will return to the subject of imitative fraud in the Discussion, but for the present let us point out that even with the possibility of fraud on the part of Çetin taken into account, a number of events cannot be easily explained away, although we realize that a high evaluation of witness credibility does not provide a decisive answer to the question of genuine RSPK (as is explained by e.g. Owen, 1964a, pp. 445-449, Owen, 1964b, pp.455-472). The following account is a presentation illustrating some of the more remarkable and seemingly convincing events.

We grouped the events that took place before the introduction of the logbook in several clusters. Special mention should be made of those clusters that were reported by police officers, who can be considered as relatively more experienced observers.

Cluster 7, Sunday 14th May

Officers Cramer and Van Deursen arrived on Sunday 14th May and naturally, suspected the stone throwing merely to be due to mischief. For one and a half hour Van Deursen made a reconnaissance of the back of the house, while Cramer checked this same side through a window on the top floor, using binoculars. They reported that in this way they would certainly have detected a perpetrator if there was one; unable to do so, they noticed that stones kept hitting the back of the house, only the house of the Turkish family and not the neighbours houses.

Clusters 9, 10, Sunday 14th May

That evening, officer Cramer returned to the house assisted by officer De Haas. Individually each officer accompanied Çetin to his room on the upper floor. No one else was upstairs. On this occasion De Haas had sand thrown in her face while watching Çetin, while Cramer even got sand in his face with Çetin having his hands in his pockets. Thereupon one of the officers left, being too frightened to stay in the house. Later that night Cramer and De Haas drove Çetin to Gülseren's house. Several times during that ride sand fell on De Haas's head; relating to it afterwards she leaves open the possibility that Çetin, sitting in the back seat, might have thrown it. However, this she claims can be no valid explanation for what happened next: when she got out of the police car to open the back door (which, for obvious reasons, cannot be opened from the inside) and stood next to the car with all its doors and windows closed, she again had sand falling forcefully on her head.

Cluster 14, Tuesday 16th May

Feeling too terrified to spend the night at home, the family stayed at Gülseren's house where, on the preceding days, some events had taken place. By way of precaution, Rafet placed a beer-jug in the kitchen, remarking that 'otherwise it too might get broken'. Next, a clap was heard from the corridor. At that moment Rafet was back in the living room with Dorus, while Çetin and Saime were in the garden. The beer-jug was lying in pieces against the front door.

Cluster 15, Tuesday 16th May

Coming out of the livingroom, a stone measuring half the size of an egg flew through the kitchen, smashed into the wall, and fell on the airvent. Dorus picked it up, noticing it felt more than hand warm to the touch, this is confirmed by two other witnesses. The stone brushed past the head of Wies who was standing in the doorway. She claimed there was nobody in the room behind her who could have thrown the stone.

Event nr. 30, Wednesday, 17th May

A piece of cutlery flew against the lower leg of Saime, who was leaving the room into the corridor where the hoja (an Islamic 'priest' who made several visits: see below) was departing. There were several witnesses in the room, but at the moment no one

was standing near the table on which the knife was reported to have lain. Sitting on the couch were Dorus and Simon, with Çetin in the middle. The knife was not seen flying towards Saime: all witnesses mention noticing it at the moment it fell on the floor after it hit Saime, who uttered a cry of fright.

Event nr.37, Wednesday, 17th May

A while after event 30 with Simon, Dorus and Çetin still on the couch, a glass water-bottle smashed forcefully against the lavatory door in the corridor, falling to pieces and striking a hole. Again, nobody was near the table on which the bottle definitely had been standing, as reported by the witnesses. It is highly improbable that Çetin could have thrown the bottle unobserved: Simon reports being very alert at this stage, as he had noticed before that events seemed to concentrate just after the departure of the hoja. Also, if Çetin could have thrown the bottle, then, given his position on the couch, the trajectory of the bottle would have to make an impossible curve around the doorpost between the living-room and corridor.

Filming and fixating

We used a video camera with the intention of recording any genuine RSPK phenomena as well as controlling for possible instances of fraud. The camera was focussed on Çetin and on certain places where the phenomena seemed to concentrate. The camera filmed Çetin and a researcher (JG) sleeping there during the night. A neighbour (Simon) had installed the camera after the phenomena stopped so as to point on the focal places. The interior of the house has been filmed several times; with this method with the intention of 'fixating' certain objects in order to be able to locate the place where the moving objects had originated from.

However no evidence of RSPK was recorded and even the fixation process yielded no results. A closer analysis of the film material did reveal an instance of fraud in which a hand movement of Çetin, while he was pretending to look at his wristwatch, is followed by the observation of a small stone falling against the wall at the right side of Çetin. The latter event was noticed by his father.

Field-RNG measurements

In trying to obtain independent and objective corrobation of the claimed Poltergeist events, we installed a RNG on the premises (as recommended by e.g. Radin & Roll, 1994; Roll, 1977). From May 17th, the behaviour of this RNG was continuously recorded and whenever a disturbance occurred, one of the family members could press a key on the computer keyboard causing the exact time and an event-number of the event to be stored. This event number was also displayed and was used in the paper diary where a description of the event was entered (for a rationale of the use of so-called field-RNGs see Bierman, 1996; Nelson et al., 1996; Radin & Rebman, 1996).

Two variables were calculated for each of the 4880 epochs that the RNG was running. The first one was the z^2 of the deviation from chance for the number of '1' bits produces in an epoch. The mean expectation value for this variable is 1 and the

variable is chi ^{2} distributed. Comparison of the epochs during which disturbances were reported with that of the theoretical expectation, showed a marginal significant decrease in deviations from chance (sum of z^2 scores = 78.4, df = 107, $p<0.05$ two tailed). For the remaining control periods this variable showed perfectly normal behaviour (sum of z^2 = 4724 with df = 4771). The implication is that for the experimental epochs the RNG was producing '1' and '0' bits in about equal amounts, more so than can be expected by chance.

The second variable looked at the frequency distribution of all possible 8-bit patterns. No significant deviation of a single pattern frequency was found. It should however be noted that this test is statistically insensitve since, without any prediciton of what to expect, it tests for 256 patterns simultaneously.

The choice of the experimental epochs for these evaluations is crucial but is also relatively arbitrary. Ideally this should be related to when the disturbances occur but one can choose one minute before, one minute around, or one minute after or a smaller period. We opted for the smallest unit of possible analysis between 18 and 36 seconds preceding the button press because from oral reports we learned that it generally took about half a minute before someone indicated on the computer that an event had ocurred. A few other choices were explored but failed to show anything of significance. Although in hindsight this solution probably represented the most logical choice of the analysis parameters, the effect, if this had been a confirmatory study, would have had to have been corrected for the multiple analyses involved. Accordingly, we present these results as exploratory ones and conclude only that this application of the field-RNG is certainly worthwhile to follow up in future Poltergeist cases.

RNG PK-tests

The RNG in Druten could also be used to run direct experimental PK tests. This would mean that the continuous (field) monitoring was temporarily switched off and the behaviour of the RNG was displayed on the screen as a circle, which would be seen to randomly grow and shrink. These tests were organised in runs. A run started (see Fig.1) with a random selection of the target direction and comprised 128 random binary events.

The sampling rate was about 5 samples per second and a run took 19 seconds. A total of 130 runs were done under rather informal conditions. Although generally one family member was designated to be the participant sometimes others were also watching the display. Since the field RNG was the focus of our research, neither timing, nor the number of runs, nor the target directions were pre-set since these tests were considered a form of entertainment rather than a serious experiment.

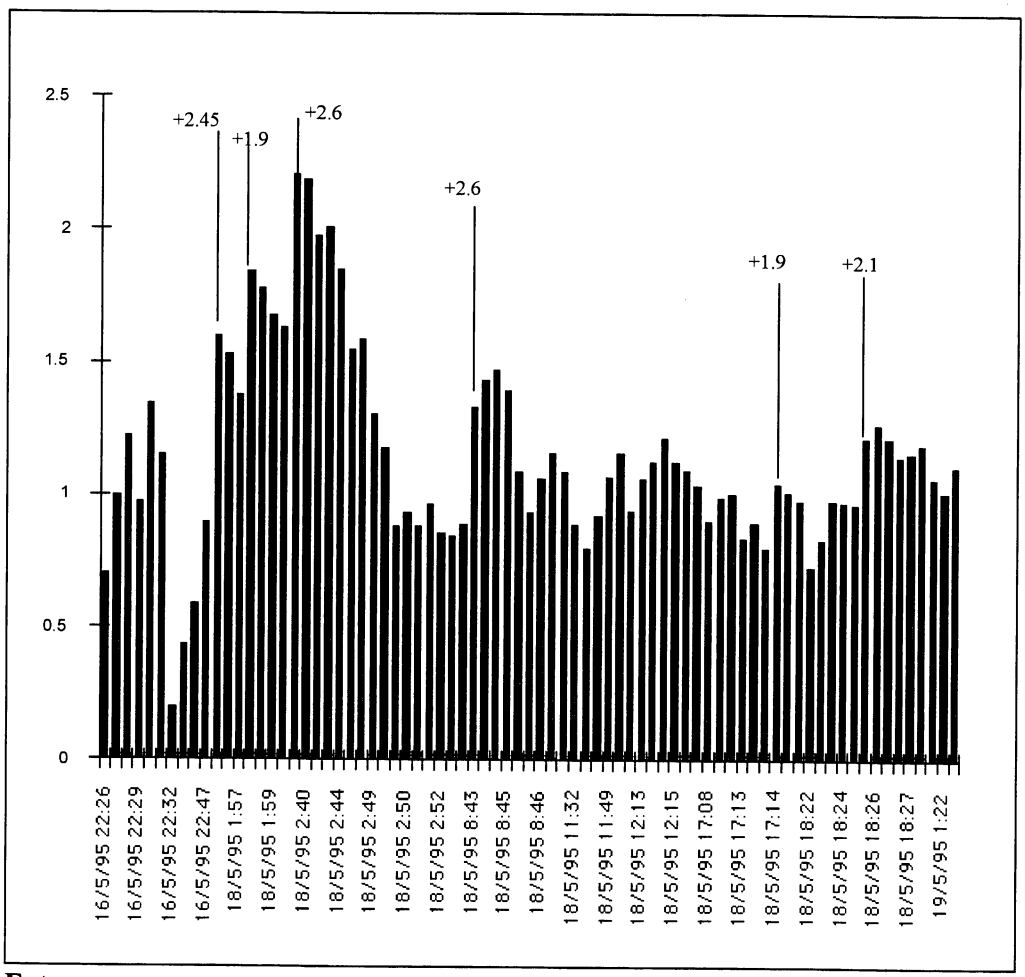
The results for Çetin, Aynur and others are presented in Table 1. The results of Aynur reach a statistical significance, but in a direction *opposite* to the target direction.

Table 1

Subject	Runs	Binary events	Deviation	%	z-score
Çetin	77	9856	+55	50.6	+1.1
Aynur	6	768	-34	45.6	-2.4**
Others	47	6016	+12	50.2	
Total	130	16640	+33	50.2	

In Figure 1 the cumulative z-score of Çetin's runs are given. It can be seen that within 18 runs the cumulative deviation is significantly different from mean chance expectation but subsequently drops to an average that hovers around z =1.0.

Figure 1



Extreme runs

From Figure 1, it can be seen that there are a few sudden jumps in the cumulative z-score. Six of the 77 runs were independently positive significant at the p = 0.03 level

when about 2 of such runs were to be expected. These extreme runs are indicated in the figure along with their respective z-scores. The binominal probability for 6 extreme runs in 77, is 0.028. This suggests that if Çetin was producing some psi, this occurred in rather erratic bursts. The significance is clearly a marginal one and should be considered with caution.

Given these extreme runs, one would expect an increased variance over all runs. However this is not the case the variance in z-scores being very close to the expected value of 1. This implies that the non extreme runs did have some decreased variance as if to compensate for the extreme runs.

Discussion

Physical aspects

As Roll (1977) states, the term 'focussing' refers to repeated incidents with the same or similar object and/or taking place in the same area. With regard to these criteria, it should be first noted that the Druten phenomena were not house-centred: RSPK events were observed at the house of Çetin's step-sister Gülseren, in the house and the area surrounding the house of the family, at Çetin's classroom at school, and near the police station. There was nevertheless some so-called area focussing (concentration of incidents in specific locations): Often moving objects originated from the audio-rack or from the dining-table in the living-room, while many of the stones and clods of earth seemed to originate from the garden at the back of the house. Three windows on this side were smashed, while those at the front remained intact.

Independently of each other, all witnesses reported not having seein the trajectory of the missiles - such as the stones - until they actually struck. This can be considered rather remarkable, especially for those missiles that hit the wall behind the person. Some mention of this non-observation is made in the literature (e.g. Amorim, 1990, p.197; Owen, 1964, pp.269-275). In trying to find an explanation, we should weigh a perceptual-psychological explanation - that small, fast missiles are not usually observed - against a more intriguing speculation in terms of 'teleportation' or non-local psi - that anomalous missiles are not limited by known ballistic laws (e.g. Roll, 1977, p.53; Owen, 1964, pp. 271 & 418-421). Such a non-local quality is contradicted, however, by the observation made by Wies in cluster 15, that a large stone brushed past her head and then 'flew' into the kitchen. Perhaps the use of optical detection devices in future research can shed some light on this question.

As far as objects are concerned, there seemed to be a preference for stones, clods of earth, sand, and relatively small objects, the largest object transported being the water bottle in event nr.7. The composition of the clods of earth was identical to the clods lying around in the garden (such similarities are noticed by e.g. Owen, 1964, p. 269). In agreement with McCully's notion that paranormal phenomena correspond to, or have some relation with, laws associated with symbolic language, Amorim (Amorim, 1990, p. 202) states that throughout human history, and particularly in the monotheistic religion which Islam is, stoning has been related to punishment. Combined with the family dynamics in the Druten case these notions would be in line with the person-focussing that evidently took place (see below).

The large stone in cluster 15 was judged by witnesses to be more than hand warm. Concerning this aspect, Roll (1977, p. 57) mentions that in only 6% of the poltergeist cases, missiles are warm to the touch. Again speculation on this warmth effect in terms of 'teleportation' should be weighed against a more prosaic explanation in terms of Çetin having kept the stone in his hand for some time, thereby heating it up (although contradicting this explanation, is Wies's statement that no one in the room behind her, including Çetin, was in a position to throw the stone).

Concerning time focussing, possible RSPK events seemed to concentrate at times of departure of 'official' persons that were involved in the case: Events were reported directly after the departure of the researchers or the hoja who paid a daily visit to the family (see events 30, 37; see also Amorim, 1990, p. 197; Rogo, 1974, p. 442).

Psychological, social, and cultural aspects

Poltergeists are a parapsychological manifestation most properly understood within the context of psychopathology and more specifically within the context of interpersonal relationships (e.g. Burger, 1973, p. 229; Roll, 1978; Rogo, 1974, p. 434; Rogo, 1982, pp. 235-237). When RW and JG arrived at the house, Çetin was pointed out as the person around whose presence 'the ghosts manifested themselves' (a phrase used by the family that seemed to have no further consequences for the way the family handled and understood the events). It soon became clear that step-mother Saime and step-sister Gülseren were more often a target for flying stones and objects than either Çetin himself, his father Rafet, or step-sister Aynur.

Rafet came to Holland in the early seventies. After his first job, he went to work in a pork-butcher's shop; a change that is not easily reconcilable with his religious beliefs (pigs being thought of as 'unclean' in Islam). He met a woman of Turkish origin, F., with whom he lived; again a problematic situation conflicting with his marriage (his wife, Saime, was still living in Turkey). Çetin was born out of this relation; at the age of one he was taken to Turkey by F., who re-emigrated.

Çetin had a problematic youth. He was not allowed to play outdoors, as his mere presence posed a problem for his unmarried mother. His final year in Turkey was spent in a boarding school based on strict Islamic rules. It seems that Çetin had known little freedom before he went to Holland. About two weeks after his arrival in Holland, Rafet developed a heart condition. This might be related to his contradictory feelings: a father wishing his son to be part of his family, traditionally an important asset in an Islamic community, but a reunion that may give rise to much gossip within that community.

Three weeks before the start of the events reported here, Saime and Gülseren had departed for Turkey to arrange for the matter of Gülseren's marriage. During that period Çetin, in Holland for eleven months by this time, received more attention and affection from Rafet. Also during this period, Rafet was admitted to a hospital for a two-day treatment of his condition. The first occurrence of the strange phenomena was three days after the return of Saime and Gülseren.

By this time Çetin was probably engrossed in mixed emotions. His stepmother and stepsister had just returned from Turkey, the land he regarded with nostalgic feelings. Also, their return brought to an end his relatively privileged situation, being again forced to share Rafet's attention. And then again the nature of Çetin's feelings

towards his father may have been ambivalent in the sense that during the absence of Saime and Gülseren, his father, the single most important person in his life (who nevertheless in the past has abandoned both him and his biological mother), was taken into a hospital with a condition that, from Çetin's perspective, might be related to his presence.

Complicating the matter even further, is Çetin's confusion in his relation towards his half-sister Aynur almost of the same age. From an outside point of view, Aynur is the strongest person in the family; she is attractive, she is 'westernised' and fulfils the role of contact between the family and the Dutch community. This contrasts with Çetin's position as a man, which is important in itself within Turkish tradition. As well as this, there is the fact that Çetin lived his childhood in Turkey for the greater part isolated from women. All in all, Çetin's feelings towards Aynur may have been coloured by contrasts like attraction versus rivalry. This would be consistent with the observation that during the events Aynur was scarcely hit by stones or objects. Perhaps a more speculative reflection of this strained relation lies in the data of the PK tests, which indicate that Çetin's irregular extreme runs show a significant positive deviation, while Aynur, sitting near Çetin most of the time during the runs, obtained scores significantly below chance.

A year after his arrival, Çetin finds himself in the middle of a complex family situation in a society that is permissive to an extend he hasn't experienced before, having left behind a trusted and yet unpermissive world. Such a description of his psychological context fits with Roll's observation that in 62 % of the reported RSPK cases in which the 'medium' is aged younger than 18, s/he is away from home (Sargent, 1982).

Independent of the Parapsychological Institute, an Islamic priest, a "hoja", was called in by the family for assistance. The hoja organised a prayer ritual with exorcistic connotations which involved all members of the family. Praying took place at the house during seven consecutive days, a period at the end of which, so it was claimed, the phenomena would cease to occur. In fact it took three days longer, which makes it unclear whether the ritual was successful and, if it was, whether this was due to a certain 'exorcistic' effect or should be attributed to mere psychological 'expectancy effects'. We can be certain, however, that the regular visits of an Islamic dignitary will have boosted Çetin's status as well as satisfying his need for attention (e.g. Hess, 1988b). Also, the presence of the venerable hoja may have inhibited any RSPK effects; an inhibition that is cancelled the moment that the hoja leaves the house which is precisely when, according to some witnesses, some of the strongest events took place.

Two interpretative models suggest themselves: individual-centred RSPK in terms of parapsychological 'mechanics', and on the other hand, the 'activity' of entities, ghosts or demons within a traditional religious perspective. Considering the latter model, the fact that Çetin has attended an orthodox Islamic school would certainly be consistent with the ritual value of stoning as punishment in Islamic tradition. Given however the fact that no other phenomena confirming the ghost hypothesis were registered (e.g. voices and appearances), it would seem that the specific form of RSPK is not totally determined by a religious framework of interpretation. To generalize these notions, we would like to speculate that (given that

the nature of psi is in principle anomalous) modelling, experimentation, and categorisation of psi can take on any of an infinite number of metaphorically based forms. We would therefore like to question the value of any model devised to identify 'the' cause of RSPK (see also Hess, 1988a), since any answers that come up will have the status of abstractions with only a temporary, paradigm-bound value. Concerning the two models suggested above, we doubt the value of a reductionist, competitive stance and propose an alternative approach in which such models have to complete each other to reach an integrated understanding (see e.g. Feyerabend, 1975).

Due to the conspicuous presence of the police, the neighbourhood got wind of the curious phenomena that were taking place, and a crowd (often more than 100 people) was gathered in front of the house for most days during the relevant period. Whenever the family members were frightened by an anomalous phenomenon, they ran out of the house and were able to mingle and feel save in the crowd. They also allowed the (inquisitive) public to enter their house, a decision that may have stemmed the possible social unrest that could have grown in this situation, given the sometimes difficult position of immigrants combined with rumours of 'creepy ghosts'.

Radio, TV, and newspapers journalists tried to force their way into the house. Instructed by the researchers, the family kept them and the crowd at bay, as well as the many self-proclaimed psychics who offered their services and some of whom, after their services were declined, expressed to the media their sometimes ridiculous and irresponsible opinions on the case. The presence and demystifying work of the researchers may have had a therapeutic effect on the psychosocial system in which the phenomena occurred (Bayless, 1967; Eisenbud, 1972, pp. 27-41; Gerding et al., 1989, p. 25; Hashizume & Marinho, 1977; Rogo, 1974, p. 422; Thurstone, 1954). It may also have released the tension of the crowd somewhat (Burger, 1973, pp. 228, 229) and have facilitated Çetin's return to school.

Mischief and fraud

The case of external, hidden fraud would implicate vandalism specifically directed against the family. An argument against such an explanation is that it leaves several phenomena unexplained, especially those that took place indoors. Moreover, a hypothetical outside perpetrator in order for a 'normal' explanation of clusters 9, 10 to be valid, would have had to follow a police car, then park and hide in time and be nearby enough to throw the sand falling exactly on police officer De Haas's head, thereby repeating the phenomena that took place during the ride. (This would suggest a conspiracy of at least two persons including Çetin).

Instances of internal fraud on the other hand are frequently observed in RSPK cases. Gauld (1979) proposes the differentiation of total and imitative fraud, the latter of which can either be open (with the RSPK person openly and playfully imitating the phenomena) or hidden. A number of the events in this case can be accounted for by hidden imitative fraud. One researcher saw Çetin throwing the lid of a teapot while standing in the kitchen, and five other witnesses independently declared to have seen Çetin throwing stones and pretending this to be RSPK; we even discovered one such case afterwards while checking the video tapes. Still, Çetin has repeatedly been frisked: twice by a teacher, once by the police, at least four times by his father, and

once by a researcher, and on none of these occasions was he caught carrying stones or sand.

Imitative fraud is consistent with the psychological situation of Çetin within the family, which to our thinking contains sufficient motivation for Çetin to upset and do damage to the household. Aside from the relevant family dynamics, a further unconscious motive might be found in the attention-seeking nature of some of the outbreaks, which like neurosis, thereby yield 'secondary gain' (Owen, 1964, p. 387). For Çetin, this may have been, in becoming the centre of interest with even the hoja, the press and researchers attending. Consistent with this view, are the video-tapes which show Çetin to be specially 'camera-conscious' and relaxed, given the irregular situation. Of course, being camera-consciousness is necessary for Çetin to check his environment and prevent exposure.

In short, it remains unclear as to what extend the total of the reported phenomena has to be accounted for by imitative fraud. From a psychodynamic point of view, such a question does not arise, since imitative fraud and genuine RSPK would both function as symbolic acts having the same effects of gaining attention and releasing hostility towards the other family members (e.g. Hess, 1988; Rogo, 1974). The question of genuine RSPK seems to be relevant for a parapsychological verificationist, but then again that stance is not without alternatives: From a more 'magical', Batcheldorian point of view and questioning the philosophical assumption of an objective reality, we may not altogether be able to differentiate a genuine RSPK component and determine the percentage of fraud (e.g. Batcheldor, 1984). We were reminded of the words of Gauger (1979): "Again one wonders at the intelligence and elegance, with which these phenomena withdraw themselves from verification and falsification. The 'inter-existence' ('Zwischenexistenz') of many paranormal phenomena does not only consist in their observational indeterminance, but also in their indeterminability within a system of yes-no-logic."

Assuming that we did not deal with a conspiracy encompassing the family, friends, neighbours, and the police (including even us?), the most plausible conclusion is that some of the events that took place are possible indications of real RSPK. Although the results of the field RNG and the PK tests show some evidence for RNG-PK and seem to correspond to our hopefully prudent conclusion, we must be sure not to forget that these results are still marginal and exploratory.

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Perceptual-Personality Characteristics Associated with Naturalistic Haunt Experiences

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Abstract: Motivated by previous suggestions in the literature, we addressed the relation between haunt experiences and Paranormal Belief (New Age Philosophy and Traditional Paranormal Beliefs), Participant Expectation, Transliminality, Hypochondriasis, Synesthesia, and Hyperesthesia in a substantial subset of participants (N =134) who visited Edinburgh's reportedly haunted South Bridge Vaults during a recent field study of this commercially-oriented site. The seven perceptual-personality variables significantly distinguished experients and non-experients. Multiple regression analyses indicated that scores on Participant Expectation and New Age Philosophy weakly but significantly predicted the number of reported experiences, whereas Participant Expectation and Hyperesthesia weakly but significantly predicted the number of different categories of experience. Post hoc analyses suggested that Transliminality facilitated both of these processes. Our findings are consistent with the notion that some haunts comprise two distinct classes of phenomena that may have different sources—Psychological Experiences that are grounded partly in psychophysiological mechanisms, and Physical Changes which are perceived in part due to cognitive and motivational biases on the part of the experient. We speculate that the two classes of haunt experience yield a unidimensional Rasch hierarchy due to a cognitive labeling process regulated by belief in the paranormal. It can be argued that the generally weak effects suggest that perceptual-personality variables play only a minor mediating role in the detection and perception of haunt stimuli or that they reflect the methodological shortcomings of the present study. Accordingly, the limitations and weaknesses of this study are discussed and an improved research design is outlined.

Many people worldwide report inexplicable experiences of apparitions, sounds, smells, sensed presences, bodily sensations, and physical manifestations in the environment (Haraldsson, 1985; Ross & Joshi, 1992). Parapsychologists refer to these phenomena as a *haunt* when they are site-specific, although cultural names and theories for these outbreaks vary widely given that experients often interpret these experiences according to their beliefs and prevailing worldview (see e.g., Puhle, 2001). Indeed, most authorities agree that haunts involve a complex mosaic of sociocultural, physical, and psychological variables (for an overview, see Houran & Lange, 2001b). What is not known, however, is the extent to which these variables explain haunt experiences. Detailed studies are needed in order to make progress in

this respect. Cases that are easily accessible and seem promising for study are therefore given priority by field researchers, regardless if the site has been highly publicized by folklore or media attention.

Three basic methodologies define much of the empirical literature on haunts: (1) large-scale studies of the psychological background of experients and the content of their experiences, (2) participant-observation studies that test whether experimentally-blind participants and objective instrumentation corroborate witness reports, and (3) attempts to induce haunt experiences in experimental subjects under laboratory conditions or in naturalistic settings. Recently, Wiseman, Watt, Stevens, Greening, and O'Keefe (in press) integrated these three methodological approaches within a single design to systematically investigate physical and psychological variables involved in haunt experiences. Consistent with Lange and Houran's (2001) psychophysiological model derived from attribution theory, Wiseman et al. (in press) concluded that the haunts they studied did not represent evidence for paranormal activity, but were instead the result of people responding to and interpreting conventional stimuli in their surroundings. These findings advance the notion that these experiences are not purely imagination. Rather, haunts may reflect an interaction between external factors in the environment and the experient's psychological structure and/or perceptual biases and needs.

Psychical research has traditionally focused on defining the external factors (paranormal vs. conventional stimuli) to which experients are responding, but it is also important to isolate what psychological characteristics facilitate the perception of these stimuli. In this way, we may gain insight into what is stimulating haunt experiences—at least in some cases. Accordingly, this paper complements the report by Wiseman et al. (in press, Experiment Two). Additional psychological data on a substantial subset of their participants was obtained, enabling us to examine posited relationships between naturalistic haunt experiences and specific perceptual-personality variables that are hypothesized to facilitate people's sensitivity to internally and externally-generated stimuli—and hence—anomalous experiences.

Perceptual-Personality Variables and Haunt Experiences

Haynes (1986) suggested that people have different thresholds for experiencing apparitions, similar to differences in pain thresholds. Recent research on the concept of transliminality provides some support for this basic view. Transliminality is the "hypothesized tendency for psychological material to cross thresholds into or out of consciousness" (Lange, Thalbourne, Houran, & Storm, 2000b, p. 594). This construct was already anticipated as early as William James (1902/1982) and Myers (1903), but it was only recently given empirical definition and measurement by Thalbourne (1998) in terms of a 29-item true/false scale. The psychological material crossing into conscious awareness involves large amounts of imagery, ideation, and affect which might derive from enhanced interconnectedness among primary and secondary sensory areas and/or sensory association cortices and frontal-cortical loops (Thalbourne, Houran, Alias, & Brugger, 2001).

High scores on transliminality consistently correlate with experiences of apparitions and kindred phenomena (Houran, Ashe, & Thalbourne, in press; Houran &

Thalbourne, 2001a; Thalbourne, 1998), which suggests that experients possess an "encounter-prone" trait. However, transliminality may function as a state variable as well, particularly when the situational context is conducive to the production and experience of large amounts of imagery, ideation, and affect (Houran & Thalbourne, 2001b).

One such powerful situational context is expectation. For instance, approximately one hundred years ago, Slosson (1899) studied the spatial-temporal spreading of ambiguous perceptions among groups of observers. During a classroom demonstration Slosson poured perfectly odorless distilled water over a cotton ball and led students to believe that it was a chemical with a strong odor which nobody had ever smelled before. He asked them to raise their hands as soon as they got aware of the odor. Slosson described how, within fifteen seconds, most persons sitting in the front row had raised their hands. Whether as a consequence of peer pressure or of genuine olfactory hallucinations (or both), students sitting towards the back of the room gradually indicated awareness of the odor, and within a minute about three quarters of the observers had raised their hands.

More recently, O'Mahony (1978), in the course of a television program about the chemical senses, told viewers that recent research would allow smells to be transmitted by sound and that on sending a particular tone viewers would be able to "synesthetically" experience an odor. Because the television program (along with a parallel radio version) was broadcast in the late evening, viewers were told that the tone chosen would not correspond to any smell typically present in average households at that time of day. Rather, they were lead to expect a "pleasant country smell." Viewers were asked to communicate their experiences by phone or in writing, irrespective of whether the transmission was successful. After sending a tone (a standard Dolby tuning sound) of ten seconds duration, a total of 179 listener reports were received within the next 24 hours. While 24 individuals reported that they had not smelled anything, 155 people reported a variety of odors, mostly of hay, grass, leaves or fruit. In addition, some attributed one or more of the following effects to the experimental sound: sneezing, sudden clearing of the nose, attacks of hay fever, vibrations across the bridge of the nose. Similar mechanisms may play a role in some haunts. In particular, the suggestion that a particular environment is associated with unusual experiences has likewise been shown to induce physical complaints, physiological alterations, and hallucinations (Lange & Houran, 1997; Orne, 1962). Furthermore, there is evidence that hallucinatory experiences occur more frequently under periods of stress or when people are exposed to environments that either are lacking in stimuli or are noisy (Slade & Bentall, 1988). The work of Bentall (1990, 2000) should be consulted for more detailed discussions of these issues.

Priming people to expect paranormal phenomena may be one way of inducing an attentional bias to kinesthetic or psychosomatic phenomena, but Windholz and Diamant (1974) were among the first to report that believers in the paranormal tend to score highly on measures of hypochondriasis and neuroticism (i.e., propensities toward a subjective state of suffering). Others have since reported similar associations between paranormal belief/experience and neuroticism (e.g., Sebastian & Mathew, 2001; Thalbourne, Dunbar, & Delin, 1995), somatic complaints (Sebastian & Mathew, 2001; Wickramasekera, 1986, 1989), and even panic attacks (Thalbourne & Fox,

1999). These findings sit well with Lester, Thinschmidt, and Trautman (1987) who found that paranormal belief is stronger in those who emphasize feeling over thinking, perceiving over judging, and intuition over perception (for similar findings related to experients of psychomanteum apparitions see: Arcangel, 1997). Consequently, it is not surprising that some authors have likened haunts and poltergeists to episodes of contagious psychogenic illness (Lange, Kumar, Thalbourne, & Lavertue, 2002; Lange & Houran, 1998, 1999) or so-called environmental illnesses (Jawer, 2000) such as "sick building syndrome." Either of these views might predict that haunt experiences are positively related to hyperesthesia, a heightened sensitivity to environmental stimuli. This prediction recently received some support from Houran et al. (in press) who found a significant positive relationship between hyperesthesia [as measured by the Sensitivity subscale of Hartmann's (1991) Boundary Questionnaire] and self-reported apparitional experiences.

Interestingly, the study of apparitions led to the concept of waking dreams and metachoric experiences (Green, 1990), which Werner (1948) regarded as examples of syncretic cognition. Syncretic cognition entails an undifferentiation of perceptual qualities in subjective experience, such as synesthesia (cross-modal experiencing), structural eidetic imagery, and psychological absorption. Therefore, apparitions might represent the experiential blending together of sensations, cognitions and emotions. Anthropologists Ember and Ember (1988) envisioned such a process to account for ghosts:

> There are many cues in everyday experience that are associated with a loved one, and even after...death those cues might arouse the feeling that the dead person is still somehow present. The opening of a door, the smell of tobacco or cologne in a room, may evoke the idea that the person is still present, if only for a moment. Then, too, loved ones live on in dreams. Small wonder, then, that most societies believe in ghosts (p. 420).

Consistent with this view, Glicksohn and colleagues (Glicksohn, Salinger, & Roychman, 1992; Glicksohn, Steinbach, & Elimalach-Malmilyan, 1999) have repeatedly found that synesthesia is related to eidetic imagery, which in turn has been implicated in some apparitional experiences (e.g., Martin, 1915; Osis, 1986). Similarly, Jacome (1999) reported in a recent case study that a woman diagnosed with multiple sclerosis and temporal lobe epilepsy experienced general hallucinations and Lilliputian imagery with synesthetic components. However, discussions of synesthetic-like experience in the context of psi phenomena have appeared infrequently in the literature (e.g., Alvarado, 1994; Irwin, 1985a, Chapt. 8; Irwin, 1999, pp. 238-240; Hunt, 1995; Irwin, 2000; Ring & Cooper, 1999; Sako & Homma, 1997; Zingrone & Alvarado, 1997).

Lastly, it is important to mention that belief in the paranormal can also be conceptualized as a perceptual-personality variable. There are at least two explanations for how this accounts for the positive relationship (Houran, 2000; Houran & Thalbourne, 2001a; Kumar & Pekala, 2001) between paranormal belief and actual haunt and poltergeist experiences. Kumar and Pekala's (2001) review of the literature indicates paranormal belief is associated with a myriad of hypnosis-related attitudes and behaviors. Perhaps this means, as found by Irwin (1985b), that experients have a

marked need for psychological absorption. These findings may also underscore the role of paranormal belief as a cognitive or motivational bias in individuals who are faced with information or situations that are ambiguous or uncertain (Lange & Houran, 2001). Indeed, Lange and Houran's (1998, 1999) path analyses consistently suggested that - contrary to the model reported by Lawrence, Edwards, Barraclough, Church, and Hetherington (1995) - paranormal beliefs elicit paranormal experiences, rather than vice versa.

It follows from this view that some believers in the paranormal tend to interpret paranormal phenomena and information only in the context in which they are presented (Snel, van der Sijde, & Wiegant; 1995; Wiseman, Greening, & Smith, submitted). For example, curious things happen when naïve subjects observe staged 'paranormal' demonstrations. Proponents of psychic phenomena ("sheep") tend to rate the demonstrations as more paranormal than disbelievers ("goats"), and these beliefs can persist even *after* debriefing (French, 1992; Smith, 1992; Wiseman & Morris, 1995). Apparently for some people, the paranormal is the preferred explanation even when such beliefs conflict with the empirical evidence that is available (Krippner & Hastings, 1961).

However, the consistently strong relationship between paranormal belief and paranormal experience can be interpreted in other ways. Gertrude Schmeidler (Schmeidler, 1952; Schmeidler & McConnell, 1958) demonstrated that attitudes affect putative psi performance. In particular, she established the trend for "sheep" to score above mean chance expectation on ESP tests and for "goats" to score significantly below chance level. Schmeidler (Maher & Schmeidler, 1975; Moss & Schmeidler, 1968; Schmeidler, 1966) later applied this basic idea to investigations of haunts. She had experimentally-blind "sensitives" and later control groups visit reportedly haunted sites and mark floorplans where they perceived anomalous phenomena. Significant relationships were obtained between the areas marked by the sensitives and the areas indicated by previous witnesses. Additional studies using this methodology have similarly yielded robust effects (for a review see: Maher, 1999).

In summary, psychological and parapsychological studies suggest that Expectation, Transliminality, Hypochondriacal-Somatic Tendencies, Hyperesthesia, Synesthesia, and Belief in the Paranormal should facilitate self-reported haunt experiences. Testing this hypothesis was the main objective of this research, although we were also interested in replicating Houran and Lange's (2001a) finding that haunt and poltergeist-like phenomena form a unidimensional hierarchy of events.

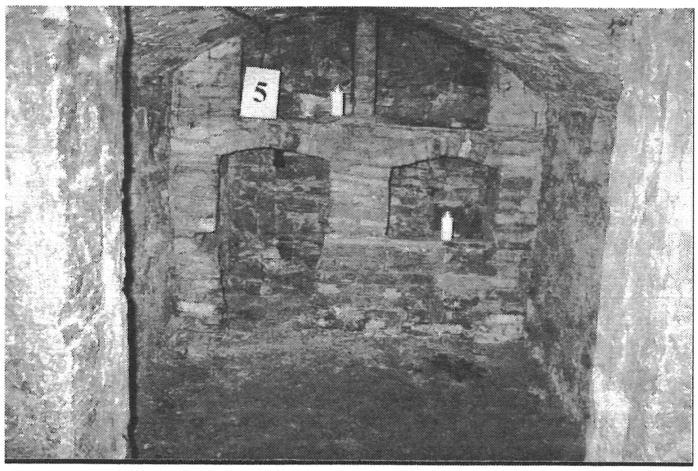
Background on "The Edinburgh Ghost Project" and the Aims of the Present Research

Experiment Two from Wiseman et al. (in press) was conducted in part of the South Bridge Vaults in Edinburgh, Scotland. Edinburgh's South Bridge was constructed in the late eighteenth century to ease transportation problems in the city. The Bridge consisted of nineteen huge stone arches supporting a wide road lined with several three-story buildings. A series of "Vaults" (small chambers, rooms, and corridors) were built into the Bridge's arches to house workshops, storage areas, and accommodation for the poor (Henderson, 1999). However, ineffective water proofing

and overcrowding meant that by the mid-nineteenth century the Vaults had degenerated into a disease-ridden slum. The area was abandoned during the late nineteenth century, but rediscovered and opened for public tours in 1997. Today, the Vaults may be described as having variable lighting (some areas have dim but electric lighting while others are only illuminated with candlelight), musty and/or damp in areas, uneven dirt flooring, generally cool in temperature, and with minimal ventilation (see Fig. 1 and 2).

Figure 1. Test Vault #1, a large area with a relatively high ceiling and illuminated with both electric and candle light. The authors learned after the study that this Vault was ranked as the third "most haunted" area of the test sites. (Photograph by J. Houran)

Figure 2. Test Vault #5, a small room with a relatively low ceiling and illuminated only with candlelight. This test area was typical of the other chambers in the Vaults, and the authors learned after the study that it was ranked as the third "least haunted" area of the test sites. (Photograph by J. Houran)



During some of the tours, both members of the public and tour guides have experienced many unusual phenomena, including a strong sense of presence, visual apparitions, and phantom footsteps (Wilson, Brogan, & Hollinrake, 1999). Popular books and television documentaries have disseminated these accounts potentially worldwide. As a result, the Vaults have acquired a local and perhaps international reputation for being one of the most haunted parts of Scotland's capital city. This fact might call into question the legitimacy of this case or any experiences subsequently reported by those exposed to these initial reports. Nevertheless, the second author was impressed with the sincerity of the first-hand testimony from the tour guides. Thus, this site was deemed worthy of investigation even though it could be argued that this case is too new to warrant being regarded as a haunt with typical features, such as a long history of similar experiences (shared by two or more people simultaneously) reported by independent parties with no advance knowledge of the case.

"The Edinburgh Ghost Project" was part of the International Edinburgh Science Festival (April, 2001). The project was advertised in the festival's program and in many local newspapers. Those interested in participating in the study telephoned the festival's box office to purchase tickets for a certain time. These self-selected participants took part in one of six daily sessions held over the course of four days (two separate weekends). Each session involved a maximum of ten people.

The first part took place in a private function room close to the Vaults. Participants arrived at the time predetermined by the box office, sat down on a row of chairs, and listened to a brief introduction. Face Sheets asking about demographics (age, gender) were attached to clipboards that were randomly arranged on these chairs, and participants were allowed to choose their own seats. The Face Sheet also contained a number that corresponded to a specific Vault the participant would later visit. Thus, this procedure was meant to randomize the participants in each session across the ten Vaults. The ten Vaults were ranked according to the number of previous experiences associated with them as reported by tour guides and visitors (this ranking is later referred to as the 'haunted order'). Accordingly, there were five "active" or target Vaults and five "inactive" or control Vaults. The Mercat Tours company operates the South Bridge Vaults, and one of their senior employees performed this ranking. We were blind to this ranking, and all experimenters were blind as to the participants' responses on the Face Sheet.

At the start of the experiment, the second author briefly outlined the purpose of the study, and then asked participants to complete the questions on the Face Sheet. Among these questions was an index of the participants' expectations of having an experience during the session: "Do you expect to experience any unusual phenomena in The South Bridge Vaults today?" This index of Participant Expectation had five response options: Definitely Yes (scored 2), Probably Yes (scored 1), Uncertain (scored 0), Probably No (scored -1), and Definitely No (scored –2). We also asked participants to rate their Prior Knowledge about the South Bridge Vaults before taking part in the session: "Have you heard (e.g., from acquaintances, television programs or newspaper articles), *where* in The South Bridge Vaults people have reported experiencing unusual phenomena?" This question had three response options: Yes (scored 1), Uncertain (scored 0), and No (scored –1). Participants were informed in writing that their responses were confidential.

As part of the participants' informed consent, it was made clear that anyone could terminate their participation in the study at any time without penalty. Indeed, several people declined to participate further after the second author outlined the protocol due to their apprehension about having an experience in the Vaults. The Face Sheet data from these individuals and those few who did not show up for the study were excluded from the database. There was no difference in the distribution of active/inactive sites between participants and drop-outs. For those participants who remained to complete the study, several experimenters were available for assistance and counseling in the event that participants became anxious or otherwise upset during the proceedings.

Mercat Tours required that one of their employees facilitate the basic operation of the sessions due to safety and legal issues. This assistant experimenter was blind to the participants' responses on the Face Sheet, but it must be pointed out that this assistant experimenter had extended contact with the participants as well as detailed knowledge of the previous haunt reports. Thus, there is a serious risk of verbal or nonverbal cueing from this assistant experimenter to our participants. Possible advance (if unconscious) knowledge, including other forms of cueing, is always a serious concern in investigations of publicized cases. This is a severe limitation of our protocol, and one that exists to one degree or another in other published investigations (see e.g., Maher, 2000; Maher & Hansen, 1995). The second author and this assistant experimenter discussed the issue of cueing, and it was agreed that the assistant experimenter would neither provide any information to the participants or other experimenters nor allow participants to talk among themselves throughout the study.

The assistant experimenter escorted each participant individually to his or her assigned Vault, while other assistant experimenters monitored these actions to help guard against cueing. Participants were given exactly ten minutes to spend alone in their assigned Vault, during which the participants were instructed to spend a few minutes quietly standing in their area, and then document in narrative form any unusual experiences no matter how faint they might be. The assistant experimenter then escorted the participant from the Vault. After returning their Face Sheets to the assistant experimenter, participants were given a packet containing additional instruments to complete and mail back to the second author, who subsequently collated the packets for the first author to analyze. Most packets were returned within two weeks, and all were returned within four weeks.

Validity issues with post hoc testing are always a concern, but we want to emphasize the possible advantages of this approach in relation to the present study. Time restrictions prevented us from administering all of the measures (described below) at the same time. However, the strong context effects associated with our procedure could have significantly distorted participants' responses to these psychological tests if we had done so. For instance, skeptically-minded participants could have over-endorsed items that entailed a conventional explanation for anomalous experiences, whereas strong believers in the paranormal might have under-endorsed the same items for similar reasons.

Furthermore, state factors imposed by our proceedings likely would have influenced the participants' responses to some of the psychological tests, such as the Revised Transliminality Scale (for a discussion of this, see Houran & Thalbourne,

2001b). Therefore, administering the tests in a large group format either immediately prior to or immediately after the experimental sessions could have encouraged serious response biases. To minimize these artifacts we opted to have participants complete the psychological tests on their own and return them as promptly as possible. This approach had the added benefit of allowing participants to take their time answering the tests in a private setting, thereby further insulating respondents from experimenter expectations (Bickman & Rog, 1998).

Still, we note that our post-hoc approach was not ideal and thus limits the conclusions we can draw from this study. Accordingly, we outline a better protocol studies later in this paper for use in replicative studies.

Method

Participants

Wiseman et al.'s (in press, Experiment Two) original sample comprised 218 participants (M_{age} = 35.3, SD = 13.2, range = 11-77 yrs.; 58% women) who completed the experimental protocol described above. Of this sample, 142 packets were returned (65 % return rate), but eight of these had to be discarded due to missing information. This left the responses of 134 participants (61% of original sample; M_{age} = 34.6, SD = 12.2, range = 16-74 yrs.; 62% women) for analysis. This return rate is considered good by most standards in the social sciences (Bickman & Rog, 1998), but it is possible that there could have been a marked tendency for people to return their packet only if their experiences were consonant with their expectations. Such biases could side with either a skeptical or non-skeptical response style on the questionnaires, as we noted above. However, Table 2 below shows that the present sample can be characterized as having an average level of paranormal belief measured via Lange, Irwin, and Houran's (2000a) Rasch scaled version of the Revised Paranormal Belief Scale (Tobacyk, 1988), a low expectation of experiencing anomalies in the South Bridge Vaults, and apparently little if any conscious prior knowledge about details concerning the Vaults [M = -.81, SD = .51; Index of Prior Knowledge scores range from –1 to 1).

Materials

In addition to the Face Sheet noted above, the participants completed five measures arranged in counterbalanced order:

Revised Paranormal Belief Scale (RPBS: Tobacyk, 1988). The RPBS consists of 26 statements that are to be rated on seven-point Likert-type scales, and it is arguably the most widely used measure of paranormal belief (Goulding & Parker, 2001). This scale has been severely criticized (e.g., Hartman, 1999; Lawrence, 1995; Lawrence & De Cicco, 1997) and has acquired a terrible reputation in some circles. However, Lange et al. (2000a) showed that the long-standing controversy surrounding the RPBS' factor structure was partly due to differential item functioning, that is, sex and age bias. Once these psychometric issues are remedied via a statistical Rasch (1960) "top-down purification" procedure (Lange et al., 2000a) to properly assess the scaling properties and dimensionality of the test items, we find the RPBS comprises only two, moderately correlated belief subscales that appear to reflect different types of control

issues. Lange et al. (2000a) interpreted one as "New Age Philosophy" (NAP; beliefs that seem to instill more a sense of control over interpersonal and external events and therefore benefit individuals, e.g., psi, reincarnation, astrology) and the other was interpreted as "Traditional Paranormal Beliefs" (TPB; beliefs that are more culturally transmitted and socially beneficial, e.g., the devil, Heaven and Hell, witchcraft).

This Rasch version of the RPBS is currently the most psychometrically sound measure of paranormal belief, and several studies (Houran, Irwin, & Lange, 2001; Houran & Lange, 2001c; Houran, Thalbourne, & Ashe, 2000) provide initial support for the construct validity of two new subscales. We also note that Lange and Thalbourne (2002) recently found that the Australian Sheep-Goat Scale (ASGS: Thalbourne & Delin, 1993) is Rasch scalable as well. Moreover, belief items preceded items referring to paranormal experiences in the ASGS' Rasch item hierarchy, while the items' fit patterns provided additional support for the existence of Traditional Paranormal Beliefs and New Age Philosophy related factors.

Rasch-Revised Transliminality Scale (Lange et al., 2000b). This is a top-down purified version of Thalbourne's (1998) original 29-item, true/false scale (Form B). Twelve items from the original scale are excluded from the scoring of the test due to age and gender biases. However, the remaining seventeen test items constitute a unidimensional Rasch (1960) scale. These 17-test items, which share a common underlying dimension, span seven domains: hyperesthesia, (fleeting) hypomanic or manic experience, fantasy-proneness, absorption, positive (and perhaps obsessional) attitude towards dream interpretation, mystical experience, and magical thinking. Thalbourne (2000) recently published a comprehensive review of the correlates of transliminality, and additional data are given in Lange et al. (2000b).

Synesthesia. This index consists of seven true/false items constructed by Tellegen as a result of factor analysis of his Absorption Scale (Tellegen & Atkinson, 1974). The alpha was .68 in a study of 295 students (further analysis of Thalbourne, 1998), and .76 in another study of 115 people from the general population (further analysis of Thalbourne, Bartemucci, Delin, Fox, & Nofi, 1997, Study 5). Representative items include, "Different colors have distinctive and special meanings for me", "Sometimes I can change a noise into music by the way I listen to it", and "I find that different odors have different colors." We cautioned elsewhere (Thalbourne et al., 2001) that rather than measuring synesthesia as defined in rigid neurological terms, this scale likely addresses forms of "pseudosynesthesia" as well, e.g., artistic metaphor and experiencing synesthesia through drug use. However, some authors (e.g., da Costa, 1996; van Campen, 1999) argue that synesthetic-like experience can include strong emotional components, and similar to Ember and Ember's (1988) view of ghosts, there is evidence that imagery contextualizes emotion (Kunzendorf, Hartmann, Thomas, & Berensen, 1999-2000). That is, symbolic imagery stands for objects of emotion that are no longer present but are not necessarily unconscious. Therefore, Tellegen's Synesthesia Scale is perhaps best regarded as a measure of "weak" synesthesia, which pertains to cross-sensory correspondences expressed through language, perceptual similarity, and perceptual interactions during information processing (Martino & Marks, 2001).

Hyperesthesia. This measure is taken from Thalbourne (1996) and consists of six true/false items. These items reflect strong reactions to environmental stimuli and were chosen mainly from the MMPI and the Perceptual Aberration Scale. The alpha was .63 in one study of 99 students (further analysis of Thalbourne, 1996), and .62 in another study of 298 students (further analysis of Thalbourne, 1998). Three of the test items overlap with items on the Revised Transliminality Scale, so we excluded these items from the scoring of the present scale. Thus, hyperesthesia was indexed by the following three questions: "Ordinary colors sometimes seem much too bright to me (without taking drugs)", "My hearing is sometimes so sensitive that ordinary sounds become uncomfortable", and "At times I hear so well it bothers me." We note that these questions are limited to aspects of visual and acoustic hyperesthesia, but these varieties are well recognized in the field of neuroscience (see e.g., Bohnen, Twijmstra, Wijnen, & Jolles, 1992).

Whiteley Index (Pilowsky, 1967). This 14-item true/false test is one of the most commonly used and psychometrically-sound self-rating scales for hypochondriacal tendencies. Representative items include, "Are you bothered by many pains and aches?", "Do you find that you are often aware of various things happening in your body?", and "Do you find that you are bothered by many different symptoms?".

Results

Patterns in the Reported Haunt Experiences

None of the assistant experimenters reported any anomalous experiences during their extensive time in the Vaults, which totaled approximately twenty-four, non-continuous hours. This included both private time before the participants arrived and after they had left, as well as during the actual experimental proceedings. By contrast, 66 participants (49%) had at least one anomalous experience during the session, with the mean number of experiences for this group being 2.36 (*SD* = 1.58, range = 1-8) and the mean number of different categories of experiences (cf. Table 1: temperature changes, auditory perceptions, bodily sensations, physical manifestations, visual apparitions/imagery, emotional responses, olfactory perceptions, and sensed presence) being 1.76 (*SD* =.88, range = 1-5). The incidence of experiences is higher than the mean of .71 (*SD* = 1.17, range 0-7) that Houran and Lange (2001a) observed for their sample of 865 people who completed the eight-item 'Poltergeist' subscale of the Anomalous Experiences Inventory (Kumar & Pekala, 2001) during a survey. Our present sample also averaged more experiences than Lange and Houran's (1997, p. 1457) sample of 11 people who toured a reputedly haunted location for approximately 30 minutes and whose anomalous experiences were facilitated via expectation and suggestion effects.

Table 1 gives the distribution of the various categories of experience reported by our sample. These categories were predefined in light of the original classification system proposed by Lange, Houran, Harte, and Havens (1996; cf. Houran, 2000). By far, most experiences involved a perceived change in temperature, sounds, or

physiological alterations, but there were a few reports of dramatic experiences such as visual apparitions or the inexplicable onset of strong emotions. One woman in particular had to be counseled by the first author while she was in her assigned Vault in order to end her session and leave the site. The woman was literally engrossed in her experiences and needed to be eased back into a normal waking state of consciousness. The first author spent some time with her afterwards as well to ensure her welfare. This particular woman regarded her session over all as a wonderfully positive experience. Other participants commented about the profound negative and positive effects of even subtle experiences[1].

As in Houran and Lange (2001a), Rasch scaling was used to obtain a linear measure of the experiences' occurrence. Specifically, the frequency with which each experience was reported was modeled as the outcome of a Poisson process. Rather than just an analysis of the categories of experience in terms of their observed frequencies, Rasch scaling assesses the psychometric scaling properties and dimensionality of a set of items (in this case the reported categories of experiences). The fit statistics shown in Table 1 indicate that this approach is a suitable one, as the infit and outfit statistics of all items fall inside the range 0.7 to 1.3. Further, as is customary in Rasch scaling (Linacre & Wright, 2000), the items' Poisson parameters were rescaled to obtain an average person measure of 0 and the adjusted δ values are shown in column 3 of Table 1. These results indicate that the experiences reported at the South Bridge vaults constituted a probabilistic hierarchy of events which was not confounded by gender bias ($\chi^2 = 7.4$, df = 16, *ns*).

The hierarchy of experiences associated with the South Bridge Vaults does not agree with the Rasch order of four other items that share similar thematic content that we reported previously (Houran & Lange, 2001a). There are many possible reasons for this discrepancy. Differences between the two studies in terms of instruments, environments, instructional sets, and implicit demands could be confounds. The discrepancy could also imply that a probabilistic hierarchy of haunt perceptions is idiosyncratic to specific environments. Nevertheless, there does appear to be some agreement regarding the sequence of general *themes* common to the two hierarchies. In both hierarchies, experiences of a more subjective nature tend to be endorsed more easily, followed by perceptions of physical manifestations, and finally the most extreme types of experiences revert back again to a subjective nature.

We cannot push comparisons and contrasts between the two hierarchies too far given the caveats noted above. Still, research is planned to test the idea that hierarchies vary according to the environment in which the experiences occur. Interesting theoretical and methodological benefits would follow from this inquiry. For example, different Rasch hierarchies might differentiate cases based on fraud, imagination, or electromagnetic activity. Thus, future work in this area might eventually yield a heuristic to guide field researchers in determining the likely cause of a given case. In this way, investigators will have a valuable tool to screen initial reports and

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[1] Readers are referred to the work of Arthur Hastings (1983; Targ & Hastings, 1987) for a discussion of how to approach paranormal experiences within a clinical context. See also Coly and McMahon (1993).

subsequently better allocate resources to the study of those cases with likely evidential value.

Table 1. Item Locations and Fit Statistics for the Rasch Analysis of the Reported Haunt Experiences (N = 134).

	%	Item Location (in logits, δ)	SE	Infit	Outfit
Temperature Changes	67.6	0.57	0.15	0.7	0.7
Auditory Perceptions	54.4	0.79	0.16	1.3	1.1
Bodily Sensations	36.8	1.18	0.20	1.1	1.0
Physical Manifestations	20.6	1.76	0.27	1.1	0.7
Visual Apparitions and Imagery	19.1	1.83	0.28	1.3	1.1
Emotional Responses	16.2	2.00	0.30	1.0	1.2
Olfactory Perceptions	11.8	2.32	0.35	0.9	1.1
Sensed Presence	8.8	2.60	0.41	1.2	0.8

Experients vs Non-Experients

Descriptive statistics (mean and standard deviation) for the independent variables are given in Table 2.

Table 2. Descriptive Statistics on the Research Measures for the Complete Sample (N = 134), Haunt Experients (N = 66), and Non-Experients (N = 68).

	Full Sample		Experients		Non-Experients	
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***
Transliminality	22.61	3.71	23.35	3.74	21.89	3.56
Somaticism	3.27	2.39	3.36	2.26	3.18	2.53
Synesthesia	3.46	1.98	3.83	2.08	3.10	1.83
Hyperesthesia	.87	1.12	1.18	1.29	.56	.82
New Age Philosophy	26.19	15.65	31.41	15.19	21.13	14.49
Traditional Paranormal Beliefs	11.55	7.35	14.18	7.38	9.00	6.41
Participant Expectation	-.52	.76	-.27	.65	-.76	.79

To assess the relation between the perceptual-personality variables and the occurrence of haunt experiences, a standard logistic regression analysis was performed

with Participant Expectation, New Age Philosophy, Traditional Paranormal Beliefs, Transliminality, Somaticism, Synesthesia, and Hyperesthesia as predictors of experient status (experient vs. non-experient). A logistic regression determines which variables serve differentially to predict group membership and is especially useful when one or more of the individual predictor variables is not normally distributed (Tabachnick & Fidell, 1996), as is the case here. In a standard logistic regression analysis all predictor variables are entered simultaneously. The analysis evidenced a significant multivariate result (-2 log likelihood = 152.9, goodness of fit = 128.0, $\chi^2[7, N = 134] = 32.88$, $p < .0001$). That is, the set of independent variables predicted group membership to a significantly better degree than a model in which the difference between groups was a simple constant. We found no problems with multicollinearity of the independent variables (Tabachnick & Fidell, 1996, p. 618). A summary of the analysis is given in Table 2; this shows the regression coefficients and their standard errors, the results of Wald's test with associated degrees of freedom and level of significance, and the multivariate correlations. According to the associated classification matrix, the logistic regression equation correctly identified 70% (46 of 66) experients in the sample and 69% (47 of 68) of non-experients. The only predictor variables that independently discriminated experients from non-experients were hyperesthesia ($R = .156$, $p = .012$), Traditional Paranormal Beliefs ($R = .126$, $p = .026$), and Participant Expectation ($R = .105$, $p = .045$). It can be seen that these predictor variables explain little of the variance independently, but the *collective* effect of the seven perceptual-personality variables was a robust predictor of whether a person did or did not have an experience.

Table 3. Standard logistic regression of Transliminality, Somaticism, Synesthesia, Hyperesthesia, New Age Philosophy, Traditional Paranormal Beliefs, and Participant Expectation on Haunt Experience (Experient vs Non-Experient) (N = 134).

Variable	*B*	*SE*	*Wald*	*df*	*p*	*R*
Transliminality	-.057	.007	.534	1	.465	.000
Somaticism	-.034	.088	.151	1	.694	.000
Synesthesia	.160	.125	1.628	1	.202	.000
Hyperesthesia	.560	.219	6.498	1	.011	.156
New Age Philosophy	-.000	.020	.000	1	.988	.000
Traditional Paranormal Beliefs	.086	.039	4.931	1	.026	.126
Participant Expectation	.638	.318	4.04	1	.045	.105

Associations Among the Perceptual-Personality Variables and Their Relation to the Reported Haunt Experiences

To better understand the relationships between the perceptual-personality variables and participants' reported number of experiences and reported number of different categories of experience, we calculated the Spearman rank-order correlations (two-tailed) among all of the measures (see Table 4).

Two multiple regression analyses (forward selection method) were conducted to assess which of the seven perceptual-personality characteristics were the best predictors of the number of reported experiences and the number of different categories of experience. Two of the seven variables entered into the regression equation to predict Total Number of Reported Experiences: New Age Philosophy (beta = .22) and Participant Expectation (beta = .20). The multiple regression coefficient R was .36 (R^2 = .13, i.e., 13% of the variance was accounted for by the linear combination of the two variables) and this was significant ($F(2, 131) = 9.58$, $p <$ .001). Likewise, only two measures entered into the regression equation to predict Total Number of Different Categories of Reported Experience: Hyperesthesia (beta = .28) and Participant Expectation (beta = .26). The multiple regression coefficient R was .41 (R^2 = .17, i.e., 17% of the variance was accounted for by the linear combination of the two variables) and this was significant ($F(2, 131) = 13.22$, $p <$ .001). Therefore, these findings suggest that the number of experiences the participants reported was in small part a function of paranormal beliefs (related to situational control) combined with the expectation of experiencing anomalous phenomena. By contrast, the number of different categories of experiences participants reported was in small part a function of their sensitivity to environmental stimuli combined with the expectation of experiencing anomalous phenomena.

Based on the previous studies linking transliminality to "entity encounter experiences" (Houran & Thalbourne, 2001a; Houran et al., in press; Thalbourne, 1998), we expected that transliminality would have played a greater role in predicting the patterns of reported experiences. Besides a restriction in range of scores, one possibility for the weak effects of transliminality is that the component of hyperesthesia played a more important role than did other core constituents of transliminality. Also, it is feasible that the physical environment to which the participants were exposed contained several sources of vivid external stimuli, such as light levels exterior to the test areas, floorspace, and the height of the vaulted ceilings, which Wiseman et al. (in press) found to positively correlate with the 'haunted order' of the Vaults (rho = .74, p = .03; .73, p = .03; and .65, p = .05, respectively) and with the mean number of participants' experiences (rho = .84, p = .01; .58, p = .08; and .64, p = .05, respectively). Furthermore, it is conceivable that various areas of the Vaults could be prone to infrasound effects which are hypothesized to elicit unusual sensory experiences as well (Tandy, 2000; Tandy & Lawrence, 1998). Thus, such conditions may have produced unusual sensory effects that even participants with low transliminality could have easily experienced and subsequently interpreted as being "ghostly."

Table 4. Spearman Rank-Order Correlations Between Age, Sex, Variables Related to Haunt Experience, and Research Measures for Complete Sample ($N = 134$).

	1 Sex (female)	2 Age	3 Temp	4 Visual	5 Aud	6 Phys Event	7 Emot	8 Sens Pres	9 Bod Sens	10 Olfac	11 Sum Types	12 Sum Exp	13 Expect	14 Somatic	15 Synes	16 Hypers	17 Trans	18 NAP	19 TPB
1	-	.02	.13	-.01	-.02	-.01	.03	.14	.18*	.07	.13	.13	.04	.19*	.17*	.09	.14	.20*	.18*
2		-	.04	.05	-.00	-.04	.06	.08	.03	.12	.03	.06	-.10	-.07	.04	.01	-.03	-.03	-.12
3			-	.16	.16	.20*	-.01	.26**	.29***	.11	.69***	.67***	.24**	.03	.04	.16	.08	.20*	.18*
4				-	-.04	.02	.26**	.12	.05	-.07	.34***	.35***	.13	-.02	-.04	.28***	.13	.15	.09
5					-	.26**	-.04	-.08	-.05	.07	.46***	.53***	.13	.03	.11	-.01	.07	.10	.11
6						-	-.08	.28***	.15	-.07	.41***	.39***	.15	.06	.01	-.02	.01	.10	.09
7							-	-.05	.16	-.07	.27***	.25**	.03	.03	.06	.17*	.12	.08	.01
8								-	.06	-.04	.27**	.23**	.08	.03	-.02	.09	.04	.06	.01
9									-	.09	.48***	.45***	.23**	.12	.20*	.25**	.23**	.24**	.21*
10										-	.28**	.28**	.20*	.09	.18*	.09	.13	.13	.16
11											-	.98***	.35***	.09	.17*	.27***	.21*	.31***	.30***
12												-	.37***	.11	.18*	.25**	.22**	.34***	.32***
13													-	-.06	.11	.14	.16	.50***	.46***
14														-	.13	.19*	.22*	.20*	.12
15															-	.21*	.61***	.34***	.17
16																-	.42***	.30***	.11
17																	-	.52***	.33***
18																		-	.69***
19																			

Note. Temp = Temperature Change; Aud = Auditory; Phys Event = Physical Manifestation; Emot = Emotion; Sens Pres = Sensed Presence; Bod Sens = Bodily Sensation; Olfac = Olfactory; Sum Types = Total Number of Different Categories of Experience; Sum Exp = Total Number of Experiences; Expect = Participant Expectation; Synes = Synesthesia; Hypers = Hyperesthesia; Trans = Transliminality; NAP = New Age Philosophy; TPB = Traditional Paranormal Beliefs.

* $p < .05$ ** $p < .01$ *** $p < .001$ (this minimum significance level, determined by SPSS software, is the only one to likely remain significant given multiple analyses)

However, it is clear that while transliminality was not a prerequisite for perceiving phenomena at the South Bridge Vaults, transliminality certainly facilitated experiences. In particular, post hoc analyses revealed that participants with high scores on transliminality (N = 21) reported significantly ($t(132)$ = -2.95, p = .004, 2-tailed) more experiences (M = 2.10, SD = 2.28) than those with low to average scores on transliminality (N = 113, M = .99, SD = 1.41). Likewise, participants with high scores on transliminality reported significantly ($t(132)$ = -2.91, p = .004, 2-tailed) more different categories of experience (M = 1.50, SD = 1.44) than those with low to average scores on transliminality (M = .75, SD = .96).

Two Distinct Classes of Experience?

Persinger and Cameron (1986) distinguished two classes of haunt and poltergeist phenomena: "These events... involve measured or inferred *physical changes* such as object movements, electrical failures, or strange sounds. Reports of *psychological experiences* include "odd feelings," intelligible phrases, and sometimes the perception of human forms (p. 49, emphasis added)."

Houran and Lange (1996) also argued for such a distinction, although haunt experiences may include both of these classes. We examined the idea of two classes of experience in more detail by dividing the eight categories of experience reported by our experients into two Classes of Experience (Psychological Experiences vs. Physical Changes). Using Persinger and Cameron's (1986) classification scheme, the Psychological Experiences class comprised the summed total of visual apparitions (and related visual imagery), bodily sensations, emotional responses, and sensed presences. The Physical Changes class consisted of the summed total of temperature changes, auditory experiences, physical manifestations, and olfactory experiences. Auditory and olfactory experiences were designated as Physical Changes due to the way participants described these experiences. In other words, these phenomena seemed to reflect actual environmental stimuli available to the participants, as opposed to hallucinatory-type stimuli. For instance, the auditory phenomena primarily consisted of ambiguous sounds rather than intelligible phrases. Likewise, the olfactory experiences corresponded to natural stimuli in the Vaults.

Table 5 gives the correlations between these two classes of experience and the perceptual-personality variables. The two classes significantly correlate (rho = .21, p = .007), but only share 4% of the variance in the rank orders. Taken together with their differential relations to the research measures, the two classes of experience can be differentiated and therefore may have different sources. Psychological Experiences showed significant correlations with six (perceptual-personality traits and belief in the paranormal) of the seven variables, but statistical tests of difference on these correlations indicated that Physical Changes did not correlate as well with the perceptual-personality variables. In particular, Physical Changes only correlated to a small degree with Participant Expectation and Belief in the Paranormal. Statistical tests of difference on the correlations between the two Classes of Experience and these three variables nevertheless were non-significant.

Table 5. Tests of Differences (two-tailed) in Spearman Rank-Order Correlations Between Class of Experience (Psychological Experience vs. Physical Changes) and Perceptual-Personality Variables for Complete Sample ($N = 134$).

Variable	Psychological Experiences	Physical Changes	$t(131)$
Transliminality	.42***	.11	4.37***
Somaticism	.09	.08	0.00
Synesthesia	.14*	.14	
Hyperesthesia	.38***	.10	4.01***
Participant Expectation	.25**	.32***	.69
New Age Philosophy	.28***	.24**	.39
Traditional Paranormal Beliefs	.19*	.25**	.84

Note. No analysis was computed for Synesthesia given that the correlation coefficients were identical.
***$p < .001$ and significant given a Bonferroni correction (.05) for multiple analyses

Therefore, the Psychological Experiences label appears reasonable in that these reports were consistently more related to the perceptual-personality variables. One interpretation of this finding is that some of these anomalous perceptual experiences were partly aroused via expectation and subsequently given credence due to a belief in the paranormal (Houran & Williams, 1998). Another interpretation is that only those individuals with a high capacity for imagery, ideation, and affect had sufficiently low thresholds for perceiving ghosts or psi (Haynes, 1986).

Physical Changes were consistently independent of the perceptual-personality factors that we measured, except for the small associations with Participant Expectation and Paranormal Beliefs. Of course, future research may find that the perception of physical changes correlates with perceptual-personality variables that we did not take into account. Still, it is possible that the physical manifestations perceived by the participants were objective events in the environment. Some may argue that the lack of consistent relations between Physical Changes and perceptual-personality variables argues for a psi component to some or all of these types of experiences. However, it is also plausible that the perceived physical changes were conventional stimuli that were consistent with the physical structure and location of the Vaults but were interpreted as being 'ghostly' in part due to the influence of expectation and belief in the paranormal (cf. Houran, 1997; Houran & Brugger, 2000).

Discussion

The Edinburgh Project contributes new information to our understanding of the psychological factors attending haunt experiences at "commercial" sites. We should also reiterate that the experiences at the South Bridge Vaults were of a pseudo-facilitated nature, that is, they were naturalistic but not entirely spontaneous. Rather, people participated in this study knowing that we aimed to collect perceptions of ghostly phenomena in a location with a well-known reputation for being haunted. Under these conditions, pressures from priming and expectation likely introduced significant demand characteristics that resulted in the unusually high number of experiences that people reported compared to other studies (Houran & Lange, 2001a; Lange & Houran, 1997). As a result, it is not clear how well our findings generalize to genuinely spontaneous experiences in which such immediate cognitive and motivational biases—although perhaps present (Houran, 2000)—are apparently minimized.

Other confounding variables exist as well. For example, Wiseman et al. (in press, Experiment Two) reported that the Spearman rank-order correlation between the 'haunted order' of the Vaults and the mean number of anomalous experiences reported in each Vault was .76 (p = .02). That correlation actually increased to .87 (p = .009) when individuals with conscious knowledge of the Vaults were excluded from analysis. On the face of it, this would seem to conceptually replicate the findings from field research by Schmeidler (Moss & Schmeidler, 1968; Schmeidler, 1966) and. Maher (Maher, 1999; Maher & Schmeidler, 1975) in that witness reports are not distributed evenly throughout the location of a haunt but rather, phenomena tend to be perceived only in certain areas. However, the possibility of unintentional cueing on the part of the tour guide in the South Bridge Vaults nullifies Wiseman et al.'s (in press, Experiment Two) correlations as reliable evidence for psi. We cannot rule out that some or all of the participants responded to extrasensory stimuli (including discarnate entities) in the Vaults; nevertheless, the potential for sensory leakage from the tour guide who served as an assistant experimenter combined with the significant associations between certain environmental variables and participants' reports suggest that the experiences studied here likely derived from conventional sources. Furthermore, the physical "atmosphere" of the Vaults is consistent with environmental conditions that Slade and Bentall (1988) described as being conducive to hallucinatory experiences.

Taken together with the fact that we again found that the haunt experiences reported here conform to a probabilistic hierarchy of events, the available empirical evidence strongly suggests that some haunts derive from a systematic interaction between certain individuals and select elements in the environment. Our findings elucidate what perceptual-personality characteristics facilitate this interaction. The combination of *psychological set* (Participant Expectation and Belief in the Paranormal) and *perceptual variables* (Somaticism, Synesthesia, Hyperesthesia, and Transliminality) reliably distinguished experients from non-experients. Interestingly, these seven variables differentially predicted participants' total number of experiences and their total number of different categories of experience. Lange and Houran (2001)

argued that priming effects and belief in the paranormal induce some people to notice and give credence to ambiguous (but otherwise conventional) stimuli which include physiological sensations, cognitions, and emotions (Houran & Williams, 1998; Lange & Houran, 1997). Consistent with this scenario is the fact that only New Age Philosophy and Participant Expectation weakly but significantly predicted the number of reported experiences. Remember that New Age Philosophy is hypothesized to reflect paranormal beliefs related to a need for interpersonal control or mastery over one's environment and is a consistent correlate of haunt-poltergeist experiences (Houran & Thalbourne, 2001a; Houran et al., in press). On the other hand, a person's degree of priming (Participant Expectation) and their sensitivity to environmentally-based visual and acoustic stimuli (Hyperesthesia) weakly but significantly predicted the number of different categories of experience.

This pattern of results corresponds to previous findings (Houran & Thalbourne, 2001a; Houran et al., in press; Lange & Houran, 2001) that were not based on data collected post hoc and suggests that two basic processes are operating within this case (and maybe other cases of a similar nature as well), akin to differences between a shifting of attention and a focusing of attention (Turatto, Benso, Facoetti, Galfano, Masetti, & Umiltà, 2000). Specifically, the initial perception or detection of haunt stimuli may follow from a shifting of attention, while the content of haunt experiences may derive from a focusing of attention. What may be a further indication of multiple processes operating within some haunts is the suggestive evidence for two distinct classes of phenomena, Psychological Experiences and Physical Changes. In particular, experiences classified as psychological in nature consistently showed small but significant correlations with the perceptual-personality variables, while experiences classified as involving objective and physical events were only weakly related to priming and belief in the paranormal.

Differences in outward appearance, of course, do not preclude Psychological Experiences and Physical Changes from sharing a common precipitating source (e.g., misinterpretation, electromagnetic effects, or psi). The fact that our Rasch analyses replicated previous evidence (Houran & Lange, 2001a) for a *unidimensional* model of haunt experiences is consistent with this idea. However, we propose that there can still be different sources for the two proposed Classes of Experience (cf. Houran & Lange, 1996). Specifically, Psychological Experiences are expected to derive in part from the experient's physiology, whereas Physical Changes are phenomena caused by external, non-personal forces and are detected and given credence in part due to cognitive and motivational biases. Believers in the paranormal (especially those with beliefs indicative of a need for control over the environment) might perceptually and cognitively link these unrelated classes of experience together in a synesthetic-like fashion due to an enhanced associative network (Brugger, 2001), reminiscent of Ember and Ember's (1988) anthropological view of ghosts. This could partly explain the positive intercorrelations among paranormal belief, the number of haunt experiences, the number of different categories (i.e., modalities) of haunt experience, transliminality, hyperesthesia, and synesthesia.

Demand characteristics and priming effects would be expected to intensify these relationships, and belief in the paranormal would provide a "...cognitive framework for effectively structuring many events and experiences...so that they appear

comprehensible and thereby able to be mastered, at least intellectually" (Irwin, 1999, p. 291). Therefore the underlying dimension to our Rasch hierarchies of haunt experiences could be a cognitive-labeling process. However, the order of the particular experiences that are reported may be idiosyncratic to specific cases. Follow-up work is needed to clarify this possibility.

Although this discussion has emphasized a traditional psychological interpretation of the results drawing on the cumulative work of Lange and Houran (2001), we acknowledge that other interpretations of the findings are possible. To be sure, Haynes' (1986) idea that people have different thresholds of perceiving psi phenomena may have merit. Nevertheless, such parapsychological theories must take into account at least the facilitating role of psychological factors. In particular, the accumulated evidence from psychological and parapsychological studies using the three basic approaches to this area of research suggests to us that haunts are not solely objective, physical forces that we can easily understand independently from ourselves. Rather, we agree with Tyrrell's (1943/1953) seminal idea that experients seem to be active participants in the construction of their experiences, much the same way that characters in fictional ghost stories are complex, emergent products of the interplay between narrative design and narrative processing (Herman, 2000).

We have identified a few salient perceptual-personality characteristics from our study that may relate to naturalistic haunt experiences, but the effects sizes found in this study are modest. This could be attributable to many factors. For instance, it could argued that the weak effects imply that perceptual-personality variables have little more than a mediating role in some haunt experiences, or alternatively that haunt experiences are more strongly related to perceptual-personality traits not considered here. By contrast, a statistical perspective might posit that the lack of Rasch scaled instruments in tandem with a restricted range of scores limit the power of our analyses. Consequently, there remains substantial scope for empirical investigation concerning these variables, particularly the validation of their role in haunt experiences of a more spontaneous nature. We also need a more stringent design that takes into account other sources of possible response bias on the part of participants.

We propose a methodology similar to the one used here, but with important modifications. First, future studies would be wise to minimize artifacts related to prior knowledge and cueing by investigating cases whose details are not publicly known and which have no "commercial" connotations associated with them. A large sample of participants then could be identified in advance and divided randomly into quarters. In this way a quarter of the psychological tests can be distributed long in advance of the sessions, a quarter immediately before the sessions, a quarter immediately following the sessions, and a quarter long after the sessions. The participants should not have any advance knowledge about the sites, and all on-site experimenters should be experimentally blind as well. The trends and ideas reported in this paper would have greater validity if they can be confirmed under these conditions and replicated across many haunt cases. This line of inquiry would also inform both psychological and parapsychological theories. Ultimately both perspectives seek to answer the really exciting question of what remains of haunt experiences once the psychological trappings are removed.

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Intuitive versus Reflective Processes in the Formation of Paranormal Beliefs[1]

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Abstract: Sperber (1990) proposed a dichotomy of beliefs according to their mode of formation. Intuitive beliefs are deemed to involve a spontaneous, nonverbal or "commonsensical" inference from perceptual input, whereas reflective beliefs additionally entail an attempt to validate the inference through explicit (conscious) reasoning. This study sought to explore the application of Sperber's model to the formation of paranormal belief. Specifically, it examined relationships between facets of paranormal belief and habitual information processing styles. A survey of 220 adults from the general Australian population revealed that paranormal beliefs were predicted by an intuitive-experiential style of information processing. The findings are discussed in relation to the cognitive bases of the formation of paranormal belief.

Over the past three decades considerable research effort has been devoted to the determination of psychological correlates of paranormal belief in an endeavour to clarify the origins and functions of such beliefs. In this context particular attention has been given to personality variables, given that these hold the potential for illuminating the psychodynamic aspects of paranormal belief or *why* such beliefs are endorsed (for a review see Irwin, 1993, 1999). Insight into the formation of paranormal beliefs, or *how* paranormal beliefs come to be endorsed, nevertheless requires greater attention by researchers to cognitive or information processing correlates of these beliefs. In this light the present study sought to examine relationships between factors of paranormal belief and preferred styles of information processing.

The conceptual framework for the study was provided by Sperber's (1990) model of belief formation. Sperber proposed a fundamental dichotomy between *intuitive* and *reflective* beliefs that may be defined by their different modes of formation. Each of these types of belief will be described in turn.

Intuitive beliefs are formed through "spontaneous and unconscious perceptual and inferential processes" (Sperber, 1990, p. 35) or what Goode (2000) described as an everyday or "commonsensical" style of cognition. On the basis of mundane perceptual experiences a person sometimes will make an unconscious inference about the nature of the world. Subsequent verbal formulation of this inference may well be informed by concepts and other relevant background acquired through the media, communication with others, and similar sociocultural sources, but the initial inference is fundamentally intuitive (subconscious and nonverbal). By way of illustration, it can be speculated that the cognitive processes underlying intuitive beliefs may be integral to a familiar context for the formation of a belief in telepathy. While thinking of a long-lost friend a person may unexpectedly receive a phone call from that friend,

unconsciously infer the occurrence of direct mind-to-mind contact, consciously realise that this experience is what people call "telepathy", and henceforth embrace a belief in telepathy. The unconscious nature of the inferential process in intuitive belief formation nevertheless creates opportunities for logical flaws in such beliefs (Kahneman & Tversky, 1972); as Goode (2000, p. 55) remarked, "common sense often works, but its wisdom is highly fallible". Thus, in the above example the inference of direct mind-to-mind communication is commonsensical but could also be erroneous; the facts of the case might have been due to coincidence, synchronicity, an error of memory, or any of several other factors (Irwin, 1999).

Under Sperber's (1990) dichotomy *reflective* beliefs generally are based on intuitive inferences but they involve an additional reflective process whereby the inferences are validated through explicit (conscious) reasoning and in light of independent sociocultural affirmations (e.g., a respected authority). A parapsychologist's belief in telepathy, for example, conceivably could arise in this manner. Thus, case reports of spontaneous telepathy might inspire a behavioural scientist to critically scrutinise the published experimental evidence for direct mind-to-mind communication from the perspective of his or her knowledge of scientific methodology and with reference to sceptical critiques of this literature, and thence to establish a reflective belief in telepathy (or alternatively, perhaps a reflective belief in the nonexistence of telepathy). The involvement of validation processes in the formation of reflective beliefs does make them less susceptible to irrational influences, although a person's reflective processes and their choice of sociocultural sources of affirmation may still be flawed.

In terms of Sperber's (1990) model of belief formation the issue arises as to whether paranormal beliefs in the general population are best construed as intuitive beliefs or as reflective beliefs. Indeed, given the variety of paranormal beliefs, are some of these beliefs intuitive and others reflective? This issue can be empirically addressed by investigating relationships between paranormal beliefs and information processing style or more specifically, the analytical-rational (reflective) processing style and the intuitive-experiential processing style as quantitatively delineated by Epstein and his colleagues (Denes-Raj & Epstein, 1994; Epstein, 1994; Epstein, Pacini, Denes-Raj, & Heier, 1996; Pacini & Epstein, 1999). These researchers have shown that people vary in their relative reliance on two styles of reasoning or information processing; although people will use each of these reasoning styles according to prevailing circumstances, a person may have a habitual preference to rely on one style rather than the other. The analytical-rational style is a rather slow, conscious and primarily verbal process of objective analysis of information; the intuitive-experiential style is a rapid, subconscious and primarily nonverbal ("intuitive") process of subjectively driven analysis of information. These reasoning styles are clearly isomorphic with Sperber's (1990) dichotomy of processes underlying belief formation.

Lindeman (1998) recently proposed that paranormal and other "pseudoscientific" beliefs are associated with a tendency to prefer the intuitive-experiential style of reasoning. Some evidence bearing on this speculation has been recruited by Wolfradt and colleagues. In their first study (Wolfradt, Oubaid, Straube, Bischoff, & Mischo, 1999) a global measure of paranormal belief correlated positively

with the intuitive-experiential reasoning style (r = .30, N = 374, p < .01), although there was also a smaller positive correlation with the analytical-rational style (r = .13, p = .01). An as yet unpublished second study (Uwe Wolfradt, personal communication, 7 April 2001) used the seven factors of paranormal belief identified by Tobacyk (Tobacyk, 1988; Tobacyk & Milford, 1983). The intuitive-experiential style correlated positively and significantly with the belief factors of psi belief (r = .20, N = 257, p < .01), witchcraft (.23, p < .001), spiritualism (.24, p < .001), superstition (.20, p < .01), and precognition (.25), and nonsignificantly with traditional religious belief (.07) and extraordinary life forms (.06). None of the correlations with the analytical-rational style were significant (ranging from -.08 to .04) and indeed, five of the seven coefficients were negative.

The above findings are consistent with an association between paranormal belief and an intuitive-experiential style of reasoning, but there are several grounds for caution. First, the observed effect sizes are relatively small. Second, the two studies by Wolfradt and colleagues yielded somewhat contradictory findings in regard to the role of an analytical-rational processing style and indeed, the finding of Wolfradt et al. (1999) might even be said to conflict with Lindeman's (1998) hypothesis. Third, Wolfradt et al. (1999) used a global index of paranormal belief, but given the evidence for the multifactorial nature of paranormal belief (e.g., Lawrence, Roe, & Williams, 1997) it is doubtful that a global measure of this construct is particularly meaningful. Finally, the unpublished study relied on Tobacyk's (1988) seven-factor survey of paranormal belief, yet Lange, Irwin, and Houran (2000) have demonstrated the presence of differential item functioning in this questionnaire; that is, some items are variously interpreted according to the gender and age of the respondent. A fatal consequence of such differential item functioning is to invalidate the questionnaire as a measure of the basic factors of paranormal belief (see Lange et al., 2000).

There is scope therefore, for further investigation of the relationship between paranormal belief and styles of information processing. Specifically, such a study requires the use of a multifactorial measure of paranormal belief that has been shown to be free from differential item functioning. This was achieved in the present study. Given that previous findings to some extent have been mixed the study's hypothesis was couched in relatively broad terms, namely, that under Sperber's (1990) model of belief formation the strength of paranormal beliefs is related to preferences for intuitive-experiential and analytical-rational styles of information processing.

Method

Participants

The study was conducted as a questionnaire survey of a convenience sample drawn from the general community of Australian adults. A particular effort was made to sample as widely as possible from this population, although a substantial majority of respondents were residents of the state of Queensland. Usable data were solicited from 220 participants (129 women and 91 men), ranging in age from 18 to 80 years (M = 39.6, SD = 14.0, *Median* = 40).

Materials

Participants completed a short demographic questionnaire that included items on age and gender, followed in order by questionnaire measures of paranormal belief and of information processing style. The last two measures will now be described.

The index of paranormal belief was the *Revised Paranormal Belief Scale* (RPBS; Tobacyk, 1988), an amended form of the scale originally developed by Tobacyk and Milford (1983). In its various guises the RPBS has been the most widely used questionnaire measure of paranormal belief for almost two decades (Goulding & Parker, 2001) and it is especially notable for its extremely liberal view of the scope of "the paranormal". The full 26-item version of the RPBS was included in the survey inventory, but items found by Lange et al. (2000) to exhibit differential item functioning were not scored; most of the excluded items relate to superstitions (e.g., "the number 13 is unlucky") or extraordinary life forms (e.g., the Loch Ness monster). Through a process of "top-down purification" followed by factor analysis Lange et al. identified two facets of paranormal belief that are indexed free of differential item functioning by selected items of the RPBS. These scales are labelled New Age Philosophy (NAP) and Traditional Paranormal Beliefs (TPB). The NAP scale comprises 11 items relating to belief in psi abilities, reincarnation, altered states, and astrology; the TPB scale has 5 items on belief in traditional paranormal concepts such as the devil, hell, and witchcraft. Responses to the RPBS are made on a 7-point scale (1= strongly disagree, to 7 = strongly agree), but for the purpose of this study they were recoded under a Rasch scaling procedure (Andrich, 1988) specified by Lange et al. (2000). Thus, NAP scores potentially may range from 6.85 to 47.72, and TPB scores may range from 11.16 to 43.24.

The measure of information processing style was the *Rational-Experiential Inventory* (REI; Pacini & Epstein, 1999). The REI comprises 40 items relating to habits and preferences in regard to the application of reasoning and judgement. Half of the items tap rational engagement and perceived rational ability; the remainder index experiential engagement and ability. Responses are made on a 5-point scale (1 = definitely false, to 5 = definitely true). A score for a Rational information processing style and one for an Experiential style are computed as the sum of responses over the respective items, and thus each of these potentially may range from 20 to 100. The psychometric characteristics of the REI have been documented (Pacini & Epstein, 1999) and appear to be satisfactory.

Procedure

Potential participants were approached individually or in small groups. A "plain language" statement was attached to the front of the inventory. This statement described the topic of the study, stressed that participation was voluntary and anonymous, and explained that the return of the completed form would in itself be taken to signify the respondent's informed consent to participate in the project. Additionally, an appeal was made to participants to respond to all questionnaire items as spontaneously and openly as possible. Most participants returned their completed forms in person, although other means of return sometimes were used.

Results

Descriptive statistics for the survey measures are presented in Table 1.

Table 1. Means and standard deviations of survey variables and Spearman correlations between RPBS and REI scales (N = 220)

	Mean	SD	Spearman Correlations Rational	Experiential
RPBS scales				
NAP	26.46	6.55	-.29**	50**
TPB	26.00	7.31	-.23**	.42**
REI scales				
Rational	73.23	15.04		
Experiential	68.40	13.90		

** $p < .001$

Three of the four survey variables (all except REI Experiential) were significantly skewed. Spearman correlations therefore were computed to provide a basic indication of the strength of relationships between paranormal beliefs (RPBS scales) and information processing styles (REI scales). These coefficients are shown in Table 1. These data suggest that belief in New Age Philosophy (NAP) and Traditional Paranormal Beliefs (TPB) are each associated to some degree with an intuitive-experiential reasoning style (Experiential) and with low preference for analytical-rational information processing (Rational). The simple correlational analysis nevertheless does not determine whether the two processing styles contribute independently or interactively to paranormal belief, nor does it take account of the possible role of the extraneous demographic variables, age and gender. To this end multivariate analyses were conducted.

Before parametric statistical analysis could proceed mathematical transformations of the data had to be applied in order to eliminate skewness from three of the four variables. This objective was successfully achieved with square root transformations of the paranormal belief measures and by squaring the REI Rational scores. The subsequent analyses were undertaken with these transformed scores.

The researchers were interested in the role of information processing preferences in the intensity of each of the facets of paranormal belief indexed in the study. To this end it was appropriate to conduct a separate multiple regression analysis for each of the two beliefs, NAP and TPB (Tabachnick & Fidell, 1996). In the first such analysis the following independent variables were regressed on NAP: the two REI scales and the interaction between (i.e., product of) these two scales, together with age and (female) gender as extraneous variables. A significant regression equation was generated [$R = .49$, $R^2 = .24$, $F(5, 214) = 13.56$, $p < .001$]. Table 2 presents the unstandardised regression coefficients *(B)* and intercept, the standardised regression coefficients *(ß)*, and the squared semipartial correlation *(sr^2)*. As this table shows, NAP was predicted by REI Experiential, and there was a trend for an interaction

between the two REI scales, with the combination of high Experiential scores and low Rational scores predicting NAP.

Table 2. Standard multiple regression of REI Measures, Age, and Gender on New Age Philosophy (N = 220)

Variables (transformed)	*B*	*ß*	*p*	sr^2 (unique)
REI Experiential	2.948×10^{-2}	.657	.000	.05 5
REI Rational	9.405×10^{-5}	.314	.270	.004
Experiential x Rational	-2.029×10^{-6}	-.443	.081	.011
Age	-4.067×10^{-3}	-.091	.134	.008
Gender (female)	-7.411×10^{-2}	-.059	.345	.003
Intercept =	3.517			

$R = .49, R^2 = .24, p < .001$.

Table 3. Standard multiple regression of REI Measures, Age, and Gender on Traditional Paranormal Beliefs (N = 220)

Variables (transformed)	*B*	*ß*	*p*	sr^2 (unique)
REI Experiential	2.280×10^{-2}	.447	.010	.025
REI Rational	6.782×10^{-6}	.020	.946	.000
Experiential x Rational	-4.808×10^{-7}	-.092	.724	.000
Age	-7.172×10^{-3}	-.142	.025	.019
Gender (female)	-7.432×10^{-2}	-.052	.420	.002
Intercept =	3.957			

$R = .44, R^2 = .19, p < .001$.

A similar multiple regression analysis was performed for TPB, and again the regression equation was significant [$R = .44$, $R^2 = .19$, $F(5, 214) = 10.16$, $p < .001$]. The results in Table 3 indicate that TPB was predicted by the Experiential scale; an incidental finding was for TPB to decline with age in this sample.

Discussion

The findings of the study are consistent with the view that an intuitive-experiential style of information processing predisposes people in the general population to beliefs in the paranormal. This relationship was confirmed for both New Age Philosophy and Traditional Paranormal Beliefs. Indeed, in the case of the former belief there is also some suggestion that the combination of an intuitive-experiential style and a disfavour for an analytical-rational style is a conducive cognitive disposition.

Although the data are purely correlational they do lend empirical support to the speculation by Lindeman (1998) that paranormal believers have a preference for

intuitive-experiential reasoning. The observed effect sizes are not large, but given the multitude of factors that evidently contribute to the endorsement of paranormal beliefs (for a review see Irwin, 1993, 1999) this result is not unexpected. In this regard it should also be noted that the effect sizes here are slightly more substantial than those found in previous research (Wolfradt et al., 1999; Wolfradt, personal communication, 7 April 2001). Perhaps this outcome was due to the present study's reliance on a widely based sample from the general community instead of university student samples as recruited by Wolfradt and his colleagues.

More broadly the findings encourage investigation of the cognitive processes underlying the formation of paranormal belief. Thus, there is support here for an analysis of paranormal belief from the perspective of Sperber's (1990) model of belief formation. In Sperber's terms it seems that in the general population many people will occasionally make an intuitive unconscious inference about the paranormal nature of the world from a perceptual input, and this intuitive inference is the basis for a paranormal belief. Houran (e.g., Houran, Irwin, & Lange, 2001; Houran, Thalbourne, & Ashe, 2000) has suggested the inference may be elicited by a personal anomalous experience, particularly in regard to the generation of belief in New Age Philosophy, but more commonly an inference of paranormality is likely to be prompted by extrinsic reports encountered in the media or in conversation with other people. In any event, people who tend to rely habitually on intuitive-experiential reasoning are therefore likely to be rather prone to the endorsement of paranormal belief. This is not to claim that paranormal belief can never be established through an analytical-rational (or what Sperber termed reflective) method of information processing. As mentioned earlier, perhaps some parapsychologists come to endorse a belief in psi through such reasoning processes. Indeed, given Wolfradt et al.'s (1999) observation of a small positive correlation ($r = .13$, $p = .01$) between paranormal belief and an analytical-rational style, some university students also may develop a stance on the paranormal through rational rather than intuitive means. In the general population, however, this evidently is not the predominant strategy; on the contrary, an inclination toward an analytical-rational style may actually be antagonistic to the formation of paranormal beliefs (see Tables 1 and 2).

Brief reference may also be made to an incidental finding, namely, that Traditional Paranormal Beliefs (TPB) were predicted in part by younger age ($sr^2 = .019$; see Table 3). This was surprising, and all the more so when a check of first-order correlations confirmed that the age factor was not merely acting as a suppressor variable in the regression analysis (Tabachnick & Fidell, 1996). Several previous studies (e.g., Heintz & Baruss, 2001; McAllister, 1988) have reported *increased* religiosity among the elderly, and at first glance this seems to be at odds with the observation of a negative relationship between age and TPB in the current study. Closer examination of the items in the TPB scale serves to throw some light on this apparent paradox. In decreasing order of their loading on the TPB factor (Lange et al., 2000) the items comprising this scale relate to belief in witchcraft, the devil, spells, heaven and hell (as a single item), and some people's ability to predict the future. In this light it may be argued that the TPB factor of paranormal belief would better be termed "belief in black magic". Importantly for the present context, this reinterpretation readily accommodates the study's finding for age, as an age-related

decline in belief in witchcraft is well established by previous research (e.g., Emmons & Sobal; 1981; Tobacyk, Pritchett, & Mitchell, 1988).

In summary, the present study may be taken to provide a measure of support for the view that the formation of paranormal beliefs depends in the first instance on the person drawing an intuitive-experiential inference that the world can function in a paranormal manner. In itself, of course, such a process is not sufficient for the formation of a paranormal belief. Thus, additional cognitive processes must certainly be involved, and to this end further empirical research is warranted. For example, additional reference to sociocultural inputs often will be made, if only to identify the generally recognised name of the phenomenon underlying the belief ("Oh, this must be what people call *telepathy*") and thereby to formulate the belief as a verbal proposition that can be integrated into the person's belief system. More fundamentally, drawing an intuitive inference is probably a relatively common experience, yet such experiences do not routinely result in the creation of a paranormal belief. The "suspension" or relative neglect of analytical-rational processing may well occur not only in relation to drawing an inference from a perceptual input, but also in conjunction with a person's critical logical testing of the plausibility of that inference. Data on the latter view are currently being analysed by the first author.

Finally, it must be reiterated that the present data are purely correlational and causal inferences therefore must be treated with caution. One reviewer of the paper has also suggested that the items of the paranormal belief questionnaire may have "primed" participants to depict themselves as being more intuitive on the processing style measure; this may account, for example, for the slightly high means on the REI Experiential scale. Future research should give some attention to these issues.

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Poland – Home of Mediums

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Abstract: The paper discusses Polish psychics and psychical researchers of the first half of the 20th century. It sketches in the background against which psychical research developed in Poland, and goes on to discuss in some detail the professional medium Jan Guzik, and the two outstanding psychics of the period, Franek Kluski and Stefan Ossowiecki.

Historical Background

Harry Price, who referred to Poland as "home of mediums" (Price, 1939) in a chapter describing his visit there in August 1923, was not exaggerating unduly. Some truly remarkable reports of psychic phenomena came out of Poland in the first half of the 20th century, in the period preceding the Second World War. At the time they attracted a great deal of interest from Western psychical researchers but, by now, for a variety of reasons, they have been largely forgotten. Tales of days gone by, featuring spectacular psychokinetic, materialising and clairvoyant feats such as never seem to happen these days, may quite naturally be regarded by many as part of parapsychology's folkore, rather than as evidence to be taken seriously. Yet, re-examined within their cultural context, with due regard to the methods, beliefs and personalities of both the investigators and the subjects, they are not quite so easy to dismiss. This paper attempts to provide a wider background to what might be called the golden age of Polish psychics.

Tracing the history of psychical research in Poland is complicated by the fact that most of its records have been destroyed or fragmented, mainly during the destruction of Warsaw towards the end of the Second World War. Many private archives, as well as the archives of the Polish equivalent of the British Society for Psychical Research, were lost, and even the National Library in Warsaw does not possess a full set of extant copies of its journal. Primary sources are thus often difficult to find, but fortunately information about the most interesting Polish psychics and their investigators, scattered and fragmented though it is, can be gleaned from a variety of other sources.

The interest in matters psychical in Poland followed a pattern similar to that of the rest of Europe, and developed on a number of levels. D.D. Home's performances in Paris were the subject of close interest to a number of members of the Polish émigré community[2]. The "table-turning mania" of the second half of 19th century spread to

[2] The reaction, however, was on the whole one of disappointment in the undignified antics of the "spirits", with at least one émigré, a famous poet, suspecting Home of having dealings with the devil (Krasiński, 1931).

Warsaw and other major centres of Polish culture[3]; at a more intellectual level there was interest in the philosophical issues raised by the challenge science posed for religion and the rising status of the scientific approach in shaping the prevalent world view.

The Researchers

Psychical research in Poland, as elsewhere, was not a recognised "scientific" subject, and its development depended very much on the dedication and drive of a small number of individuals, who shaped to a significant degree the direction it took. In Poland's case, the two individuals who had the greatest influence in this area were Julian Ochorowicz (1850-1917) and Piotr Lebiedziński (1860-1934). Julian Ochorowicz was a man of exceptional genius, with degrees and higher degrees in philology, physics and mathematics, natural sciences, philosophy and psychology, as well as being a highly successful inventor. He pursued his interest in hypnosis working with Charcot and Janet during the 1880s. He worked with, and knew, most of the psychical researchers of the day, such as Myers, Lodge and Richet. Many of the results of his research with mediums have been published in the *Annales des Sciences Psychiques*. His hypothesis of "ideoplasty" (i.e., that images created by suggestion can be realised by the body, rather the way a blister can form when a person believes s/he had been burned), first put forward in two papers presented to the Biological Society in Paris in 1884, was influential among many researchers of the day (Ochorowicz, 1916/1996). Although today he is regarded as one of the founding fathers of Polish psychology, during his life his interest in psychic phenomena damaged his academic career and his scientific reputation. The tragic irony is that he was very much a "hard" scientist (with a good knowledge of conjuring), insisting on experimenting in good light, in well-controlled conditions; he was also uncompromisingly against spiritualism and anything occult, rejecting any "supernatural" interpretation of the mediumistic phenomena. His descriptions of the sittings he attended with fake mediums and enthusiastic circles make hilarious reading; they also demonstrate that informed scepticism as a useful research tool is not a modern invention (Ochorowicz, 1913-1915).

Piotr Lebiedziński was a chemist by education and a great inventor of apparatus, particularly relating to psychical research. He worked with Ochorowicz and was also of the same "hard" scientist school. He was the founder of the Polish Society for Psychical Research, established in 1914 in Warsaw, and one of its most active members (Szczepański, 1936, p.48).

He had vast experience of investigating physical mediums. Neither he nor Ochorowicz took the attitude "once a cheat, always a cheat" to mediums who were exposed in fraud, which some of the SPR members adopted at the time[4]. However,

[3] Poland was partitioned between Russia, Prussia and Austria in 1792 and reunified only in 1918.

[4] Ochorowicz had sittings with Palladino, apparently very successful, in Warsaw in 1893-4, where she produced phenomena in good light. He regarded attempts to cheat (which did take place in the Warsaw sittings) as part of the mediumistic process, and would put a stop to them immediately. He disagreed with the approach taken by some of the SPR investigators, which allowed cheating to go unchecked and then condemning the medium as a fake (Ochorowicz, 1913-15).

some of Lebiedziński's pronouncements on the standards one should demand in researching such mediums clearly point to an uncompromising attitude: **never** agree to conduct experiments in which visual control is not possible; **never** allow the relaxation of controls already established; if possible, **catch** your mediums before they know what they can do and get a chance to be corrupted by spiritualist circles (Lebiedziński, 1924-25).

In fact, the spiritualist movement was very weak in Poland, and that is the other important feature of psychical research there. The chattering classes in Warsaw may have flocked to séances in order to experience the thrill of seeing and being touched by the not-too-closely-defined "phantoms", but that is not the same as seeking to communicate with the dead through the mediumship of living persons. This was, and still is, explicitly forbidden by the Roman Catholic Church whose influence in Poland, not just on the social level, but also on personal and emotional level, was (and is) very strong.

For a variety of historical and cultural reasons, the issue of proving "survival", so prominent in psychical research in Britain, just does not arise in a situation where survival at a level unreachable by science is taken for granted by the majority. This does not, of course, preclude individuals from making attempts at communication sittings, and some members of the Polish SPR did make them, but the most prominent investigators took the view that they were dealing with human powers not as yet understood. In so far as a belief influenced them, it seems to have been the belief that they were on the brink of discovering a new branch of science; thus they set up experimental conditions as conscientiously and described them as thoroughly as they could.

This scientific spirit is represented by some of the most active members of the Polish SPR. There was dr Tadeusz Sokołowski, a medical man, later professor, who was chief hospital administrator for Warsaw hospitals in the period between the wars; there was Stefan Rzewuski, whose background I have not been able to trace but who was ruthless in exposing fraudulent physical mediums[5], there was the meticulous Prosper Szmurło, a Treasury inspector and Honorary Editor of the Journal of the Polish SPR. Ludwik Szczepański, who was the editor of one of the main national dailies during the 1930s, did a great deal to popularise a scientific rather than sensationalist approach to the subject. They, and people like them, did not have the facilities of a special laboratory, such as the International Metapsychical Institute (IMI) in Paris where Geley experimented, or the National Laboratory established in London by Harry Price; everything they did was in their spare time and with limited resources, but they did have the necessary qualities of insatiable curiosity, lack of presuppositions and an awareness of scientific methodology – in fact, all the essential attributes which go to make a sound researcher.

This does not mean of course that they were proof against being fooled by a sophisticated fraudster, or misplaced trust in a particular psychic, type of control or line of interpretation. Their experimental work and reporting also varies in quality. However, even though they may not have lived up to their own standards at all times,

[5]In a sitting with the medium Janusz Fronczek, exposed as fraudulent, a photograph taken unexpectedly regardless of the possible threat to the medium revealed that he was manipulating objects with his teeth (Rzewuski, 1924).

it would hardly be fair to accuse them of naïvely seeking props for waning religious beliefs, or lacking awareness of the possibility of their own bias.

The Early Psychics

The psychics investigated by the researchers mentioned above included some remarkable mediums. One of these was Stanisława Tomczyk, the subject of many reports by Julian Ochorowicz (Szczepański undated, Ochorowicz, 1910-1912). In the years 1909-12 she produced some spectacular telekinetic feats, as well as a number of secondary personalities, and apparently demonstrated her gifts in front of a scientific commission. She was not a professional medium, but a girl who acquired her strange powers after undergoing the trauma of imprisonment (Szczepański, 1936, pp.34-35). She went on to marry Everard Feilding, one of the researchers involved in investigating her case, and a member of the British SPR. It has proved impossible so far to find out whether she produced further phenomena after this.

Another Stanisława, Stanisława Popielska, was the subject of research by Schrenck-Notzing and by Piotr Lebiedziński. As a young, simple, barely literate nineteen-year-old, she produced some impressive sittings for Schrenck-Notzing during 1912-13, involving the production of ectoplasm (although he regarded her phenomena as less evidential than Eva C.'s, Schrenck-Notzing, 1923, p.252). According to Szczepański (1936, p.48), she was the medium from whom Lebiedziński obtained in 1916 a piece of ectoplasm for the first time. She went on to become a professional medium but, according to her obituary in 1938 (*Ilustrowany Kurier Codzienny* [Illustrated Daily Courier], 29/03/1938), her credibility was damaged after being caught cheating by Osty in 1931. The psychic career of these ladies certainly deserves re-examination but new material about them is difficult to obtain, and one can only hope that further evidence might come to light even after all these years. They share with many mediums a degree of anonymity, their only claim to our interest being the phenomena they supposedly produced. Another medium who shares this characteristic but belongs to a later period is Jan Guzik. He was investigated in detail by, among others, Gustave Geley (Geley,1924, pp.304-375), and his case history seems to follow a pattern fairly typical of many physical mediums of the day.

Jan Guzik

Jan Guzik (1876-1928) was a professional materialising medium. He came from a poor working class background. In his childhood he was allegedly the source of strange phenomena, with knocks, raps and movement of objects (effects often described in poltergeist cases) following him about. He was taken up by enthusiastic and naïve followers of the paranormal, even going to St Petersburg to be studied by Aksakov. He tried to make an honest living as a tanner, setting up a workshop in a partnership outside Warsaw. This enterprise failed, so he returned to Warsaw and set himself up as a professional medium (Szczepański,1936, pp.95-100). In his séances (for which he had a professional manager) he produced raps, lights, apparitions, apports, voices and automatic writing. Although he was frequently exposed for fraud

by both Polish and foreign investigators, and even ordinary visitors, he was a great commercial success. Going to see Guzik was regarded by many as a fashionable form of entertainment which he exploited. In the early 1920s he was giving two to three séances a day, but would not submit to systematic studies or proper controls. According to Szczepański, Guzik seemed slow mentally and uninterested in anything but money and his family (he was an excellent husband and father), but in fact he had great powers of observation and self-control if one watched him carefully.

Ochorowicz refused to investigate Guzik, because he would not submit to the required controls. Lebiedziński did work with Guzik, and while he does not directly accuse Guzik of cheating, he does say that the early Guzik was much better, and produced phenomena in a light strong enough to watch the faces and hands of the medium and the participants (Lebiedziński, 1924-1925). In December 1923 a committee of Sorbonne professors declared him fraudulent. According to Wilhelm Neumann, "From the fact that the actions at a distance produced by Guzik could have been imitated by means of a leg movement and the fact that there were no phenomena during four sittings when the controls were particularly severe, the professors have drawn the remarkable conclusion that the medium had produced the phenomena fraudulently." (Neumann, 1924/2002). Although in this case Guzik seems to have been condemned on the basis of inference rather than evidence, Harry Price, who had a sitting with Guzik in Warsaw in 1923, makes very specific accusations and describes the medium as "one of the cleverest fakers I have ever met" (especially clever with his feet). All the phenomena at the Harry Price séance were fraudulent, with the "animal" apparition being produced with the help of a stocking with luminous spots painted on for eyes, and the appropriate noises. It is thus hardly surprising that Guzik refused to be tested in Harry Price's laboratory (Price, 1933, p.275).

It seems clear that, whatever gifts Guzik possessed early on, they were not available to him on demand, and hardly at all in later life. Yet Gustave Geley describes experiments with Guzik, both those at IMI and other locations in France, and in Warsaw, as highly successful. He quotes a report signed by a number of distinguished persons testifying that they were convinced by the reality of what they experienced. Unfortunately, I have been unable to trace any accounts of sittings with Guzik by Polish investigators. Such sittings undoubtedly took place (there are passing references to them in other contexts) and reports would have been produced, but presumably no records of them have survived. It is interesting to note that the available account of sittings in a red light, with sitters controlling the medium's hands and legs, does not report Guzik's usual phenomena, such as materialised animals or apparitions (Neumann 1924/2002).

The fact that Guzik's phenomena made such an impression on Geley can be interpreted in a number of ways. Although one tends to suspect defective experimental conditions as the most likely cause, Geley himself is adamant that fraud was impossible at the IMI séances, and indeed it is difficult to see how some of the phenomena could have been produced under the prevailing conditions (Geley, 1924, pp. 304-375), even taking into account the fact that the séances took place in total darkness. It may indeed thus be the case that, when controls were imposed, Guzik produced genuine phenomena; or that Geley was the kind of experimenter who brings out the best in his subjects. It is difficult to ascertain from Geley's writing the

sequence of events at particular séances, and the exact state of controls at each stage, since he tends to summarize effects rather than give point-by-point detailed accounts of sittings. More importantly, Geley's style of reporting makes it difficult for a reader without background knowledge to make a significant enough distinction between the story of Jan Guzik and that of Teofil Modrzejewski, better known to psychical researchers as Franek Kluski.

Franek Kluski

Franek Kluski was never caught in any fraudulent action, although he was investigated by numerous researchers, and willingly submitted to the conditions they demanded. The principal foreign investigators of Kluski were Gustave Geley and Charles Richet, and most of the information available in the West comes from Gustave Geley's reports. However, there also exists a large number of reports from Polish researchers and independent witnesses, published contemporaneously in Poland by an eager researcher and a friend of Kluski, Norbert Okołowicz (Okołowicz, 1926[6] - not to be confused with Julian Ochorowicz!). When one comes to discuss Kluski, there is also another factor so often missing from discussions of mediums – a rounded, multi-faceted personality of the medium, whose background and functioning within society is reasonably well documented. Particularly in the case of professional mediums, the "mediumship dimension" is often the main aspect of their life. In the case of Kluski, whose real name was Teofil Modrzejewski, the "mediumship episode" was short-lived and had no profound influence on his life or career.

Franek Kluski's name is usually mentioned in connection with the subject of paraffin moulds, and whether they were produced fraudulently (Barrington, 1994; Coleman, 1994a, 1994b; Fontana, 1998; Geley, 1924; Polidoro and Garlaschelli 1997; Weaver 1992). It is a pity that this has become the only aspect of the whole phenomenon which attracts attention these days. Paraffin moulds were Geley's "holy grail", the permanent paranormal object, and he set great store by them. However, if one looks at the mediumship of Teofil Modrzejewski as a whole, there are many more amazing phenomena in need of explanation before one starts worrying about the authenticity of the moulds.

Although the phenomena produced by Kluski fall into the usual categories of physical mediumship (noises, breezes, smells, lights, apports, apparitions) their scale and intensity seems to be in a category all on its own. The standard explanations of physical mediums' tricks (Carrington, 1920; Dawes, 1979; Gaskill, 2001; Price & Dingwall, 1922) do not provide satisfactory answers. Some of the more elaborate tricks might fit some of the phenomena on some occasions, but not many. For example, the use of accomplices could account for life-like interactive apparitions, but this explanation becomes less likely when the apparitions are observed to pass across the table and the legs of the participants as if they had no lower body – this in a room which was searched and locked prior to the sitting (Okołowicz, p.168). Another

[6] Okołowicz's book is of particular value as it reproduces reports from more than one source and quotes statements from witnesses, some of them prominent public figures of that time. This does not of course preclude errors of observation in the statements themselves, but makes it more likely that they were reported accurately.

problem in discussing Kluski is that it is difficult to find a motive for faking the phenomena. People's motivations can, of course, be complex, surprising and hidden from themselves. However, the episode of physical mediumship seems entirely separate from Kluski's interests, ambitions and ideals. Why should a man who had a happy family life, high social standing, high principles and a successful career as a journalist, suddenly decide to play an elaborate and expensive hoax on his friends? (All his sittings were private, just with friends and researchers and, of course, no money was involved.) And why should he give it up just at the time it became a spectacular success, which could have brought him fame and fortune?[7] Perhaps the "official" reasons for his participation in sittings – trying to understand his own condition and to help science - might have been the real ones. As Andrew Lang said of Stainton Moses, the famous English clergyman and medium, the choice of beliefs is between "the moral and the physical miracle" (Carrington, 1920, p.15).

Let us then look first of all at the "moral miracle" that the Franek Kluski persona of Teofil Modrzejewski (1873-1943) represents. A well-educated man from an upper class family, by the time "Franek Kluski" appeared Teofil Modrzejewski was in his forties. Harry Price refers to him as a "banker" (Price 1939, pp. 89-90), but that creates the wrong image; Modrzejewski did work in a number of Warsaw banks but, by the time of interest to us, journalism was a significant aspect of his career (Polski Słownik Biograficzny, 1977). It is impossible to go into details, but it seems clear from Modrzejewski's own writing, and from the comments of those who knew him, that his achievement as a man of letters was very important to him. His writing was very much in the public domain; he was an enlightened, patriotic, liberal social commentator and reformer. His poetry always had a social purpose and was usually satirical. His output is quite extensive, since he also did translation work and had an interest in linguistic research. However, one cannot find in it even a trace of a reference to his mediumistic feats. In fact, he was a very private person generally, and particularly so on the subject of psychical research, on which he refused to comment. Friends did try to persuade him to write about his experiences. It would have been very easy for him to do so, thus achieving popularity and financial success – yet he always refused. His grounds for doing so were twofold: he wanted literary appreciation, not notoriety; and he was very doubtful about the value of popularising such phenomena, claiming that it might do more harm than good. His feelings about the phenomena are reflected in his choice of contemptuous pseudonym under which he produced them - "kluski" in Polish refers to a very dull type of pasta, and conveys an image of someone clumsy and dull.

Modrzejewski's foray into the world of mediumship came about by accident when he was in his forties, and did not last long, from 1918 to 1925 (with a break in 1920, when he volunteered for army service to fight the Soviet invasion). According to Okołowicz, he attended a séance for the first time in the winter of 1918, but while

[7] Kluski appears to have retained his ability to produce physical phenomena after he gave up sittings. The 1928 (No.19-20) issue of *Zagadnienia Metapsychiczne* quotes a letter from Osty, who mentions being totally convinced by a short séance with Kluski during which two paraffin gloves were formed very quickly in the bright light of a luminous screen, and expresses regret at Kluski's unwillingness to participate in mediumship. It should also be noted that Kluski himself was more interested in automatic writing, which he found much easier to produce.

the official medium produced nothing and went home, phenomena, initially in the form of knocks and raps, developed around Modrzejewski. At the beginning, he was very enthusiastic and eager to have his abilities investigated, but gradually his enthusiasm waned. Physical mediumship affected his health very badly: after a séance he would often suffer from internal and external bleeding, fainting fits, vomiting and other unpleasant effects. He gave up sittings in 1925.

The list of phenomena produced by Kluski during séances includes the usual range of physical mediumship claims. We thus have: raps, knocks, the smell of ozone, cold breezes, apports, changes in temperature, various smells, lights, apparitions (materialisations) and, of course, the paraffin moulds.

Many investigators remarked that the phenomena produced seemed to shape themselves to the desires of the participants – *even as the séance took place*! However, certain things would happen regularly during the mature phase of Kluski's mediumship[8]: a usual séance would start with cool breezes, appearing in waves, emanating from the medium, always with the smell of ozone. The next materialisation phase was the appearance of luminous nebulae. Usually they would separate from the medium and constantly change shape and location. Most of the séances were controlled through hand and foot control, with participants being assigned particular tasks (one watching the medium, another observing the sequence of events etc., the information being discussed and pooled immediately after the séance). As a rule the séances did not take place in total darkness. A red light would usually be placed opposite or to the side of the medium. This would often turn itself off about 10-15 minutes into the séance, only coming on towards the end. Another, more reliable source of light, was provided in the form of phosphorescent screens which could be used to illuminate the apparitions. Most of the time they were of the shape and size of hand-held mirrors, but on occasion large standing screens would be used. During the final phase of Kluski's mediumship the participants would also sometimes sit with the curtains only partially drawn.

The light phenomena were variously shaped, predominantly pale blue with a maximum intensity of a 25 watt lamp. These would lead to the materialisation of human (and other) apparitions. Apart from a variety of shapes, the lights would also be of different size and consistency; they would disappear as suddenly as they appeared, and they would also increase and decrease in size. There were very many of them in different places at the same time. They would move away from the medium so far that he could not reach them with his hand, because he never left the chair in which he sat. They seemed to have a purpose, and at times seemed to behave like living beings.

The main methods of achieving fraudulent lights at the time were phosphorus, brimstone, matches or fluid obtained from matches, flares or ferro-cerium, more familiar as flints in lighters - and, of course, torches and electrical equipment. Skilled conjurors might, and did, produce quite impressive effects with them, but the scope of the Kluski effects places them on an altogether different level because of the variety, scale, and the distances involved, and the fact that they happened simultaneously.

[8] According to Okołowicz, Kluski's mediumship developed from chaotic activity with violent movements of objects resembling poltergeist outbreaks, to almost fully controlled final stage of spectacular apparitions.

However, assuming that the controls were defective enough for these effects to be faked, it would still be quite difficult to produce such apparitions as those which supposedly appeared at the later Kluski séances:

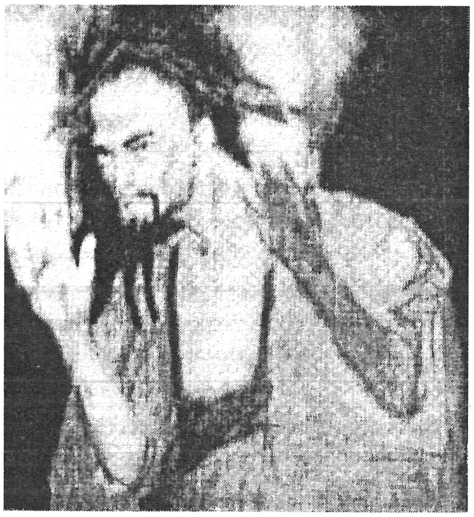


Figure 1 "The Assyrian Priest"

Figure 1 shows an artist's impression (reproduced from Okołowicz, 1926) of the kind of apparition one might expect – the most sophisticated phenomenon being the apparition that would be completely luminous. It would appear as a column of light, so strong that it would illuminate the sitters and the room. The one illustrated was one of the "regulars", known as the Assyrian priest. The apparitions also moved and spoke. Apart from the light, they also produced an enormous quantity of ozone, so that the room was full of it long after the séance.

It seems that the only possible fraudulent explanation for such a phenomenon would be the involvement of an accomplice – or rather, a large number of accomplices, since in Kluski's séances such materialisations would often appear in groups (including men and women, young and old, as well as children). Partial materialisations, of which there were many, could be explained by judicious application of luminous paint. The fact that the participants claimed to observe apparitions moving through the medium and across the table, or floating in the air, or starting with just the head forming above the medium, could be put down to the psychology of deception, which relies on people inferring a lot more than they actually see, especially if the right expectations have been set up.

Obviously, if accomplices were involved, there must have been a way for them to gain access to the room. It is impossible to rule out such a possibility regarding Modrzejewski's apartment in Warsaw[9]. However, if we are to interpret the phenomena

[9] The apartment block where Modrzejewski lived was destroyed during the Second World War. However, it was possible to locate the plans, which show that there was no space for secret passages to have been built above or below his apartment. There was a door leading to the outside corridor from the room used for séances, but according to the reports this was kept locked and chained, curtained off and partially blocked by furniture.

as the work of accomplices, we must also take account of the fact that over a quarter of Kluski's séances, some 92, took place in other locations, 34 of them abroad and 13 out of those in Geley's special room at the IMI. Geley's reports of the experiments in Paris claim that the séance room was examined and locked on every occasion, thus excluding the possibility of entry of accomplices – yet apparitions are described, forming from lights into human faces and busts; this seems difficult to produce fraudulently without help (Geley, 1924). The same effects were also obtained when Kluski was on holiday in Italy, away from his usual sitters, in a hotel room, and also at the Polish Consulate. Okołowicz quotes letters describing in detail the kinds of apparitions which formed there, and they seem to have the same characteristics as those produced at home.

Are we today any nearer to understanding what happened in the Kluski séances? Carrington (1920, p.367) suggests that in genuine cases the sensible course is to look for the pathological condition of the medium: "It is quite *conceivable*, at least, that the nervous force which actuates the body might, under certain exceptional circumstances, extend beyond the periphery of the bodily frame, and exert an influence over the external, material world".

These are some of the phenomena confirmed independently by Modrzejewski's friends and work colleagues which took place outside séances (Boy-Zeleński, 1938, Józefowicz, Legiewicz, Dalborowa, 1973; Okołowicz 1926):

- Raps and knocks came from furniture when he was around;
- The smell of ozone would be emitted spontaneously, for quite long periods;
- Electrical equipment would become erratic in his presence; e.g co- workers in the editorial office noticed that lights failed only on the days when Kluski came to work;
- Electrical discharges were observed to emanate from his fingers during storms, which had the appearance of blue flames. Kluski was frightened of storms, and refused to have a séance if a storm was threatening;
- Smells – according to colleagues, a walk through a lime-tree avenue, an alcoholic drink, any strong smell would "soak" through Kluski and last for hours;
- Lights were seen in his mouth, around him, and sometimes light patches appeared on his body when he was emotionally moved;
- Apparitions were supposedly seen around him when he was resting;
- He was reported to have been seen in friends' apartments when he was at home.

Obviously not all of the above anecdotal evidence of is of equal value. However, some of the phenomena, such as interaction with electrical equipment, as well as the physical ailments suffered by Kluski, are listed by medical researchers among the symptoms displayed by patients suffering from electromagnetic hypersensitivity (Budden, 1998). It has also been suggested (Budden, personal communication) that the bullet lodged in Kluski's chest after he fought a duel at the age of 27 may be of great significance, possibly acting as a source of endogenous magnetism. Perhaps then the anomalies in Kluski's physical make-up provided the conditions which

enabled the highly intelligent, imaginative and powerful personalities of the medium and the participants to create a unique shared experience. This seems far-fetched, but since plausible explanations that do not involve fraud are scarce, it might be worthwhile to look for clues in the modern story of "Philip", an entity invented by a group of researchers. A number of impressive physical phenomena were produced by "Philip" and guided by the participants with the full awareness that "he" was the creation of their own minds (Owen 1975, Owen and Sparrow, 1976). The Kluski sitters were not consciously setting out to do this, but the phenomena, particularly in the later phase of his mediumship, seemed to respond to the wishes and instructions of the participants. Okołowicz describes a situation when the apparition kept changing from an elderly man to a young woman in accordance with the particular sitter's wishes (Okołowicz 1926, p.272).

In spite of pressure from researchers, Kluski refused to devote any more time to mediumship after 1925. Apart from the physical suffering and exhaustion caused by the séances, Kluski may have been influenced by his religious beliefs. According to Okołowicz (p.582) Kluski, as a deeply committed Catholic, tried to limit the séances out of concern that the phenomena should not become associated with some religious doctrine.

Stefan Ossowiecki

At the same time as Kluski was producing amazing physical phenomena, another psychic, Stefan Ossowiecki (1877-1944), provided challenging material for investigation with his feats of clairvoyance. Although his gifts were mainly mental by the time Ossowiecki became the subject of research, his autobiography (Ossowiecki, 1933/1990) refers to a period of intense psychokinetic activity in his youth.

It is surprising that so little mention is made of Ossowiecki these days, especially as in his day he was regarded as the ultimate, living proof that the paranormal exists, that it can be tapped on demand, and tested under the most rigorous conditions.

He came from a wealthy upper-class Polish family who had been settled in Russia, in Moscow, for some generations. The Russian revolution of 1917 swept away their stability, and after a number of traumatic experiences, including a narrow escape from a death sentence, Ossowiecki settled in Warsaw in 1919. He was active in numerous business ventures, as well as leading a lively social life which suited his jovial, expansive personality (Polski Słownik Biograficzny, 1977, Boruń and Boruń-Jagodzińska 1990).

It goes without saying that, as a gentleman, he did not accept money for the use of his psychic abilities. He regarded his strange gift as a form of "trust", a link to higher consciousness, only to be used for the benefit of mankind, and to be put at the disposal of science. Fortunately he himself was a member of the Polish SPR and was aware of the need to obtain written and signed statements, and most of the witnesses were intelligent people also aware of such need.

Stefan Ossowiecki truly was a legend in his own time. Many stories endowing him with superhuman powers beyond belief circulated during his lifetime, and after his death the legends multiplied and took on a life of their own. It therefore takes some effort to disentangle fact from fiction when considering the non-experimental

evidence. However, even after discarding everything that is not first-hand and not corroborated, there is enough striking material to provide food for thought.

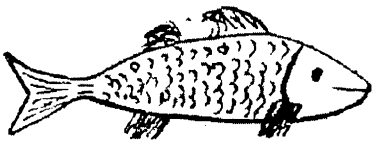
The range of the well-documented phenomena produced by Ossowiecki falls within a fairly narrow area of mental mediumship, involving clairvoyance and psychometry. "Real life" examples of this ability involved, in the main, finding missing objects and missing people. He would always ask for something that had been in physical contact with the object or the person he was seeking. For instance, in the case of missing jewellery, Ossowiecki would handle the box which had contained it, and then make a mental journey to the place where it was usually kept. He would often describe the inside of the house, the people he saw in it, and then come out with a solution. This happened in one well-documented case (Ossowiecki, 1990, pp.122-124), where Ossowiecki "saw" the missing bracelet being swept onto the rug, which the servant shook out of the window. The bracelet fell out onto some bushes and it was found hanging there. The obvious rational explanation, that he may have had accomplices who removed objects and placed them in an agreed location, becomes absurd when one is aware of the number and variety of such situations. In any case, in the other category of "real life" situations, that of finding the missing people, the necessary knowledge was not available to anybody until after Ossowiecki had made his statements.

There are a number of confirmed cases before the Second World War, where Ossowiecki gives correct information about the condition and the whereabouts of missing people, before there is confirmation from a foreign consulate or some other trustworthy source (Ossowiecki 1990, pp.13-14). During the war this became his main – and of course unpaid – occupation. People flocked to him for information about missing relatives, and he did not turn anyone away. There are a number of first-hand accounts from reliable sources relating to this period, but it is difficult to judge the overall accuracy of his statements, since on his own admission he sometimes lied in order to spare the families the horrific visions which came to him.

The other "real life" categories include examples of providing descriptions of life histories of strangers, of influencing people mentally, and occasional flashes of precognition. Of more importance, however, is the experimental evidence for Ossowiecki's gifts. These involved reading sealed targets (written or drawn), identifying hidden/wrapped objects, and describing undeveloped photographs (Geley 1921-24, Ossowiecki 1933/1990)

One of the first formal experiments with Geley, on 21st September 1921, involved, among other tests successfully completed by Ossowiecki, reproducing a drawing of a fish enclosed in a sealed opaque envelope (see Figure 2).

Figure 2



Drawing by Geley

Drawing by Ossowiecki

Figure 3, reproduced below, gives the result of an informal experiment produced on the spur of the moment on 24th July 1924 for M.Charpentier, League of Nations delegate passing through Warsaw, one of the many witnesses who appear in the Ossowiecki story only once. He was lunching in town with a military friend and Ossowiecki, whom he met for the first time on that occasion. Charpentier appeared quite sceptical, so Ossowiecki suggested that he should go away, draw something and put it in an envelope, and bring it back.

Figure 3

Drawing by Charpentier

Drawing by Ossowiecki

When Charpentier brought back the sealed envelope, Ossowiecki held it for a moment under the table without looking, and then produced his drawing. He also told Charpentier where he had gone, that he knelt on the stool instead of sitting, and what he had intended to draw (a cat) at first. All the information was accurate. Throughout that time Ossowiecki was chatting with the military friend and eating his lunch.

These experiments appear quite convincing, but they have a number of flaws which become apparent when one confronts them with the list of requirements compiled on the basis of procedures employed in some of the best experiments conducted with Ossowiecki using sealed targets. Marks and Kammann discuss sealed targets in their book *Psychology of the Psychic* (Marks and Kammann 1980), but they only draw attention to *some* of these points, without reference to the work of previous

investigators.

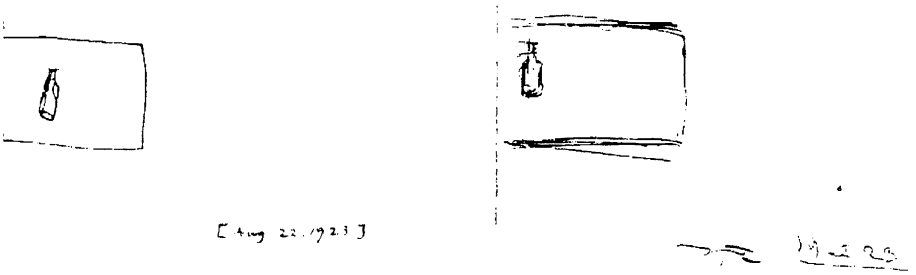
Preparing Experiments with Sealed Targets

- Do not prepare the target in the presence of the psychic (because the sound and sight of moving pen or pencil can give it away);
- Hide the target in a number of sheets/envelopes (because envelopes are often not as opaque as you think, and can stretch with intense handling);
- Mark the envelope to detect attempts at unsealing;
- Do not leave the envelope alone with the psychic;
- Do not use population stereotypes as targets (when asked to draw something, people will draw a house, a tree, a cat etc. Interestingly enough, research quoted by Marks and Kammann (1980) showed that a student population, faced with guessing highly individualized targets, got nil results);
- Do not prepare the target yourself (precludes the possibility of "fishing" and makes collusion less likely);
- Present the psychic with a random choice of targets unknown to yourself.

An experiment which seems to meet all these conditions was presented at the Warsaw Conference on Psychical Research in 1923 (reported in *Revue Métapsychique* 1923, No.5). Eric Dingwall was in charge of preparing the target (or rather, the target which was eventually chosen from a random selection). He drew the target, placed it in a number of envelopes and made holes in them in such a way that it should be impossible to align them again if they were opened. We have his statement that nobody but himself saw the target and that the envelope was never out of his possession until he gave it to Schrenck-Notzing to conduct the experiment. Schrenck-Notzing presented the envelope to Ossowiecki, along with a number of other possible target envelopes, and Ossowiecki drew this one out at random. (See figure 4). He then correctly gave the colours of the various envelopes in which the target inside was hidden, made the drawing, and mentioned the fact that there were some words he could not read after the date.

The words (not reproduced in Figure.4) were: *Les vignobles du Rhin, de la Moselle et de la Bourgogne donnent un vin excellent.* When drawing the target, Ossowiecki commented that the bottle was leaning slightly, that it did not have a stopper, and that it was drawn with a number of lines. Schrenck-Notzing took away the envelope, and Dingwall confirmed that it was intact. The results were presented at the conference and, understandably, created a furore.

Figure 4



Drawing by Dingwall **Drawing by Ossowiecki**

The final example in this selection of experiments dates back to 29th October 1925. It was published the next day in the press and in the next issue of the Polish Society's journal (also Ossowiecki 1933/1990). It was organised by the Polish SPR. A sealed letter, written in Spanish, was sent from Spain by Dr. T. Cobo Martinez to Dr Sokołowski for the test. This took place after a public lecture attended by over a hundred people. Ossowiecki sat at a table surrounded by a committee including the speaker, psychical researchers and journalists, who signed the written record. As usual, Ossowiecki gave a very full description of persons, places and circumstances surrounding the creation of the drawing:

"... a yellow-white house, two storey, entrance through a small garden, on the right a lot of greenery, stone stairs ... The house of a man of modest means. ... a study, he is writing this letter, no, not a letter. A small dark-haired man, an open forehead, very lively, dressed in black, six o'clock. His wife passes, he is upset by a terrible tragedy, he has lived through the loss of a child, a girl. His wife expects another. A boy has been born already, they wanted a girl. Masses of books around, leather chairs, not new.

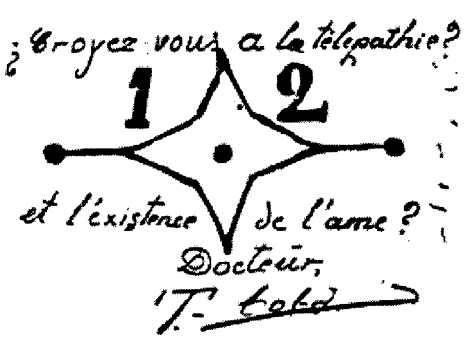
A strange child next to them. The wife is 32, dark hair, pointed nose, dressed in black, something black hanging from the neck - these are dice.

...he has scissors on the table; he is cutting up paper, holding papers. It is not a letter, only something written down. A man of science, studies a lot, has a number of degrees ... He has approached the table and begins to write, he is bent. He is cutting bits of green paper, the seal ready on the table. I see what and how he draws.

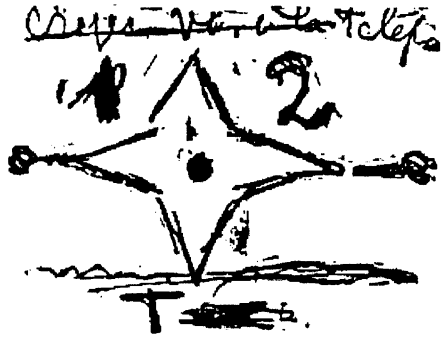
...He wanted to draw a circle within a square, then a face, and he finished with a point. (Ossowiecki draws) He gets up, lights a cigarette and comes back to the table, he picks up a pencil or a pen and writes a question, draws an enormous T. Here he writes something, two questions, questions about the paranormal. He asks me if I believe in telepathy. At the top there is writing in French. There is someone else in the room, and older man. The question: "Croyez-vous a la telepathie?" The second - do I believe in life after death?

When the envelope was cut open, inside was found a sheet of white paper, folded in two, covered by three rectangular sheets, two of which were green. The drawings and the sentences written on the white sheet correspond in the smallest detail to the drawing by Ossowiecki.

Figure 5



Drawing by Martinez



Drawing by Ossowiecki

The documents were sent to Martinez, who wrote back to Ossowiecki and the Polish SPR:

"...Everything that you saw, apart from a leather armchair, is totally accurate..."

We know very little about Ossowiecki's failures, apart from the "professional" experiments, where everything is duly recorded. However, in real-life situations Ossowiecki's "hits" are not the kind many of us experience by chance, however long the run.

There are many accounts like those related here, with different locations, situations and witnesses. Their value varies, and would be less impressive without the "hard core" of well designed and controlled experiments involving both foreign and Polish researchers. However, when viewed together, they constitute a strong enough "bundle of sticks" for the argument that it is largely owing to Ossowiecki that the 1920s and 1930s are the golden years as far as psychical research is concerned, and perhaps not just in Poland.

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Melting Boundaries: Subjectivity and Intersubjectivity in the Light of Parapsychological Data[1]

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Abstract This paper summarises a series of experiments and reviews from our Freiburg research activities in the field of Parapsychology. After a short retrospective review of the work of renowned scholars on the separation of subject and object, mind and body, inner and outer world, we point to the epistemological importance of parapsychological research in encountering some of the most prominent intricacies of contemporary science. We conclude that our results can best be understood by – and best be described as – non-local correlations, as predicted by Weak Quantum Theory.

Introduction

The Modern Newtonian-Cartesian Concept of Space and Time

In 1336, Francesco Petrarca, who some count among the inaugurators of the Renaissance, wrote a famous letter to his teacher and friend, the Augustinian monk Dionigi Roberti da Borgo San Sepolcro, in which he described his experience when climbing Mont Ventoux, a famous mountain at the outskirts of the Alps near Avignon. He described the splendour and thrill of seeing a landscape from a distance, as opposed to being immersed into the landscape as a part of it. And for the first time in recorded Western history, an individual conscious subject became aware of the perspective of distance and thereby of space and time. This experience and its publication marked the beginning of the modern concept of space. It made possible the concept and practice of perspective in painting and thereby marks one of the most prominent and least questioned presuppositions of the modern way of seeing and understanding the world, ourselves and others: that we as subjective observers are distant from what we observe, from other observers and from the world. It marks what later came to be called the separation of subject-object, and this separation presupposes a conscious understanding and a concept of space. Petrarca's experience is a milestone for both, and from this experience the rise of modern consciousness, or what Gebser (1985) calls the perspectivistic or mental structure of consciousness,

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began. In it the foremost and most important tacit presupposition (Collingwood, 1998) is that the observer and the observed, subject and object are distant and do not directly influence each other. In modern physics jargon this is called the locality presupposition: All causes are local, and non-local, distant causes are a scientifically obscene notion. We know today that Petrarca could see the distant landscape as something distant because numerous photons are carried from the objects of perception to the perceiving subject where they cause a complex perceptual image to arise. Were it not for the many photons travelling the distance, we could not see at all. Thus, the cause for our seeing objects are not the objects themselves, but the photons, which, locally, in our retina, cause a perceptual image which, by our brains is structured into a percept of the object. Distance, then, has become some general, objective category with Petrarca's experience, and a lot of scientific thought and effort is poured into the question, how causes can bridge distances.

But also time, as the literal text of Petrarca shows, becomes a new element, different from what it was before in this experience of objective, distant observing – "a locis traduxit ad tempora – a thought lead me from space to time". While for St. Augustine time was a category of the soul, of inner experience, with the modern concept of space whose beginning is marked in Petrarca's experience, time also becomes something external. It is not any more intricately connected with the inner life of the soul, but somehow connected to space itself: The photons, which we know are the "carriers" of the perceptual cause of our perceived objects and thus bridge the space between ourselves and our objects, mark, at the same time, absolute time: They take a certain amount of time to bridge the gap between us and the perceived object. We nowadays suppose from the Special Theory of Relativity that the speed of light is the limit-speed in the universe. Nothing is supposed to be faster, and thus light, or in other words, electromagnetic signals, mark the boundaries of the time arrow as well as of the space which can be bridged by it. Thus it is only logical that in the General Theory of Relativity time becomes a domain of space as a fourth dimension. Time and space, then, are seen as something absolute, outside of our consciousness, rather categorical, absolute presuppositions in the same sense as Aristotle or Kant used the notion "category", outside of which we cannot perceive, exist, think, let alone gather knowledge.

Newton (1642-1727) was the one who in a way made the experience of Petrarca a kind of scientific law. He posed absolute space as something, in which things are ordered, placed and stowed away. And relations between things became secondary to this placement of objects in absolute space. Material objects in absolute space were primary, relations between the objects were secondary. It follows from this concept of Nature and the Universe that time, and the evolvement of those objects in space, following trajectories, is also external to these objects, and secondary.

Descartes (1596-1650) had laid the ground for this concept of nature by distinguishing between the two substances "matter", which he characterised as "extended thing – res extensa", and "mind", or consciousness, which he characterised as "thinking thing – res cogitans". Note that by characterising matter as "extended" one has to already have an implicit concept of absolute, external space, such that Newton's codification was only a prolongation and logical extrapolation of Descartes' concept of matter. "Thinking things", minds or consciousness, is characterised by

having or producing thoughts which are not in a specific place or localisable, but thoughts come in sequences. For instance, the thought "I doubt, therefore the thing which doubts cannot but exist", which is a paraphrase of Descartes' basic insight, needs time to evolve and to be grasped. Therefore, time is intricately connected with the life of the mind, or, in other words, time is the mode of the mind.

By this philosophy, Descartes has introduced a well known dualism into Western thought, which in that rigor and explicitness, has not been produced before. While for the Arestotelian science of the middle ages and at Descartes' time mind and matter were two aspects of one substance and universe, Descartes introduced a split of kind and substance between mind and matter. Henceforth, both were categorically different, marking two different realms of being. This dualism, which Descartes made explicit, is already implicit in Petrarca's conscious experience of space and distance: A subject experiencing space and matter and objects as distant and outside of itself cannot but take this act of experiencing as something different from the object. Thus, positing material objects out there in an absolute space, which Petrarca did implicitly and Descartes, and later Newton, did explicitly so, is tantamount to positing mind or consciousness as something completely different from material objects.

This dualism between matter and mind has since haunted modern science. While science proper just strode along the path delineated by Newton, regarding only material objects sitting in absolute space and disregarding consciousness, the humanities have ever more tried to adopt the effective methods of natural science to understand consciousness. The irony and dialectics of that process is that the very philosophy Descartes used to find a firm foundation for science and consciousness at the same time, seems to eradicate exactly the foundation from which the whole process starts: mind and consciousness as a separate ontological substance or category (Beckmann, 1989). But even if modern scientists often do not reflect on those presuppositions of their work and do not take a definite stance, or adhere to a vague and implicit materialism in their work, the methodological dualism introduced by Descartes is still the necessary precondition even of the hardest science, namely physics. Physics always presupposes some conscious observer, who in the equations of physics, is outside of the system itself.

The modern scientific stance presupposes an absolute space in the heritage of Newton and an absolute time as exemplified by the Theory of Relativity outside of consciousness. Consciousness itself is normally either not directly addressed as a problem, or presupposed in a kind of methodological, if not ontological, dualism. But it is certainly not to interact with matter across space and time in any direct way. This is prohibited by the principle of locality, which means that only contiguous causes, which take time and bridge space, can wield effects. For instance, in no case has it been observed that the sheer thought "it is dark and I want light" is enough to make the light turn on. Thus the modern concept of time and space places things and living participants, which in a way are minds embodied in space-time things, into space, constructs external relations with each other, and poses limits on contact and communication. From a modern scientific point of view, it is not possible to have communications from the future, since time has to evolve and the future is not yet present and determined. It is not possible to directly communicate with someone else who is separated from oneself by a distance, without having a technical device, like a

phone or a cell phone, which again uses electromagnetic signals that take time to travel. And it is not really possible that a thinking thing, a mind, affects a categorically different thing, like a material body, without any intermediate causes, by using one's body and the ways of signalling, acting and perception provided by our physiology. This is, incidentally, why the mind-body problem is haunting modern science, and most researchers tend to avoid it or take a shortcut by subscribing more or less bluntly to a materialist and reductionist approach, making consciousness a kind of result, emerging property or epiphenomenon of, material processes, if not simply identical with them.

This situation is the reason why parapsychology is both a non-science from the modern scientific point of view and shunned by most respected researchers, and at the same time most important for mainstream science. For the results of parapsychological research can teach us a lot about the question, whether those presuppositions of modern science are indeed correct, or whether we need altogether an expanded, if not different, approach. In what follows we would like to point out some holes in this modern world view, and some bridges across the Cartesian cut. Before we do this, we would like to go back to history and introduce another philosophical option, which has been relegated to oblivion because Newton and his followers have proved more powerful on the short run: the position held by Leibniz.

Leibniz

Gottfried Wilhelm Leibniz (1646-1716) was a contemporary of Newton. He corresponded with him and disputed his teachings about space and time, by addressing Clarke, Newton's follower and defender. Apart from having discovered the differential calculus and some other mathematical tools concurrently with Newton he was a kind of general scholar, having contributed to most areas of knowledge of his time, from moral philosophy to chemistry and theology. He can be seen, in one sense, as a direct opponent of the Newtonian world view. For Leibniz, space is not absolute but relative. It is not the presupposition but the result of objects. Objects are not placed in space, but by virtue of objects and their relations space is created as a dynamic, evolving manifestation of those relations. Space, then, for Leibniz, is secondary to objects and their relations. But the interesting thing is, what objects really are. Here Leibniz is very difficult to understand, and, we take it, he was not completely consistent either and needs some interpretation and clarification. He took Descartes' principal insight – the self-evidence of the thinking ego or of subjectivity – as his starting point. Thus consciousness is primary, but not in the sense that consciousness constitutes matter, but that matter is in a way the outside of consciousness, or, to use a modern term, complementary to consciousness (Walach & Römer, 2000). Time, according to Leibniz, is the inner life of consciousness, which is not in any way linear, nor is it identical with physical time. Therefore, everything is in a sense present in the momentary experience of the conscious ego, as are relations with all other beings, a kind of universal nexus. Thus, future and past are both present. And relations with other conscious beings are not only external, but internal. That is, an individual consciousness – a monad in Leibniz' terms – is constituted not only by his or her own inner acts but implicitly by all those acts of other consciousnesses at the same or some

other time. Leibniz did not hold that those interrelated co-constitutions of mental substances or souls or monads are really conscious in the modern sense of the word. On the contrary: they are the basic material of conscious experience but themselves not conscious. He called their activities "small perceptions", and thereby he laid the ground, incidentally, for the modern concept of the unconscious. These he distinguished from conscious "apperceptions".

This Leibnizian concept of space, time and consciousness has some similarity with Buddhist notions of interconnectedness and codetermination (Odin, 1982; Thich Nhat Hanh, 1999), and it gives a basis for a world view which allows for non-local connections between both different minds and mind and matter, as well as direct interactions between past and future states of own and other minds with one's own present mind. This concept would yield a broader and alternative theoretical basis for understanding paranormal phenomena. Moreover, it seems more in line with some modern insights about the basic physical processes in the world.

One of the reasons why the Leibnizian view was not generally accepted or more prevalent can be seen in the lack of clarity on how to solve the mind-body problem on the ground laid out by Leibniz. He needs an amendment here. And the amendment could be to draw on the modern concept of complementarity, which is only implicitly and not explicitly prevalent in Leibnizian philosophy. If we define mind and matter as complementary aspects of one general substance, as was Leibniz' intention, then both the problems inherent in the mind-body discussion dissolve, and we can use this framework for a deeper understanding of nature, integrating normal and paranormal findings. Such a perspective was also taken by C.G. Jung who tended to speak of "one world – unus mundus" which would manifest both in material and psychic terms. That such an option is viable, and fitting the data better, we wish to show in the following.

Recent Experimental Results

DMILS – Direct Mental Interaction with Living Systems

The implicit prohibition, posed by modern science, on non-local, simultaneous interactions between mind and the physiology of another subject has been tested repeatedly in an experimental setting called DMILS (Direct Mental Interaction with Living Systems). In a typical set-up, two participants are housed in spatially separated shielded rooms to prevent direct interaction. Participant one, usually denoted "receiver", tries to maintain a relaxed and wakeful state. His/her electrodermal activity (EDA) is used as the dependent measure, as it reflects autonomic arousal and sympathetic activation. Since EDA is a labile and rather sensitive indicator for different states of arousal it is assumed to be a good DMILS parameter. It is usually fed back in real time to the so called "agent" who is to mentally influence his/her counterpart according to a counterbalanced schedule of activate and calm epochs signalled on the screen.

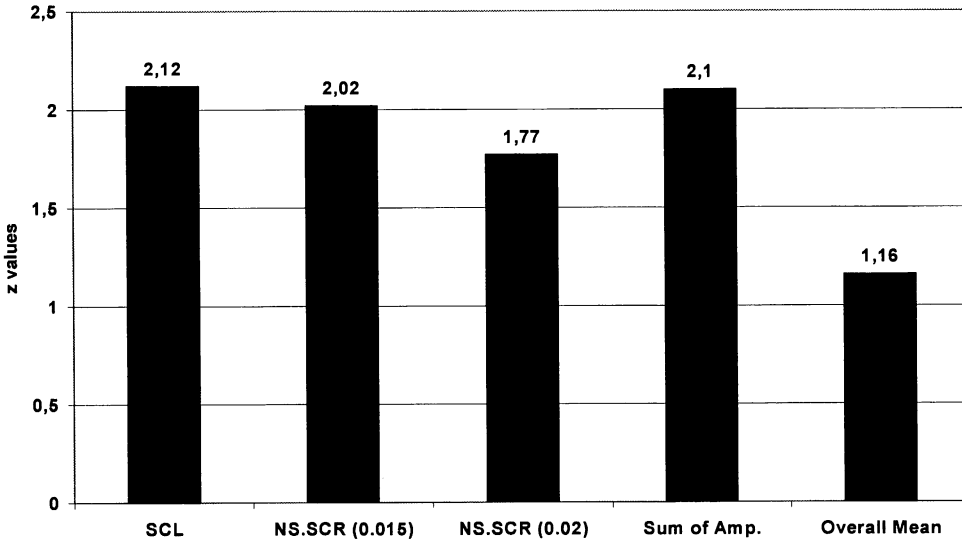
When this experimental paradigm was started in the seventies by Braud it produced strong effects, and a review and quasi meta-analysis by Schlitz and Braud in 1997 showed a highly significant effect of $r = .25$ ($z = 4.82$; $p = 0{,}0000007$).

However, both the method of meta-analysis, and the methods used for measuring EDA in the primary studies were highly questionable (Schmidt & Walach, 2000).

The Freiburg DMILS Studies

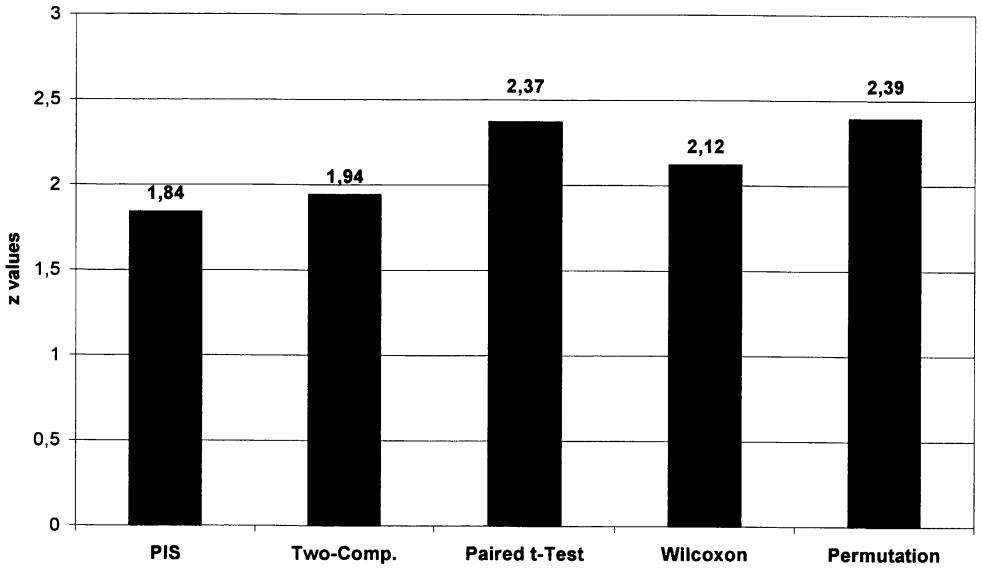
In a pilot experiment, new procedures, among which were proper EDA-measurement and data-evaluation, were implemented to scrutinise the appropriate parameterisations and methods of statistical evaluation (Schmidt, Schneider, Binder, Bürkle & Walach, 2001). We conducted a series of 26 sessions and found an effect of r = .40. As can be seen from figure 1a and 1b, a comparison with the parameterisations used by former experiments showed an increase of sensitivity and power.

Figure 1a: Pilot study: Results of the comparison of activate and calm epochs in electrodermal activity data.



Differences are expressed as z scores and shown separately for the five different parameters applied to the data. (No significance testing was done due to the pilot character of this study).
SCL = skin conductance level; NS.SCR = number of non-specific skin conductance responses; Amp. = amplitude. Overall Mean: A statistic deployed on former experiments, tested for significance according to the PIS-score which is based on a 50% expectation value tested by a single mean t-test against chance-expectation.

Figure 1b: Comparison of activate and calm data taken from the tonic skin conductance level using different statistical procedures.

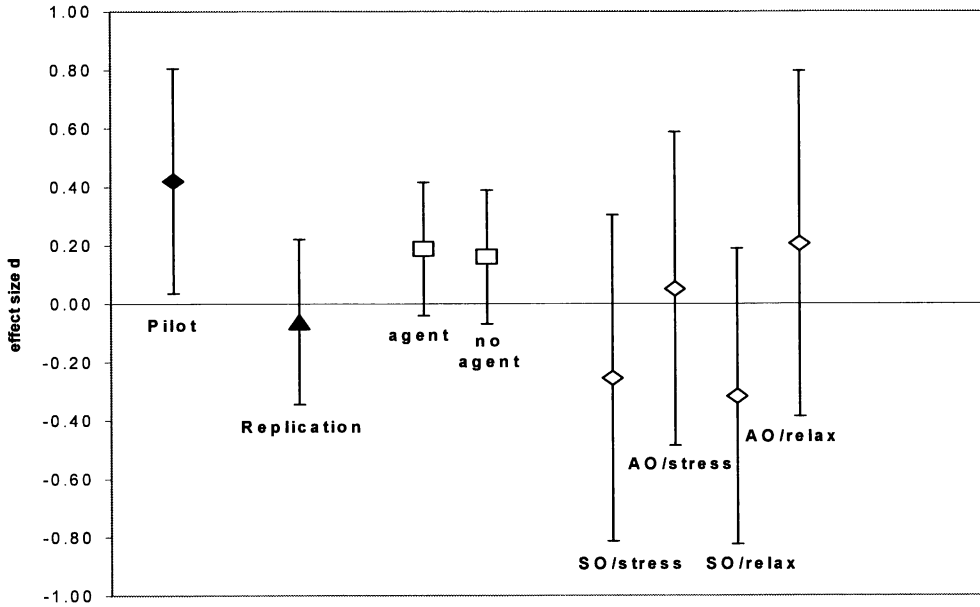


As can be seen, the permutation procedure and the paired t test yielded the highest z scores, whereas the smallest z score were observed for the traditional percent influence scores (PIS). Two Comp. = two-component model.

We conducted three more studies: In one study we repeated the pilot experiment. Additionally, we hypothesised that connectedness between the participants is an important moderator variable. Thus, we developed a questionnaire to assess connectedness and to find out whether subject pairs who reported a higher level of connectedness would indeed show stronger effects. In a second experiment we wanted to explore whether it is indeed necessary to have an active agent present, or whether the mere instructions on the agent's screen are a sufficient prerequisite. Therefore, we split the experiment in half and had real persons in one half of the experiment, and nobody in the other half of the experiment sitting in the agent's room (Schneider, Binder & Walach, 2001). In a third study, we conducted a series of four experiments in which we tested, whether certain self-regulatory mechanisms/strategies of agents would be positively or negatively related with DMILS-effects (Schneider, 2002; Schneider, Kuhl & Walach, 2002; Schneider & Walach, 2002). Based on Personality-Systems-Interaction Theory (PSI Theory) by Kuhl (2000, 2001; Kuhl & Fuhrmann, 2000) we hypothesised that in experiments where action oriented agents were relaxed and state oriented agents were exposed to stressful conditions ("failure" avoiding) no DMILS effect should be seen, whereas in experiments with opposite constellations DMILS effects should be facilitated. To the extent, that more elementary, non-rational, mechanisms were involved, we hypothesised a reversal of the personality-condition effect, i.e. DMILS effects should be found for action

oriented individuals in relaxing conditions and state oriented individuals in stressful conditions (volition vs. regression hypothesis). The results of all these experiments, converted into a common effect-size measure, are depicted in Figure 2.

Figure 2: Results of the Freiburg DMILS experiments.



SO = state oriented, AO = action oriented. Error bars refer to the 95% CI. The effect size d reflects a unitless difference between active and control condition standardised by the common standard deviation. The error bars of the d-statistics include zero, because of the large sampling error due to the small numbers tested. Z-scores: pilot: 2.14; replication: -.43; agent: 1.61; no agent: 1.37; SO/stress: 1.37; AO/stress: -.90; SO/relax: -1.23; AO/relax: .68.

As can be seen, there was quite a variation of effects. Whereas the pilot trial was unequivocally positive, the following studies showed some supporting, some disconfirming and some paradoxical results. The first direct replication of the pilot study came out flat negative. The effect size was virtually zero, and the hypothesised correlation with connectedness could not be tested. The second experiment found significant effects for the agent present and smaller, marginally significant effects for the agent absent.[2] This experiment confirmed that apparently the presence and actual intention of an agent seems to be necessary to elicit a DMILS effect. What was also apparent from this study was the fact that the results did not always show in the same

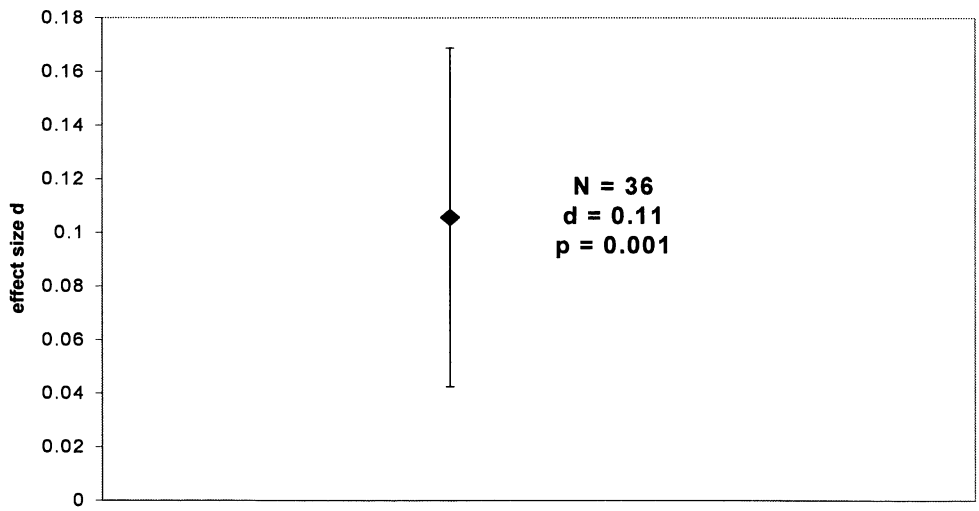
[2] In these experiments, different physiological variables were simultaneously tested. For comparison purposes, they were combined as shown in figure 3. However, the case is different when these variables are regarded separately. This is admissible for both epistemological and physiological reasons (see Schneider, 2002; Schneider, Kuhl & Walach, 2002).

physiological channel. Since we had different ways of parameterising EDA changes (cf. figure 1a) and wanted to further explore the parameters' functional significance for DMILS purposes, we used all three of them [3]. Interestingly, unlike in the pilot study the effects showed in different parameters although they can be conceived of as being substantially intercorrelated. The third experiment yielded interesting results: In one of the experiments for which a DMILS effect was predicted, significant effects were seen in several parameters and physiological indicators (i.e. EDA and respiration), yet partly towards the negative direction, i.e. more calming effects in the activate condition and vice versa.

The Meta-Analysis of DMILS Effects

We also performed a meta-analysis on all experiments published and unpublished until 2001, using this experimental paradigm of DMILS (Schmidt, Schneider, Utts & Walach, 2002). Overall, 40 experiments were retrieved and meta-analysed, using an extensive coding system for methodological quality. Four experiments had to be excluded because of methodological shortcomings and flawed randomisation procedures. When excluding these experiments, which incidentally are the first four experiments with extremely strong effect sizes, the rest of the data proved to be both a homogeneous set and not affected by publication bias. There was an overall significant effect of d = .11 (p = 0.001) (Fig. 3).

Figure 3: Result of the DMILS meta-analysis. Error bars refer to the 95% CI.



[3] These were NS.SCR freq (frequency of non-specific skin conductance responses), Sum NS.SCR amp (sum of the amplitude of NS.SCRs), and SCL (skin conductance level).

This significant effect size is a conservative estimate, since it is derived from an analysis weighting both for the size and the quality of the studies. There was a negative correlation between quality of studies and effect size of $r = -.43$ ($p < .01$), indicating that less rigorously controlled studies yielded higher estimates. Note that we controlled for this correlation by weighting the meta-analysis for methodological quality, i.e. those studies with better methodology, and those studies with larger numbers entered the analysis with a larger weight. This weighting procedure yields a much more conservative estimate than the earlier analysis of Schlitz and Braud (1997), but is still significant. It should also be noted that our own studies are among those with the, overall, lowest effect sizes. One reason for this is the fact that one of the Freiburg studies showed effects towards a negative direction. This result is not readily interpreted, since it is significant, but when analysed together with the rest of the data it annihilates the effect of those studies with a positive effect. This can be understood along the following lines: In most DMILS studies, breathing was not controlled or even looked at. Our studies were the first to do this. It is known that breathing, as another parameter reflecting autonomic arousal, is intimately connected to EDA in a non-linear and not really predictable fashion. It is, for instance, possible that someone who is relaxing takes a very deep breath and stops breathing for a moment, as known from scores of studies on meditation (Jevnig, Wallace, Beidebach, 1992). This, however, may yield a rise of electrodermal activity, whereas a regular but more frequent breathing pattern might have the opposite effect. Thus, it is possible that a distant intentionality effect does not in fact show in EDA parameters but in breathing and thus might have paradoxical effects. Since this was never looked at, nobody has thought of that possibility yet. Our analyses show that this is at least a possibility. Therefore, it might be possible that even the apparently negative effect of our study three is indeed an indicator of a DMILS effect [4].

The fact that our results are not as unequivocal as we would have wished and expected from our pilot trial shows that there are other moderators at work which we do not understand yet. It is possible that we first need a good theory of how these effects are to be understood, before we can claim definite knowledge. For the time being, our results and the meta-analysis of DMILS studies seem to show that at least in some cases and at least sometimes there is a possibility of distant intentionality without any known local means of communication. It is likely that this is not a kind of "signal" which is in the same way reliable as, say, electromagnetic signals are. If it were a "signal", we would not expect so much heterogeneity in our own data set, let alone that of parapsychology at large. Therefore we surmise that other, more complex processes are at the base of these phenomena. DMILS research, on the whole, seems to suggest that such distant intentionality is at least, if not a proven fact, a real possibility which should be researched more deeply.

[4] It is noteworthy to mention that a close relationship between respiratory activity and EDA was only found during calming epochs.

Non-local Correlations Between EEG-Patterns

Another experimental paradigm we have recently started work on is a paradigm termed "transferred potentials". We would rather term it "non-local correlations of brain activity or EEG-patterns". Grinberg-Zylberbaum (1982; Grinberg-Zylberbaum, Delaflor, Attie, Goswami, 1994) a neuropsychologist, reported that pairs of participants showed correlated brain patterns, even when they were far apart. He taught them how to meditate together and to establish an empathic bond between each other. Then they were silently separated, and one of them was visually or acoustically stimulated, while the EEG of both participants was taken. As expected, the stimulated subject showed a sensory evoked potential, which is a correlate of the neuronal activation of brain regions active in processing the sensory stimulus. Quite unexpectedly, however, a corresponding EEG pattern was also seen in the non-stimulated subject. Grinberg-Zylberbaum called this a "transferred potential", because it seemed to have been "transferred" from one subject to another via the common empathic bond.

These original results of Grinberg-Zylberbaum would not stand up to scientific criticism, because of the methods of analysis used and because of the fact that the stroboscopic stimuli used for evoking visual potentials are able to induce strong electromagnetic fields which could produce these so-called transferred potentials as artefacts. However, other groups have meanwhile attempted to replicate these studies with mixed results, some positive, some negative. We have also attempted a replication and incorporated most of the criticisms which some of the other studies were open to. For instance, we used nearly completely electromagnetically shielded chambers. We used a data acquisition system in the experiment which digitises the EEG data directly after amplification on the Galvanic distant side, such that no interference can occur. We used as a stimulus a checkerboard pattern presented on a computer screen which changes in intensity and which does not emit electromagnetic signals in the rhythm of its changes; this is reliably known to produce visually evoked potentials. We used changing sequences of stimulus and interstimulus epochs with randomised lengths of the intervals, in order to break internal rhythms which could simulate effects. And we used very robust Monte-Carlo methods for statistical analysis which are not dependent on any assumptions as to the underlying distribution of the data, but use the empirical distribution of the data. We had a couple of control runs, with computers turned on but only one participant present, and the like.

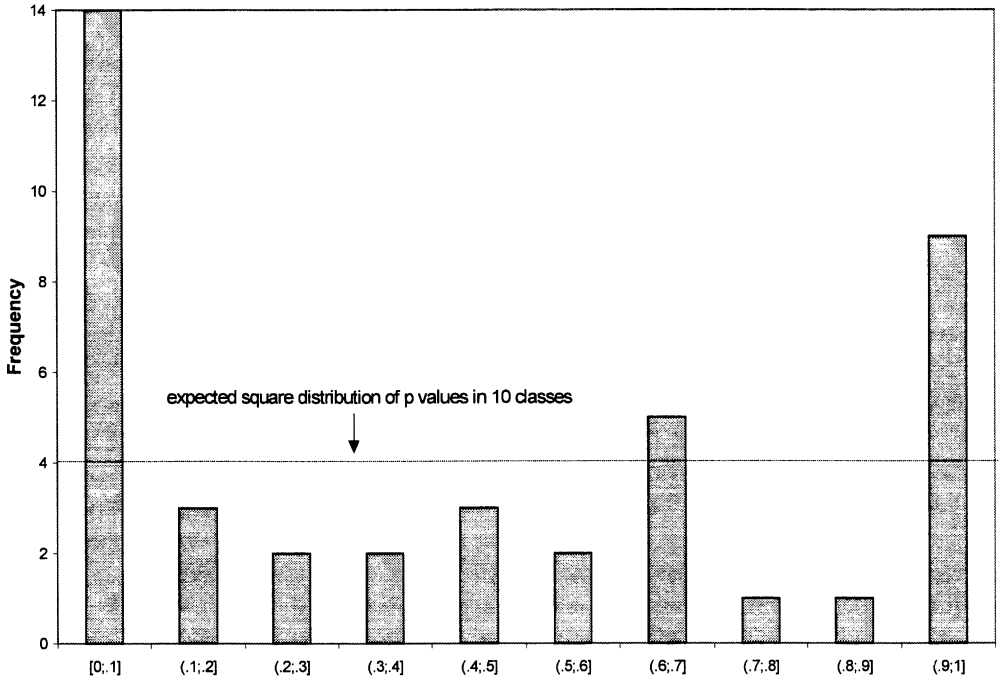
In our experiment, we had seven experimental pairs and seven control pairs come to the lab, as well as seven control runs. The experimental pairs came as participants who said they had an emotional connection with each other – spouses, friends, relatives. The control pairs came as single participants, and did not know of each other. In contrast to experimental participants the controls did not know about the real purpose of the experiments. In the control runs, participants were seated in one chamber, while in the other chamber the stimulus was presented, or not presented, just to see whether the measurement procedure or stimulus presenting procedure itself would produce an artefact.

In the statistical analysis we first standardised all data around the mean and standard deviation. Then we explored at exactly what point in the data were the largest

variance in the stimulated subject, i.e. the peak of the evoked potential occurred, using a programmed algorithm. This same point in time and a time window around it covering the peak of the largest variance was then used in the non-stimulated subject as well. Here we divided the average standardised variance of the epochs around the time window of highest activity in the stimulated subject by the average variance during the interstimulus epochs of the stimulated participants. By default, the expectation value of this ratio should be 1, if no extraordinary events happened in the non-stimulated subject during those periods when the other participant was stimulated. It should be different from 1, if the periods were not comparable. Since there was no way for non-stimulated participants to know what was going on in the chamber of the stimulated participants, and since we used a within-subject design, any significant deviation from this expectation value would be a straightforward hint at a non-local connection between the participants. To find out, whether the ratio was significantly different from 1 we used all possible permutations of data points (in our case 222) for that participant and every channel and located the precise value of the ratio within this empirical distribution. We only regarded the very extreme positions, i.e. ranks 1 and 222 as important. This corresponds to a conventional significance level of $p = 0.004$ or $p = 0.008$ two-tailed, or after correction for the multiplicity of tests it is a p-value of $p = 0.048$ per participant (since there were 6 channels). In other words, every single participant with at least one extreme rank in at least one channel yielded a significant result in conventional terms. We submitted all these single p-values to a goodness of fit test to test, whether this is a distribution significantly different from the expectation value of 1.

After all those precautions and robust, yet sensitive, statistical analyses we were surprised to find a clear deviation from chance expectation in the experimental group, which was highly significant (Figure 4). There were also some deviations in the control group, but these were not statistically significant for the whole group. There was only one deviation seen during the control runs.

Figure 4: P values of all non-stimulated participants of the experimental group.



Theoretically expected and experimentally obtained distribution of all 42 p -values (experimental group). [ ] indicates range of values, ( ] indicates range of values larger than the preceding value. For a = 0.05 deviation of the empirical distribution from the expected distribution is significant for the experimental group (p =0.011).

What is interesting from a phenomenological point of view is the fact that we could not reproduce the morphology of visually evoked potentials. That is, the non-stimulated participants did not show EEG patterns of evoked potentials, but we did find significant deviations. Sometimes they were negative, sometimes positive. Sometimes they were seen at the two occipital electrodes, sometimes in the frontal, sometimes in the parietal ones, and sometimes in all. Thus, there does not seem to be a reproducible pattern, but a clear hint at a statistical deviation. Since the deviation is not of the form of evoked potentials, we prefer the term non-local correlation of EEG patterns. Because, from our control runs, we have clear data on what is to be expected without the experimental set-up, we can be quite sure that our data do not represent artifacts or just statistical fluctuations.

Our data seem to indicate that there is an anomalous correlation between EEG patterns in participants who are measured in two separate, shielded rooms with one subject reclining and the other being visually stimulated. For this correlation of brain patterns we cannot claim a classical local signal or cause, since there is no open communication channel between the participants. What is interesting apart from that is the fact that the non-stimulated participants did not report any unusual subjective experiences, and that the effect was not correlated with self-reported connectedness.

Taken together, these data seem to suggest that there is a non-local connectivity between brain events of two spatially separated participants under certain circumstances. At the moment we do not know whether this also shows in terms of conscious experience, although other data would probably support this.

Evidence from Distant Healing Studies

Healing, even from a distance, is an ancient traditional mode of medical intervention. It is an integral part of many types of folk medicine. In recent times it has received some interest in the medical community in the form of healing or prayer studies. Some recent reviews have come to the conclusion that healing might be effective, although more research is needed (Abbot, 2000; Astin, Harkness, Ernst, 2000). One of the largest studies, the one by Harris, Gowda, Kolb (1999) in 990 patients in intensive cardiac care, is also the most interesting one. For this trial was a replication of an earlier study by Byrd (1988) which yielded ambiguous results. It was an essential element of the design that the patients who were prayed for did not even know that such a prayer study was ongoing and that they were participants in a trial. The patients were either randomly allocated to the prayer or the no-intervention group. The result, measured by a complex scale, was a small but significant difference. By virtue of the design it is not possible to attribute these results to psychological factors. Another, smaller trial is also enlightening (Sicher, Targ, Moore, Smith, 1998) . In this trial, 40 patients with AIDS in the late stage were treated for 10 weeks daily by a healer at a distance without the patients knowing who was being treated and who was in the control group. After that time the patients treated at a distance had fewer AIDS defining diseases, less hospital days, less visits to the doctor, and better well-being (all significant). Another recent challenging trial is the one by Cha, Wirth & Lobo (2001). In this trial, the prayer groups were located in the US, Canada and Australia, while the women to be treated were in Korea. There was no contact whatsoever and no knowledge about the intervention. The women treated were under treatment for infertility, and received conventional treatment of in-vitro fertilisation. Additionally they were either prayed for or not. The prayer was started five days after the transfer of the embryo and continued for three weeks. The target parameter was pregnancy with a heartbeat in the embryo. While the pregnancy rate of the control group was within the normal range with 26% pregnancies, the intervention group had a significant advantage of 50% pregnancy.

While at present it is unclear, whether distant healing or praying is a generally effective intervention, what is interesting for our purpose is the principal question whether such a thing as distant, non-local influence is at all possible. This question has to be answered positively. At least sometimes, and at least in some well controlled and documented cases a distant influence of a mental intention on a physiological system seems to be possible. (We will not discuss the question whether the prayer studies are, over and above, a proof of any higher power or god. For the strict purpose of scientific discussion it is enough to focus on the question of non-locality. Whether this is also mediated by a higher power, is another, albeit interesting question.) Thus, also the prayer studies show that distant non-local interaction between intentions, i.e. mental states, and physiology, i.e. matter, is possible.

The Fragility of the Time Arrow

One of the solid grounds of modern science is the belief that the speed of light is constant throughout the universe, not dependent on the speed of the observer, and is defining the limit speed of any signal travelling in the universe. Thus it is also the defining element of time and of a time arrow which is strong and rigid. Suppose we saw a bright explosion on the moon now and discovered that this explosion was due to some aliens trying to blow up the moon, this information would be unrelentlessly past and we could not do anything about it. For the moon is roughly about 300.000 km apart from us, and thus the information which we see, brought to us by a crowd of photons, has happened one second ago, since this is the time the photons need to arrive at the earth after they have parted from the moon. Thus, what we see happening as "now" on the moon is, strictly speaking, an event already aged by one second, and hence past. We cannot do anything about it unless we had a superluminal device which could alter the past and prevent the aliens from blowing up the moon in the first place. The content of the Special Theory of Relativity is that precisely this is not possible. Apart from that, if our time arrow were not strong and rigid, we could cook up many kinds or paradoxes (as, e.g., exemplified in Fitzgerald, 1971). In the same vein, presentiments about the future are a scientific impossibility, founded on the same theoretical grounds.

Apart from many anecdotal examples of precognitive dreams or waking experiences which have been well documented and appear too numerous to just dismiss them as fantasy or systematic fraud (Zohar, 1982), there have been some very interesting studies. Two meta-analyses of fairly simple and robust experimental precognitive tasks – telling in advance which type of card will be drawn next, for instance – have shown small but significant effect sizes (Honorton & Ferrari, 1989; Steinkamp, Milton & Moris, 1998). In an ingenious experiment Radin (1997) showed experimental participants randomly chosen pictures with calming and peaceful content, like landscapes, nice faces, and the like, or shocking pictures, like victims of violence, pictures with pornographic content, and so on. He used once again electrodermal activity as a dependent measure, which is a very good indicator of the so called orienting response, i.e. the non-specific physiological alerting reaction which prepares for novel stimuli. What he saw was that the pictures indeed reliably produced an orienting reaction. However, what is most interesting and disconcerting from a conventional point of view is the fact that the participants showed a small but significant precognitive orienting reaction *before* the shocking pictures where shown, but not before the calming pictures were presented. Bierman (2000) used physiological data from traditional main-stream experiments and looked at possible orienting responses before the actual stimulus set in and could see the same phenomenon in other researchers' data who did not even look at a presentiment effect in the first place. Yet, it should be noted that this could probably be explained by the fact that the studies Bierman examined encompassed randomisation without replacement. May and colleagues (May, Utts & Spottiswoode, 1996) have founded a whole theory of parapsychological effects, the so called Decision Augmentation Theory (DAT), on precognition. They suppose that parapsychological "faculties" are

used by biological systems in a precognitive fashion to predict fluctuations in natural events which are favourable to their own biological processes, but which do not in any way alter the sequence of physical events. Data collected by parapsychological research to date seems to suggest that the time arrow is neither rigid nor solid. Thus it is at least conceivable that a mental system has direct relations to its own future states or future states of other systems or events.

The Myth of the Decline Effect

It is often said that the most replicated result in parapsychology is that of the non-reproducibility of experimental results. Sometimes people call this the decline effect, meaning that results which have been spectacular at an initial stage of research tend to become null results with further research, effect sizes vanishing like melting snow. Von Lucadou even makes it a defining feature of parapsychological data that their effect size decline, if the same experimental model and the same parameters are used repeatedly (von Lucadou, 2001). Often, this is misunderstood as an immunisation strategy of parapsychological research, and indeed it can be and has been used as such. But at a deeper level this means that the phenomena which we are dealing with are not in the same way local-causal signals as are normal effects. The processes at work here cannot be of the same quality as those in everyday physics and in locally-causal interactions. They seem to depend either on unknown moderators, or are structured in principle such that they cannot be grasped at will, or depend on systemic properties which are poorly understood. Does this mean that systematic research will never be able to find evidence for these phenomena, even more that research is the very way to destroy them? This is what proponents of the decline effect in extreme versions would say.

We studied the question whether the decline effect is a phenomenon or a myth in two ways: We used published meta-analyses and correlated the sequence of publication of single studies with effect size. If the decline effect were an issue there should be a significant negative correlation. We also looked randomly at original papers which reported single experiments and tried to find out whether effect sizes for similar experimental procedures declined over time (Bösch & Walach, 2002a, b). We did not find any hint that the decline effect is a systematic effect in the parapsychological data base. It does occur in the context of incline effects and other stable effects. However the systematic decline effect and the elusiveness of parapsychological data do rather seem to be a myth, based on selective perception and memory, than a systematic property of the data. However, this does not mean that the paranormal processes are causal ones or dependent on any signal, be it electromagnetic, subtle or otherwise. Across an ensemble of studies, effects seem to be quite small, but significant, overall, although even here the final word has not been spoken yet.

Discussion and Consequences

Both our own data as well as that of other groups seem to suggest that there is neither a fixed boundary, nor an absolutely rigid space or time barrier which would exclude non-local connections or correlations. Although most of the phenomena researched within parapsychology are far from being uncontroversial, let alone scientifically accepted, we would contend that there are at least enough well documented anomalies such that it is not possible to just overlook and ignore them. There is certainly more research to conduct and it is necessary to find a satisfying theory which would explain both the anomalistic processes and show that they are not at odds with the main body of knowledge. Such a theory is missing for the time being. But we can see the outlines of the phenomena which such a theory would have to encompass:

1. The phenomena are non-local in nature, i.e. there appears to be no conventional causal signal which is mediating these processes. This can be deduced from the fact that electromagnetic shielding and precautions against other ways of conventional signalling (acoustic, visual, olfactory) do not prevent these effects from happening. Also, the fact that the effects are too unreliable seems to speak against the local hypothesis that they can be produced by a causal signal. While unreliability per se is not a hallmark of non-locality – otherwise a lot of mainstream research would be a proof of non-locality -, patterned unreliability is (von Lucadou, 1995). Thereby we mean that strong effects cannot be replicated at will, although the experimental set-up is not altered much, as was true for the Freiburg DMILS studies. Still under certain circumstances which remain to be elucidated some spatially separated event – like an intention, or physical event such as a stimulus or an EEG pattern – "induces" or is correlated with an analogous event.

2. This has partly to do with intention, but does also seem to depend on systemic parameters, that is, on the way the experiment is set up. In our "Non-local Correlation of EEG-patterns" study we saw anomalies also in the control participants, where participants did not even know about each other, let alone about the purpose of the whole experiment, and no intention was present to "transfer" anything. Although this effect was weaker than the one in the experimental group, it was still visible. This suggests that formal aspects also play a role, over and above the intentional side of the experiment.

3. Distance, both in time and space, does not really seem to play a role. Effects do not seem to diminish over distance, which they should if a classical signalling process were at work, as the distant healing studies and other work shows (Targ, 1996; Targ & Puthoff, 1974). And the time arrow is not really rigid and solid. Distant events and future states seem to be able to be non-locally connected with present states and events. We do not know the precise conditions for that, but we have enough evidence to say that at least sometimes this seems to be a possibility.

4. Mental intentions seem to be seminal for the processes. However, willing, both in the traditional meaning of the word (conscious effort) and in a non-traditional meaning (implicit processing) does not seem to be of major importance as our experiments show. Rather than the "conscious effort" to intend and will something, the processes involved are more subtle. Hints in our own data (Schneider et al., 2002a, b) suggest that it is precisely the blocking of those conventionally high inferential willing efforts that releases the effects. It might be the case that some specific mental state which healers can either intuitively or by training enter into is conducive to these effects and that, as long as we do not understand the specific properties of such states we do not know how to systematically produce and research these processes. Healing research shows that intentions, systematically directed, seem to be important.

This calls into question our conventional view of what our boundaries are and of who we are. If it is possible that at least sometimes an EEG signature which characterises our own mental processes correlates with that of other persons in a way connected or brought into connection with us, what does that mean for our understanding of our own boundary? Who, then, is the subject of those brain events? Me, who is seeing something, or the other subject, who is having correlated brain events, or both of us, or still a third person? If the bone capsule harbouring our brain is not really enclosing all of "our" brain events, where is our boundary? If future states of ourselves could influence what we experience and do today, how would our being an agent have to be conceived? If, in a group, under certain circumstances, which we do not know well enough, certain mental or emotional states do not belong to someone in particular, but suddenly to everybody, or to more than one person at once, who, then, is the subject?

The data reviewed above do seem to suggest that our rigid concept of what a person or a subject is, of boundaries and rigid sequences, of distances and the like, are too narrow. Under certain circumstances, which we know little about at present, boundaries between people seem to be fluent or plastic, and the ego in the traditional sense of the word does not seem to be the sole and stable subject of his or her inner events.

There are quite a few phenomena which we know from everyday experience which corroborate this analysis. Most people have had the experience that in a group suddenly impulses, or ideas arise, which belong to nobody in particular. There is no single "owner" or "subject" of the idea, but the group is, in a way, the subject. This can be used for good and evil. Every good working team uses these processes, as they were misused by the Nazi demagogues and others around the world. Families know the phenomenon that something which has afflicted one member of the family, even if unknown, unspoken or unknowable, suddenly affects other parts of the family system as well. Systems and family therapy uses these processes. It has even pointed out that such processes are active across generations without known direct psychological links (Ancelin-Schützenberger, 1998; Boszormenyi-Nagy, 1986). Practising therapists know that the "boundaries" and the "skin" of borderline patients is very thin, and that they seem to get invaded by thoughts, emotions, impulses of others as if they were their own. In the same way they project their own threatening impulses outward and make other persons enact the patient's own psychic drama. Although there is a nice

word for this – projective identification – the process itself is not well understood. Our guess would be that such correlational phenomena as seen in our data are at the base of that. Incidentally, in our own survey we found that borderline patients are those patients who report the highest incidence of exceptional experiences (Kohls, Friedl & Walach, 2001). The process of countertransference is well known to therapists as the activation in a therapist of personal material belonging, not so much to him/her, but to the patient. While it is possible to attribute classical psychological inferences and contagion for some of these processes, there seems also to be a genuine anomalous channel too. In it material of the patient, which is completely alien to the present situation, and which could not have been guessed or inferred from similar situations surfaces in the therapist's mind, as idea, image, fantasy, impulse, or affect. This is often used for therapeutic interventions. The most common everyday example are those little synchronicities where someone says or does something, which we were in the process of thinking or doing or saying. Often very simple explanations can be found, but sometimes these things are quite extraordinary and difficult to understand without postulating some non-local correlation between participants.

The bottom line of all those ideas seems to be: Our boundaries are not so rigid and strong, as we and our world view would have it. Sometimes they extend across several participants. Sometimes they may extend over long distances and times. Sometimes they may be perforated by others, whether we know it or not, and whether we like it or not. In short, we have to rethink what and who we are, and what or who we think is the subject of our – or others', for that matter – thoughts, emotions, and deeds. The conventional wisdom which would suppose that, what happens in our head, belongs to me and is our responsibility and is nobody else's business might be wrong. What is going on in our head might make a difference. It might even not be our responsibility, under certain circumstances, which, we repeat, we do not know yet. Let us remember that in most spiritual traditions mental hygiene, that is, the thoughts we think, the emotions which we cultivate, the intentions which we have, are primary and decisive, not the deeds. Once we understand how and to what extent mental states such as intentions produce these effects, we also understand better why spiritual traditions place so much emphasis on mental hygiene.

A Theoretical Model

We would like to sketch, as an outlook, the rough lines of a model (Atmanspacher, Römer & Walach, 2002). Our model is somewhat inspired by *von Lucadou's Model of Pragmatic Information* (Lucadou von, 1995) but follows a separate line of reasoning. It is based on what we call *Weak Quantum Theory* (WQT), and the notion of complementarity (Kim & Mahler, 2000). WQT uses the algebraic formalism of Quantum Theory proper (QT), but relaxes some conditions and axioms, like dropping Planck's constant and thus the restriction to very small systems, or the restriction to material systems. Using the same mathematical framework as Quantum Theory proper, WQT can be seen and handled as a general theory of systems which obey certain conditions. Quantum Theory proper can be recovered from WQT by introducing some restrictions and corollaries. Thus the scope of WQT is wider, while it retains at the same time some characteristics of QT. Especially the treatment of non-

commuting operators or complementary observables is the same. What actually defines a quantum system is the presence of complementary observables, for these are responsible for Heisenberg-type uncertainty relations which characterise QT proper (Walach, 2002).

It is a prediction derived from WQT that whenever there is a separate system and within the system complementary variables, one describing a global and one a local aspect of the system, there is an entanglement between elements of the system which are represented by these complementary variables. Entanglement here means that elements of the system are not really separate entities but behave holistically or in a correlated fashion. Elements which are not complementary can always have sharp and defined values together, at the same time or combined. But elements which are complementary cannot. Either one is maximally defined, then the other is maximally undefined, or both are undefined to a certain degree. In that sense they interdepend.

Thus, the practical consequences which follow from the theoretical framework of WQT are that whenever there is a system with a global observable describing the whole system and a local observable describing a part of the system, and with those observables being complementary, there is entanglement or non-local or holistic correlation between elements of the system. What is admittedly still a matter of research is what "complementary" means in that context. While it has a precise operational definition in physics, it is badly understood in areas outside physics. For instance, in everyday experience individuality and connectedness, or love and justice, or relationship and separateness, are complementary notions. From these examples it is clear that "complementary" does not mean opposite or contradictory. Rather it means incompatible. On the other hand, it is certainly less clear what complementary pairs of observables are in a macroscopic, everyday life context than it is in physics proper. Clearly there is still much room for further conceptual clarification and theoretical research. In the meantime the existing conceptualisation does offer a theoretical starting point for understanding seemingly anomalistic events within a theoretical framework which is very similar to that used by modern physics.

WQT then could offer a theoretical basis for the phenomena described above: In all those situations there is a description for the system which is complementary to some local descriptors. In the experimental set-up of the "Transferred Potentials" in study two, participants are experimentally joined together, and yet they are separated. They are thus individuals and in a way treated as such but they also are an experimental ensemble and thereby can be seen as holistically correlated. Stimulating one subject really means stimulating the whole system. Therefore, traces of the stimulation are found in both elements. The same is true for the DMILS setting: Two participants are separate yet joined together by the systemic setting of the experimental paradigm. Thus if one subject activates him/herself this means also activating or relaxing the other person or doing something in ones mind that is not reality yet – like the strong wish to activate or to calm the other person – would also bring about the desired state. In such a reconstructive framework the complementarity would be between the mental intention and reality. It is worth noticing here that there could be many different ways of reconstructing the complementarity within a system. This would also be a way of understanding what healers do (Walach, 2002): In their mind they produce the desired state of the patient, while by their rituals or in their

imagination, they construct a common systemic border. Within that ad-hoc system, containing themselves and the patient, they then set up what can be reconstructed as a complementary state to one description of the system (for instance a healthy state for a diseased system). It is thereby quite conceivable that in purely correlational terms, that a part of the system (the healer) can correlatively, without sending a signal, bring about an effect in other parts of the system (in the patient).

These suggestions are, of course, only very loose reconstructions along the lines offered by WQT, which would have to be explored further, before a complete understanding can be reached. However, these sketches show that such an enterprise is at least possible. If this is at all plausible, then the entanglement between parts of macroscopic systems, could be a much more common phenomenon than normally thought. It could be that in many phenomena normally disregarded or considered strange or anomalous, such a mode of correlational action is at work. This would then be a complementary type of relationship, complementing causality and local action, much in the sense as it has been predicted and outlined by C.G. Jung and the German physicist Wolfgang Pauli in their correspondence and common book on synchronicity (Jung, 1952; Meier, 1992; Pauli, 1952; Römer, 2002). They have postulated that what they called synchronistic relationships through meaning, should be a separate and complementing category to that of local-causal relationships through classical efficient causality. WQT is a way of expressing exactly this postulate of Jung and Pauli in a more stringent theoretical framework and defining preconditions for the occurrence of such acausal, correlative, non-local relationships. It would predict that depending on systemic boundaries, correlative processes can occur which join together elements to form a holistic system yet which, from a purely phenomenological point of view, seem to be separate. Hence what counts as one system can be fluid, and processes within one system can seemingly jump physical boundaries because systemic boundaries together with complementary variables define the regions of holistic correlations which are not mediated by signals. What is intriguing is the fact that this analysis derives from the very foundations of our physical description of nature. It should be noted here that our proposal is not a simple extrapolation of the well-known and empirically confirmed EPR-correlatedness of experimental quantum systems into the macro-world. Such an undertaking would be highly problematic. Nor is it a mere analogy, which would be nice but simply speculative. Our model is straightforward and axiomatically formalized in such a way that predictions can be made and empirically tested.

It shows that the material boundaries set by the physical make-up of our world are not definite. The way to transcend these boundaries seems to be intimately connected with our mind, which, by the way, can also be seen as complementary to our body. By this view, the intimate connections between our mind and our body could be viewed as holistic correlations or non-local correlative connections. Thereby we come back to Leibniz again: He conceived the relationship between mind and body exactly like that. He used the example of two synchronised clocks and called this relationship "preestablished harmony". Within the framework of the perspective presented here, both the relationship between mind and body, as well as the correlative relationship between elements of systems, such as the human mind and other parts of physical systems, would have the same foundation: non-local, holistic correlations

based on the principle of complementarity and macroscopic entanglement as predicted by WQT.

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Cognitive Psychology's Day in Court: An Essay Review of Houran and Lange's Hauntings and Poltergeists - Multidisciplinary Perspectives

Hauntings and Poltergeists - Multidisciplinary Perspectives Edited by James Houran and Rense Lange. 2000. Jefferson, NC: McFarland. Hardback. ISBN 0-7864-0984-3

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In reviewing a previous book, I remarked on the need for formats which present research material in an attractively illustrated manner. This is one of the first serious parapsychology books to attempt to do so. But this book has many more merits than so. Although it *might* seem too much to claim that *Hauntings and Poltergeists: Multidisciplinary Perspectives* represents a landmark in research, since it contains no breakthrough findings or even consensus knowledge, I believe the book will for years to come function as the first ever handbook for research on apparitional and poltergeist experiences.

The lack of consensus knowledge and the contradictions between the contents of some of the chapters may at first face seem damming, especially considering the effort put into research in this area. There are however many less complex areas in psychology – such as intelligence research – which have received a wealth of input and for which, as yet, no single agreed-upon theory has emerged. The editors, James Houran and Rense Lange, who are affiliated faculty members at Southern Illinois University, make no secret of their bias in believing "hauntings and poltergeists" to be entirely explicable in terms of cognitive psychology. Still, the selection of chapter authors is a fair one, and the editors have had the courage or indeed the openness to self-critique which allows them to give prominence to the views of John Beloff, who wrote the foreword, and Gertrude Schmeidler, who wrote the afterword. Both these authorities repudiate the dismissive stance the editors take, as just too simplistic and inadequate to account for the well-documented cases of psychical research. Schmeidler and Beloff point out that a total failure to distinguish between the weak cases and the strong cases allows the former to be used as straw-men for cognitive theory to shoot down. It is in fact the harder cases, which, left untouched, still challenge us to provide radically new theories. Schmeidler's view (p, 309) is so aphorismic that it is worth quoting in full:

> "But in spite of agreement between sceptics and parapsychologists on some approaches to these cases and even on some conclusions from them there is still a yawning gulf between their evaluations. What research could lead to a meeting of minds? The task as a sceptic might see it is to show how any example of a paranormal claim can be due to normal causes. The task as the parapsychologists sees it, is twofold. One part is presenting key cases that are impossible to explain

by known principles and thus demand a new hypothesis, The other is to rough out the new hypothesis they demand and to present material that makes it plausible."

The strength of the book is of course its multidisciplinary approach and, appropriately, the book is divided into sections relating to socio-cultural, physical/physiological and psychological perspectives. Some well known experts are represented by the chapters they have written and these include William Roll, Michael Persinger; Dean Radin, Hilary Evans, Joe Nickell, and Ronald Finucane, but several of those who are arguably the most knowledgeable in this area, such as Alan Gauld and Tony Cornell, are notably absent. By contrast, I have to confess that about halve the authors are unknown to me, probably because they belong to other specialised disciplines than to my own (parapsychology and clinical psychology).

From my background, the book would have been strengthened if authors had been vetted more for a basic knowledgeable of the parent field of psychical research, or else at least had been encouraged to read some of the relevant chapters in the book. This might have avoided the incidences where one chapter shows an ignorance of field research or outrightly contradicts the content of another chapter. This problem is already marked in the first section on *sociocultural perspectives*. Here David Hufford argues for taking the experiential narratives of hauntings and apparitions seriously and recognises "that some of the experiences may have a stable perceptual pattern that constitutes persuasive evidence in support of the related beliefs." Psychical researchers might applaud this honest statement but wonder whether they have come further than Sidgwick's famous presidential address given at the Society for psychical Research's foundation in 1882, which said essentially the same thing.

Also in this first section, Ronald Finucane produces a fine historical review of apparitions noting how in the 1600s ghosts were seen as communicative beings giving information about inheritances and murders. With the rise of science in the seventeenth century, repressed religious fears meant that apparitions took on a ghoulish appearance but with further enlightenment by the 1800s onwards ghosts became speechless and passive entities but nevertheless fulfilled our left-over wishes for an after life. As interesting as this survey is, it happily goes on to conclude from this that all hauntings and apparitions are simply the products of culturally and personally over-active imaginations. The chapter fails thereby to make a distinction between crisis-apparitions and hauntings and also fails to discuss any of the better attested cases of hauntings. An author may of course choose to try to discredit such cases but to ignore them is to profess ignorance.

By contrast Hilary Evans in contributing to this section, appears to accept all the accounts at face value and lumps apparitions together with everything from folklore entities to the "Men in Black" in order to try to extract what the common features might be. What is learned from this smorgasbord remains for me to be rather unclear other than it is concluded all these experiences fulfil important individual human needs and that some individuals may be more prone to these "encounter experiences" than others. The chapter is richly illustrated but unfortunately there is no reference to these plates in the text of the chapter. Worse, one plate is the well known Lord Cumbermere Library photograph, and no mention is made here of the possible normal explanation for the ghost-like image of Lord Cumbermere. Given that Evans has a

large collection of classical photographs, it might have been more useful, had at least some part of the chapter be given to a critical examination of possible normal explanations for these images.

Within this psychosocial section of the book, the only chapter that really attempts, at least in some fashion, to come to grips with the issue of whether or not there is anything "genuinely paranormal", is that by James McClenon, a professor of sociology and a former investigator for the Psychical Research Foundation. McClenon gives the impression of being a critical and sceptical observer who reports what *appear* to be a wide range of genuine cases and has even succeeded in video-documenting some of the events. Among the cases he relates are intriguing observations from the SORRAT case in which apparently large scale psychokinetic effects, including levitations, sometimes occurred under what was for him, observable conditions. Whatever its true nature, the case is remarkably similar to the contemporary and controversial Scole case. McClenon notes "It is my impression that all group members are completely convinced of the authenticity of the SORRAT phenomena while virtually all professional parapsychologists are unconvinced." While most parapsychologists have, possibly out of prejudice or fear of ridicule, simply ignored even investigating such claims of macro-phenomena, it should be said that some doubt is added to the SORRAT case by the accounts of visits such as that by Tony Cornell (2002) which is detailed in his recent book, *Investigation the Paranormal.*

In view of this uncertainty surrounding the phenomena, it becomes then very frustrating, if not totally incomprehensible, to the psychologist who wishes to capture psi in a test-tube, to read how McClenon's "goal is to monitor changes in belief, not to verify paranormal phenomena." His aim is to use grounded theory to guide hypotheses forwards arriving at what he calls a *ritual healing theory.* This theory ascribes anomalous experiences to certain individuals who are suitably neurophysiologically disposed to enter the necessary psi-conducive altered states. The generation of psychic experiences in these individuals can then be spread within the closed group they belong to and alter the consensus reality thereby permitting even more anomalous events to occur. Naturally the sense of reality created will then come to deviate somewhat from the larger consensus reality and McClenon writes of his own experience: " I felt a sense of dismayed frustration since I had documented events that many people would regard as absurd and which subsequently have no scientific impact." The chapter may nevertheless come to be a significant contribution since it is published at an opportune time when the cultural relativism view of reality (known in parapsychology through the writings of Harry Collins and more recently through that of George Hansen) is gaining interest in order to explain what is becoming recognised as the elusiveness of psi.

The section on *Physical and Physiological Perspectives* contains core articles in the book co-authored both by William Roll and by Michael Persinger, two of the foremost experts in the field. Roll and Persinger's joint paper provides an excellent summary of contemporary evidential poltergeist cases associated with the work of Roll. All of Roll's major cases and findings are to be found summarised here, sometimes under the name of the agent (the Julio case and Tina Resch case) and sometimes under the place-name (the Columbus, Seaford, Olive Hill, Miami, cases).

The chapter is an extremely valuable contribution since added to Roll's own cases are summaries of the other well known modern ones: the Sauchie case investigated by George Own, the Welsh case investigated by David Fontana, and the Rosenheim case investigated by Hans Bender. This makes the chapter fully comprehensive as far as modern evidential cases are concerned.

Of particular interest may be the Roll and Persinger assertion about the Rosenheim case, (page 145) that "Bender's group recorded the swinging lamps on video and registered the banging." I have been unable to determine if this was really the case but if so it does suggest, contrary to the elusiveness claim, that genuine PK can occasionally be caught on camera. Hans Bender's chapter in John Beloff's book *New Directions in Parapsychology*, contains a picture of "swinging lamps" but the leader of the archival-historical section at the Bender's former institute, Eberhard Bauer, writes "As for the swinging lamps etc. I'm not quite sure either if Bender really managed to videotape such phenomena. According to my memory, the first videos were done with an AMPEX machine and most of this material could not be saved (it erased over the years)" (Bauer 2002). Nevertheless, through the offices of Eberhard Bauer I have access to an extant ZDF film made at the time of the case and while not showing the lamps in action, it does show an actual film recording, albeit only for a two or three seconds, of a picture rotating and then falling.

The chapter formulates a theory based on Persinger's observations of a link between electro- and geo-magnetic activity, temporal lobe epilepsy and poltergeist episodes and provides the reader with impressive time-linked graphs to support this theory. A major link in the theory concerns the finding amongst Roll's cases of an over representation of not only adolescents, but adolescents with signs of epilepsy. The form of epilepsy implicated: *complex-partial-temporal lobe epilepsy,* is a relatively mild form of epilepsy involving a brief loss of consciousness and often the presence of stereotypical actions. Roll believes that persons may be especially vulnerable to the influence of fluctuations in the geomagnetic and electromagnetic fields on the temporal lobe, thereby inducing apparitional hallucinations or even RSPK. Certainly what is probably the best documented poltergeist case, Rosenheim case (Bender, 1974), does confirm the close association of the phenomena with electrical effects, Furthermore a viewing of the unpublished interview tapes does suggest that Annemarie, the focal person, may well have had such complex-partial-epileptic states during some of the RSPK phenomena. Yet there are enigmas in many cases which may point to a greater complexity of the phenomena. For instance in the Rosenheim case, one interviewee described how he first heard footsteps from an invisible source move towards the picture which he then saw rotating and on some rare occasions, the phenomena occurred without Annemarie's presence and seemed to fulfil the traditional poltergeist role of a prankster[1].

[1] Lest the reader believe that this prankster aspect might implicate a fraudulent source, it should be noted that the full force of German meticulousness and efficiency was thrown into the case in the form of police from the Criminal Investigation Department, and staff and personnel from the Municipal Fire Service and Electricity Department as well as physicists from the Max Planck Institute – all this without revealing anything suspicious. In addition, there were about forty first hand witnesses to the events and there appears to have been a brief film documentation of some of them.

Even given the persuasiveness of the electro/geomagnetic theory, the most that could ever be claimed for this epileptic condition, is for it to be a contributory factor rather than a necessary and sufficient one. Given then that next to nothing is known about the energy form involved in the apparent PK, the theory, although it is a beginning, says in fact very little. A further difficulty arises in the lack of control measures for the connection between geomagnetic fluctuations associated with the areas in which apparitions tend to be seen. The case which I am personally most familiar with in this chapter is that of the Engsö Manner House since I was privileged to accompany Dr Roll on one of his investigations. The house, with its large mirrors and manikin dolls portraying characters from the 17 hundreds, seems to easily provide a "suggestive milieu" (or in Lange and Houran's terms, contextual cues) for inducing apparitional experiences as occurred during the visits of Radin and Moody. Some further caution may be appropriate here since geomagnetic measurements are not generally made blind as to which areas are known for ghosts and since the field sometimes fluctuates to varying degrees, this means there is a risk for a strong subjective bias occurring during the geomagnetic recordings. Nevertheless there may be some objectivity here especially when the chapter is illustrated with pictures of some of the extraordinary orbs and light forms associated with haunts and caught on camera by Roll and his co-workers. The explanation offered by Persinger for these is that they are the result of piezoelectric effects generated by tectonic strain, yet I wonder if the geomagnetic deviations actually observed at the time by Roll are of the magnitude required for these effects to occur.

A chapter by Persinger and Koren develops further this theme of a link between ambient electro- and geo-magnetic fields and the occurrence of so-called anomalous experiences in general and apparitions in particular. Central to this is the apparent effect of fluctuations in the amplitude of electromagnetic fields on individuals who have signs of complex-partial-temporal lobe epilepsy. Two sources of these electromagnetic fields are house-wiring and household machines and the authors present some case studies where these domestic fields actually do seem to be casually related to haunt phenomena and the reasoning is that they do so by exerting a direct influence on the electrical activity of the brain. More specifically the theory supposes this results in an enhanced activity of the limbic system (which mediates the basic components of feelings and olfactory sensations) together with a sudden shift to the temporal lobe's right hemisphere. This would mean that normal perception becomes interpolated with dream-like imagery and thereby explain the hallucinatory dream-like sequence of these experiences.

Some of the evidence for this theory is provided by the study of normal individuals who on being stimulated with complex weak electromagnetic field in what has come to be called "Persinger´s chamber" report a *sense of presence*. Unfortunately there appear to be few if any control groups reported in this work which show that this effect would not occur anyway by expectation alone. Supposing there is some truth in this theory, then this came not be the whole explanation since apparitions would regularly appear in many artificially created electromagnetic environments, for instance on intercity trains where on starting the train-motors there are rapid changes in the magnitude of electromagnetic fields. More monitored experimental work is clearly needed and the section includes Dean Radin's attempt at this. Physiological

and environmental sensors were in place while attempts were being made with the help of a *psychomanteum* to induce apparitional experiences. The project took place I believe out shortly before Radin´s laboratory was closed and consequently the report gives all the features of it being an exploratory study and only one of the seven volunteers experienced an apparitional presence, albeit briefly. The study becomes a monument to what might be possible, given the right funding.

A major chapter in this section is contributed by Peter Brugger and entitled *From Haunted Brain to Haunted Science*. In many respects the chapter is just too odd and bizarre to have been included in such a book but as such it is a good example of the modern substitute for psychoanalysis which might be appropriately christened *neuro-analysis*. Much of the chapter concerns the neuo-analysis of Ludwig Staudenmaier and August Strindberg, ascribing as such their occult experiences to schizophrenic delusions. The cases studies are held up as examples of the dangers of what spiritualistic practices can lead to. No mention is made that a global diagnosis of schizophrenia has itself been strongly criticised by cognitive clinical psychologists such as Gordon Claridge and Richard Bentall (Bentall, 1990). In particular Bentall has presented an alternative orientated approach to some types of paranormal experiences (Bentall, 2001) and even transpersonal interpretations have been made of Staudenmaier´s experiences (Naranjo & Ornstein 1971). As for Strindberg's alleged schizophrenia etc, Brugger does add a note (p. 212) that "Some Scandinavian authors were offended by these diagnoses, without, however, providing a better one" but fails to even consider that the blunt tools of dichotomous Kraeplian diagnoses, might be totally inappropriate to use on creative individuals.

There is little of relevance in this chapter to the main theme of the book, the essential thesis being merely that creativity is the work of the right hemisphere. In what unfortunately must be deemed to be a rather chaotic presentation, the case of Clever Hans is trotted out yet gain as evidence for non-verbal cues thus explaining away all claims of telepathy and not content with Hans, the case of the horse Lady is later put on show in order this time to expose the naivety of the Rhines as competent researchers. While in no way wishing to suggest that horses can be telepathic, it should be pointed that like coca-cola sales and subliminal perception, the Clever Hans data are just not there and the case has grown into a self perpetuating psychological myth (Bringmann & Abresch 1997). As for the case of Lady, it is rarely mentioned that this was a joint investigation with the eminent psychologist William McDougal and according to their contemporary accounts both investigators were well aware of the necessity of excluding non-verbal cues (L. Rhine, 1983). They may not have succeeded but that it is another matter and it is clear from other reports, such as on the Margery mediumship, that both Rhine and McDougal were more critical observers than Brugger would have us believe from this case.

As for the cases mentioned earlier where there exist well-documented testimonies of paranormal experiences often with the researchers themselves as witnesses (as reported elsewhere in the book by William Roll and Michael Persinger, Dean Radin, and James McClenon), it hopefully will be a source of amusement to Brugger's fellow authors, to learn that they too must be suffering from "shared delusions" and "perceptual contagion". Does Brugger then seriously mean to imply that Bender's own work (such as in the Rosenheim case) is a set of shared delusions? If so this has all the

"perceptual contagion". Does Brugger then seriously mean to imply that Bender's own work (such as in the Rosenheim case) is a set of shared delusions? If so this has all the elements of a bad cosmic joke since Brugger's work has been supported financially by Bender's former Institute, *the Institute für Grenzgebiete der Psychologie und Psychohygiene*. This chapter seems to be a case of a psychologist's theory becoming even more far-fetched than the data to be explained, which it should be added is most unfortunate in view of Brugger's undoubted expertise and resources could have been put to good use in this difficult area.

Joe Nickell is a CSICOPS fellow who at least commands some respect by virtue of his practical experience of the area he is writing on. Ironically the author's credibility is somewhat spoilt by both hype and self-advertising as for example "Dr Joe Nickell world renowned paranormal debunker". Like many other authors Nickell concentrates solely on the obvious cases of fraud and deception and gives the impression of being totally oblivious to the cases reviewed earlier by Roll and Persinger. The chapter is nevertheless a useful collection of just these types of false cases and further adds to its utility by listing the common sources of photographic artefacts which can give rise to anomalous images. By contrast the coverage of the psychological aspects of these cases is scanty, but then this is fully dealt with by other authors in the last section of the book.

This last section in the book is the proving ground for cognitive psychology as far as finding normal explanations for these experiences. Brazilian doctoral student Fàtima Machado argues for an approach known as *semiotics*. This means that signs and cues contained in the case, particularly involving the communication and background of the individuals involved, can be used like in a detective story to puzzle out the psychological meaning of the poltergeist event. Machado is not concerned with whether or not a case is genuine since she asserts "fraudulent cases may follow the same psychological logic as the so-called genuine ones." At one time some prominent defenders of psychoanalysis also argued that psychoanalysis was not empirical science but a form of semiotics. The risk is that if psychical research were to fall back on semiotics, it would become like psychoanalysis, even more marginalized. Moreover the important question of whether or not fraudulent and apparent genuine cases actually follow the same psychological patterns, surely should not be left as a question of opinion but be empirically resolved.

V. K. Kumar and Ronald Pekala are psychologists who examine the nature of the historic relationship between hypnosis and psychic experiences. The starting point for this much needed evaluation is found in the now classic papers of Wilson and Barber on *fantasy-prone personality*. The authors go systematically through findings which relate the reporting of anomalous experiences to the various psychometric instruments which have been used in this area. (The list is long and includes their apparent favourite the Phenomenology of Consciousness Inventory, as well as the Dissociative Experiences Scale, the Tellegen Absorption Scale, and Inventory of Childhood Memories and Imaginings.)

Statistical evidence is amassed from these studies suggesting that the occurrence of paranormal phenomena and experiences may actually occur during trance–like states. However, after penetrating the area, I think most readers will conclude it is a jungle with some strong paths but confounded and barred by many weak relationships

between the often overlapping scales. It is then rather surprising, given that one of the editors is a doctoral of Michael Thalbourne, that his rather substantial work and that of his co-workers on *Transliminality,* goes unmentioned and unreferenced. This is unfortunate since the aim of this work is to unravel just these relationships.

Kumar and Pekala go on to conclude that while most paranormal experiences are due to misperceptions and fraud, rare cases seem to concern genuinely veridical happenings. This is hardly controversial for parapsychologists but then the authors inexplicably go on to conclude "at the present time there is no way to determine the veridicality of the reported paranormal experiences." There may be no absolute proof of anything, but surely witness statements and video documentation provide a basis for assessing cases and moreover forsenic psychologists have used such instruments as the *Statement Validity Analysis* in order to further assess the veracity of witness statements. This is certainly an instrument which deserves mentioning and which might well be applied to this area.

The chapter by Tony Lawrence is in my opinion one of the few to apply critical thinking in an unbiased manner even if the chapter has little if any relevance to the title of the book. Clearly knowledgeable in this area of the psychology of paranormal belief, Lawrence builds much of his theorising on the pioneer work of his apparent mentor, Harvey Irwin. The outcome is a flow chart linking childhood abuse to the development of fantasy proneness. Fantasy proneness is seen as the precursor of both paranormal belief and experience since it remains somewhat unclear as to which comes first. Whatever the case, both paranormal experiences and belief are seen here as serving to give such individuals the sense of control over life which they lacked in childhood. There are however major problems with this research and one cannot help agreeing with Lawrence that test methodology needs to be more specific in distinguishing between the different types of anomalous and occult experiences instead of subsuming all and sundry of the occult under the word "paranormal" (Goulding and Parker 2001).

The cognitive defect hypothesis would claim that sceptics have more critical ability and believers have less and it is often assumed so despite that findings appear to be far from consistent in this respect. In a recent exchange with a fanatically sceptical group in Sweden, my colleague Jan Dalkvist argued that extreme sceptics and believers might in fact be cut from the same cloth. Lawrence seems to be expressing the same thought when he says that findings may be complicated by the fact that at least some sceptics are "sheep in goats clothing". Moreover rather than there being any clear and general difference in critical thinking, the difference may lie in the access to creativity and imagination which characterise the psi-prone individuals.

Because of this fixation with the cognitive deficit hypothesis and the mixing of well documented cases with all kinds of other cases, Lawrence concludes (p. 258) his chapter rather pessimistically: "The upshot of my discussion is quite simple. The psychology of paranormal belief and experience, as it has been previously practised, is largely irrelevant to an understanding of apparitional beliefs and experiences."

For me the strongest case for the validity of the cognitive theory in this area, is undoubtedly made by the editors themselves, Rense Lange and James Houran. Nevertheless, their chapter has some blatant biases and weaknesses that can be characteristic for this approach and which may undermine at least some of their

conclusions. The style of their reasoning becomes immediately apparent by using a quote from Michaeleen Maher about the "lacklustre" quality of apparitions. Re-interpreting this to mean "vagueness and ambiguity" allows Lange and Houran to render these experiences suspect and thereby inauthentic. The chapter marches on to set up such oddities as "Re-constructed Angel Appearances" and "Men in Black" as targets easy targets for Lange and Houran's cognitive marksmen. The one apparitional case (the Raynham Hall case) that is examined and illustrated as a plate can also be dismissed as due to the effect of contextual cues, meaning quite simply, you see what you are primed to see. Although the authors claim this case has " long been offered as supporting the physical reality of ghosts", my reading of the literature suggests the contrary, that the Raynham case was always a suspect case (Wilson, 1995). If so, then the best that can be said is that the authors have become adept at setting up and shooting down straw men.

Having said the above, it should be emphasised that Lange and Houran also provide a valuable service in giving the reader a chapter that is comprehensive and at least superficially persuasive, and indeed merits being called "the definitive cognitive psychology of hauntings". Their list of normal explanations for these experiences based on the presence of natural causes both is useful and convenient. (This includes: sleep paralysis, standing acoustic waves, electromagnetic effects, and sounds deriving from animal activity). However the cognitive psychology of hauntings involves not just such normal causes but often involves a subtle interplay of contextual cues, re-constructed memories, attentional deficits, and fantasy proneness. Not content with this, the editors add their own particular contribution to this list in terms of what they call "*Contagious Psychogenic Illnesses*".[2]

These contagious psychogenic illnesses "are characterised by ambiguous stimulants that trigger a sudden onset and cessation of dramatic symptoms, predominantly in young women, during times of psychosocial stress" (p. 281). The authors draw support from findings suggesting that persons prone to paranormal experiences score higher on the Jungian measures of feeling, perceiving, and intuition. The illness is said to be contagious and can spread to others in the family and the group and apparently even to researchers. It is probably unnecessary to comment on this and will suffice to leave Lange and Houran to the mercy of the feministic movement (along with Brugger who not only endorses this theory assures his fate by adding a picture of a scrotum to his text).

Returning to explanations relating to contextual cues and false memories. the only problem I have with these is the strength of the fanfare given to such findings leaves the reader with the impression that contextual cues and false memories are entirely new discoveries of cognitive psychologists whereas they actually derive from the early work in psychical research (see for instance Besterman, 1932).

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[2] Ironically Houran and Lange report themselves on a case of a volunteer couple who were given the task of looking for "unusual occurrences" in their apartment and reported 22 anomalies during 30 days. One of these involved the seemingly impossible and *repeated* movement of a voodoo mask of a shelf to another part of the room. Whereas Houran and Lange use this as an example of attentional bias, I am surprised their own bias was apparently such that it did no allow them to investigate the case further.

As Lawrence notes above, the role of cognitive deficits is much more problematic. In order to arrive at support for a more specific form of this which they call the *attentional deficit hypothesis*, Lange and Houran use the observational data from Roll and Pratt's Seaford poltergeist case in order to show that there is a clustering of poltergeist events relating to just how much attention is being paid. The clustering of events is already a well known finding but Lange and Houran go on to derive a horse-shoe shaped statistical model of attentional lapses. Such lapses are then used to predict the occurrence of phenomena and presumably can, by implication, be used to question the reliability of Roll and Pratt's observational ability. The predication is however quite a complicated one and leads one to wonder how much is actually post-hoc here. Moreover in order to produce the curve and the prediction, the authors have to eliminate amongst the 20 or so observation points, first one outlier and then two incorrect predictions, a procedure which, at least to this sceptic, renders the derived model rather suspect.

A further factor complicating the above concerns the well established finding that the actual beginning of poltergeist events are rarely observed. Cognitive psychologists have noted how humans show what has been termed a *blindness to change* in the immediate perceptual environment which might explain this finding. It would however be wrong to conclude from this that all human observation is valueless since as soon as the change has been observed, it is obvious survival value that observations be accurate. There are also many instances in the literature where even well documented poltergeists and PK events do seem to demonstrate a genuine "shyness effect" as far as the beginning of the event is concerned.

Naturally many cognitive psychologists and magicians might argue for all human testimony being worthless.[103] This is clearly unwarranted when forensic psychologists have made good use of the method known as the *cognitive interview* to derive reliable information crucial to their cases. It also speaks for itself that in order to follow football matches and cross roads, human perception must have some continuity and reliability. What is also very challenging to any theory based on human fallibility and "contagious effects", and which is never discussed by Lange and Houran, are the apparitional cases where there were potential second or more observers present. Collective hallucinations occurred in 56% of such cases and in many instances the perceptions corresponded to the differing perspectives of the observers (Hart 1956). Reporting errors might account for some of this but such findings cry out for further investigation.

Despite the shortcomings, Lange and Houran do make a rather brilliant contribution in this chapter. This concerns an understanding of how ambiguity, fear and belief can interact in order to determine what one finally sees. Although not a term used by Lange and Houran this is what psychologists call *top down processes*. Depending on how much tolerance for ambiguity in an observational situation and fear of the paranormal the individual has, then the need to resolve this ambiguity can be such that it leads to fear dominating perception. This can become so much so that an

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[3] For instance Gauld and Cornell (1979, pp. 254-256) report evidence suggesting that witnesses over a long time period actually tone down rather than exaggerate their accounts.

apparently sceptical person can suddenly switch from seeing nothing to seeing an apparition. The authors include rather appropriately a post card from the 1920s which says it all by showing two frightened children in the forest with caption "I don't believe in ghosts but I am awful scared of them". The theory can also be regarded as a further refinement of the concept of "the wolf in sheep's clothing" mentioned earlier (in the chapter by Lawrence).

After reading the book, many seemingly naïve questions become clearer but do remain unanswered: Are there genuine phenomena? If not, are some of my trusted and critical colleagues suffering from contagious delusions and attentional defects? It seems not only ridiculous but self defeating to conclude that in such cases as say the Rosenheim case, where there were about forty relatively independent witnesses, that they were all deceived and deluded since to do so which underline the very nature of objectivity.

If genuine phenomena then do exist and are not due to cognitive errors described by Lange and Houran, are there any of the effects that can be permanently documented on film? However what happens when several individuals witness the same phenomena – are there any effects then recorded on camera? Some cases are obviously too ambiguous to count. Lange and Houran (1997) have analysed dubious anomalous effects obtained in various types of film media and concluded that the type of effects that were obtained are dependent on the type of photographic medium while the interpretation given to them, is dependent on contextual cues. With the advent of digital recordings, fraudulent manipulation has become relatively easy, however, Maurice Grosse (2002) has collected cases prior to digitisation that are obviously much more challenging.

Beyond this, investigators have documented film what they perceived to be genuine psychokinesis. Honorton reported on some apparently genuine effects made by one of his former assistants, Felicia Parise. The film was made in 1993 in Parise's kitchen by photographer and amateur magician Norman Moses but the report was published later posthumously (Honorton, 1993).[4] Honorton told me how he virtually took her cupboards a part, looking for threads or devises, but found none.

The reader may also be as puzzled as I am by the apparent disparate opinions on the reality of the phenomena even amongst experienced field investigators such as Nickell and Roll. Clearly joint investigations should be given priority, since just as there is an experimenter effect in parapsychology, there may be so form of observer effect in psychical research. Arriving at the end of this book happened to coincide with a visit to Copenhagen organised by a journalists working for a Danish television company. During the last two to three years the team had apparently little difficulty in finding spontaneous apparitional and poltergeist phenomena and making a serious, albeit in this context amateur, attempt at documenting some of the apparent effects. Why is it then so difficult for serious researchers?

The answer may be lie in that if the financing available to experimental parapsychology is demonstrably meagre, then acquiring funding projects in this area is neigh hopeless and those who do have financing tend to use it for the type of cognitive experiments reported in this book. Such financing was also used for projects, such as

[4] Thanks to Dr.s William Braud and Rosemarie Pilkington for giving the details of this.

the heralded Hampton Court investigation, which have not succeeded in resolving the ambiguity surrounding the nature of the more serious cases. Regrettably, the gap in knowledge left by this has been filled with advertising literature from an army of amateur ghost busters.

The book may have failed to produce a convincing normal explanation for these phenomena under scrutiny but this failure can also been seen as its strength. My impression is that the authors are aware of their biases and limitations of cognitive theory: Cognitive psychology has had its day in court and now it is both logical and opportune to use resources to study the cases that appear to be unaccountable on this theory. To produce and publish a book of this quality is an enormous achievement and I believe despite its limitations, it might very well serve as a landmark for future research.

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Research Note: In Defense of Transliminality: A Response to Goulding and Parker

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Transliminality is "the hypothesized tendency for psychological material to cross thresholds into or out consciousness" (Thalbourne & Houran, 2000, p. 861). The construct was anticipated as early as William James (1902/1982), but it has only been recently that myself and colleagues implemented a program of research to give it a specific and empirical definition. Our findings suggest that transliminality is a perceptual-personality variable that may well facilitate a host of phenomena within anomalistic psychology—including psi experiences (for an overview, see: Thalbourne, 2000). Accordingly, research on transliminality not only has appeared in parapsychological journals, but it also has been well received by a number of mainstream journals including the *Journal of Nervous and Mental Disease*, *Personality and Individual Differences*, *Journal of Creative Behavior*, and *Consciousness and Cognition*. Moreover, the Bial Foundation is actively funding a large-scale investigation by James Houran into the psychophysiological correlates of those who score highly on the Transliminality Scale.

Since our understanding of transliminality is still in its infancy, the research that supports the construct is naturally open to debate. However, it is inaccurate to state that no firm progress has been made. That is why despite Adrian Parker's usually positive and supportive stance towards the concept of transliminality (see: Parker, 2001, pp. 6-7) I was disappointed by some comments he made there and with his co-author in the otherwise laudable review article by Goulding and Parker (2001). In part these negative comments derive from an incomplete survey of the transliminality literature. For example, a key article is Thalbourne (1998), but since that came out only at the end of the year 2000 it was not included in the Goulding-Parker survey. Had they included it they would perhaps have seen that the five variables that originally went to make up transliminality (paranormal belief /experience, creative personality, mystical experience, manic-like experience and magical ideation [the variable depression dropped out in the study by Thalbourne, Bartemucci, Delin, Fox and Nofi, 1997]) and which factor-analyzed to a single factor in Thalbourne et al. (1997) likewise factor-analyzed to a single factor in Thalbourne (1998). It will thus not do to suggest, as Parker does, that transliminality might be "a form of fleeting test error variance" (p. 7). This becomes especially apparent given the advanced Rasch scaling analyses (Lange, Thalbourne, Houran, & Storm, 2000) on the Transliminality Scale. The results of these analyses are summarized below, as they speak directly to this and another issue raised by Goulding and Parker.

In particular, Goulding and Parker (2001, p. 77) challenged our admittedly tentative efforts to decide how many variables go to make up transliminality. Thalbourne et al. (1997) were unable to do more than guess at this total. Thalbourne

(1998), on the other hand, entered 16 putatively transliminality-relevant variables into a large factor analysis, and found that we could also include in transliminality fantasy-proneness, absorption, attitude to dream interpretation, and hyperæsthesia. The remaining variables correlated—in some cases very highly—with transliminality, now measured by a 29-item true/false scale (refer to Table 5 of that paper for these correlates).

Lange et al. (2000) have since examined the 29-item Transliminality Scale via more advanced statistical methods. This effort was motivated by the fact that standard factor analysis often yields significant artifacts in measurement due to three main issues: (1) the use of item-level factor analysis, a practice which has long been known to yield spurious results (Comrey, 1978); (2) the assumption that variables are adequately measured by raw factor scores or factor scores (Michell, 1990); and (3) the absence of testing to detect "differential item functioning" (item bias) due to scaling effects related to age and gender. To avoid such pitfalls in evaluating the Transliminality Scale, Lange et al. (2000) used a statistical "top-down purification" procedure (see Lange, Irwin, & Houran, 2000) involving Rasch scaling (see e.g., Wright & Stone, 1979), combined with tests for dimensionality (Nandakumar, 1991), and the removal of biased items (Shealy & Stout, 1993) in an iterative fashion. In other words, the top-down purification approach created a reliable and unidimensional interval measure of the transliminality construct that has a known fit to the Rasch model and clearly defined scaling properties. The Revised Transliminality Scale (Lange et al., 2000) defines a probabilistic hierarchy of items that address magical ideation, mystical experience, absorption, hyperaesthesia, manic experience, dream interpretation, and fantasy proneness.

This Rasch hierarchy, in turn, tells us something about the "meaning" of transliminality. Low to intermediate levels of transliminality are characterized by ambiguous perceptions and evidence of fantasy proneness that often involves paranormal themes. While highly transliminal individuals show similar, but stronger, forms of these experiences, they also report very concrete sensory experiences such as being overwhelmed by smells, being bothered by bright lights, and an inability to shut out a heightened awareness of sights and sounds. However, Lange et al.'s (2000b) analyses also revealed a "gap" near the high end of the transliminality dimension. Accordingly, further research aimed at improving the Transliminality Scale might profitably focus on the construction of items indicative of high levels of transliminality (and especially items that focus on sensory experiences). Thus, it may well be that there are other constituents of transliminality, but it must be admitted that a fair go has been given to quite a large range of potential candidates. Presently, I am involved in a study that is investigating the relation of the Transliminality Scale to Hartmann's (1991) Boundary Questionniare.

As to whether transliminality predicts psi, we may note that Storm and Thalbourne (2001a) found a non-significant correlation between transliminality and hitting in a task using the *I Ching*. However, when two samples were combined (Storm & Thalbourne, 1998-1999; Storm & Thalbourne, 2001a), significance re-emerged (Storm & Thalbourne, 2001b). Awaiting publication is a study by Sanders, Thalbourne and Delin (in press), who found that high transliminality in senders was associated with a significant correlation with hitting. With respect to spontaneous experiences, my

work with James Houran (currently under review) has shown that transliminality facilitates self-reported experiences of apparitions, haunts, and poltergeists. I note here also that the Transliminality Scale used today is Form B, whereas Parker (2000) used the now obsolete Form A. Form B has been widely distributed (see also Thalbourne, 2000), and we can expect new studies of its correlates, including the correlate of genuine psi experience. An Australian study is also in place to ascertain whether high transliminality scores are associated with psychosis-proneness.

It is my hope that this note will inform the broader community of the research on transliminality that has been completed or published since my review in the *International Journal of Parapsychology* (Thalbourne, 2000). Continued work on the construct is clearly needed, but such efforts seem quite promising for parapsychological theory. To be sure, we have moved a considerable distance from the point at which Goulding and Parker (2001) examined the literature.

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Book Review: Parapsychology: The Science of Unusual Experience

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Parapsychology: The Science of Unusual Experience, Edited by Ron Roberts and David Groome, 2001. London: Arnold.ISBN: 0 340 76168 7 Paperback £12.99

It should be said at the outset that despite the title of the book this most certainly is not a text on parapsychology. Indeed, only a minority of chapters directly address parapsychological experiences. But if readers of the *Journal* can make a conscious effort to put aside this expectation they may still find the book has some significance for their interests.

The book aims to survey some experiences that tend to tantalise the general public but in which contemporary mainstream psychologists seem to have relatively limited research interest. The editors choose to designate these experiences as "paranormal" but then explain that by this they mean little else than "unusual". On the other hand, the experiences surveyed here are not necessarily uncommon (thus, dreams are addressed, yet everyone has several dreams each night), nor were they evidently selected on the ground that they are particularly bizarre (frankly psychiatric experiences, for example, are not included). That is, the experiences reviewed in the book are uniformly neither parapsychological nor unusual. In the final chapter one of the editors concedes that the book's subject matter might better have been nominated as "anomalous" experiences, but again the authors of the respective contributions have not invariably established that the experiences being addressed do fundamentally conflict with orthodox principles of psychological science. In short, one of the immediately evident flaws of the book is that the editors failed to establish a unifying theme that could be taken up by each contributor in turn.

The book has three parts. The first, titled "Myth and Method", is designed to provide an introduction to the objectives of scientific research so that readers will appreciate why it is inappropriate to take personal experience simply at face value. This issue is most incisively examined in Ron Roberts' Chapter 1, "Science and Experience". This contribution offers a highly accessible account of the differences between an intuitive or "commonsense" interpretation of human experience and a genuinely scientific analysis of experience. General readers with a nonprofessional interest in parapsychology would benefit substantially from close study of this chapter. Chapter 2, "Probability and Coincidence", explains how average people's understanding of coincidence may be so awry that they may be misled to ascribe paranormal explanations to an event in the mistaken belief that the event could not possibly have arisen by chance. Again, the reader is encouraged to appreciate that hypotheses implicating paranormal processes need to be carefully assessed through

probabilistic analysis rather than in terms of their subjective appeal. The final chapter in Part I discusses the placebo effect in pain reduction; this contribution may be of marginal value in illustrating the methodological complexity of some demonstrations that an underlying causal process is "normal" rather than "paranormal", but otherwise the editors' rationale for the inclusion of this chapter is not strongly evident.

Part II, "Beliefs", comprises two chapters presumably intended to show that people's belief in the paranormal can distort their critical assessment of personal experience. Chapter 4, by Richard Wiseman, identifies a few principles of stage magic by which a fraudulent psychic might lead some people to conclude they had witnessed a paranormal event. In Chapter 5 David Groome argues that astrology has no plausible theoretical explanation and that its efficacy is not supported by scientific investigation. Although Groome's coverage of the literature is necessarily selective it does suffice to illustrate how scientists can subject paranormal beliefs to rigorous empirical scrutiny. More generally, Part II might better have examined the nature of the psychological needs that may underlie the endorsement of paranormal beliefs among members of the general public.

The focal section of the book, addressing the selected "unusual" experiences themselves, constitutes Part III. The specific experiences reviewed here are those of unconscious awareness (written by Tony Towell), dreams (Antje Mueller and Ron Roberts), alien abductions (Christopher French), meditation (Stephen Benton), paranormal cognition or ESP (Caroline Watt), and near-death experiences or NDEs (Chris Roe). It is hardly necessary to reiterate the inanity of construing these topics collectively to constitute the subject matter of parapsychology, as is implied by the book's title. On the other hand some of the material may be indirectly useful to parapsychologists. The paper on unconscious awareness raises some issues about implicit knowledge (things that one knows but can not consciously bring to mind or enunciate) that deserve further examination in the context of spontaneous extrasensory experiences. The chapter on dreams argues that dreaming is a much more sophisticated cognitive process than previously thought and thus the occurrence of extrasensory dreams does not constitute strong support for the view that psi is a "primitive" or atavistic means of communication. The analysis of alien abductions raises the matter of false memories; this topic has been given scant consideration in relation to spontaneous psi reports.

Of rather greater relevance to readers of the *Journal* are the chapters on ESP and NDEs. Caroline Watt takes due pains to explain that what is unusual about ESP experiences is that they imply an interaction with the environment that is not explicable within current scientific understanding; unlike most other contributors, at least Watt justifies the inclusion of her chapter in a book titled "Parapsychology"! Watt also differentiates between a (hypothetical) *paranormal process* and a *paranormal experience* that may or may not entail paranormal processes. Her definition of parapsychology as the scientific study of paranormal phenomena and experiences (p. 131) nevertheless conflicts with the editors' notion of the discipline, and the editors might have shown greater alertness to such internal contradictions in their anthology. This chapter also presents evidence that ESP experiences are lawful and that paranormal cognition has some affinity with normal cognitive processes. In this regard this is one of the few chapters of the book to show explicit cognisance of

the principles of psychological research enunciated in the opening chapter written by one of the editors. In Chapter 11 Chris Roe provides a systematic survey of the incidence, phenomenology, correlates, and theories of the NDE.

Apparently by way of a postscript to the book Ron Roberts' concluding chapter retreats to the conservative position that the available empirical evidence on paranormal processes is noteworthy but inconclusive. Roberts then reiterates the timeworn theory that paranormal beliefs are embraced by the disempowered members of our society, a view that is irredeemably simplistic and has only weak empirical support, and he depicts paranormal belief in contemporary society as a last-ditch effort to cater to the widespread human need to convince ourselves we have an immortal soul. Little effort is made here to educe broad generalisations about the fundamental nature of the "unusual experiences" surveyed in the earlier sections of the book.

In summary, two or three chapters in this book and some sections of a few other chapters may be thought-provoking for professional parapsychologists and for some people with a serious interest in the field. In other respects, however, the book has serious flaws. Potential buyers are warned specifically that the book's title should not encourage them to expect this to be a comprehensive textbook on parapsychology; indeed, a book reviewer more cynical than I might be inclined to speculate that the title is more a puerile ploy to boost sales than a genuine attempt to signify the contents of the book. In the broader context of the study of anomalous experiences the book's scope is very narrow and falls well short of the impressive standard set by Cardeña, Lynn, and Krippner's (2000) anthology. It must also be said that with isolated exceptions the editors have not recruited world experts in the field of anomalous experiences; all the contributors are British academics, most working in London where the editors themselves are located. The book's parochial quality may limit its international appeal and certainly fails to exemplify the fact that psychological science is a fundamentally collaborative international activity. In short, the book is not an impressive survey of anomalous experience and it is certainly not a comprehensive introduction to the discipline of parapsychology.

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Book Review: Remote Viewing Secrets - A Handbook

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Remote Viewing Secrets: A Handbook, by Joseph McMoneagle, 2000, Charlottesville, Virginia: Hampton Roads, ISBN 1-57174-159-3. $14.95

This book is not an academic book intended for researchers to read but a how-to-do-it manual produced by the remote viewer of the CIA's Stargate project who is generally accepted to have the most credibility as regards the claims made for success of the technique. It is rare in parapsychology to have the participant give his/her own personal account and for this reason that the book deserves some serious attention. Joseph McMoneagle's ability has not only the endorsement of Dr Edwin May, who was the director of the Cognitive Sciences Laboratory during last 9 years of the 24 year period of project, but McMoneagle was also given the Legion of Merit, with the citation reading "as one of the original planners and movers of a unique intelligence project ....producing crucial and vital intelligence unavailable from any other source."

Of course the sensation value surrounding the Stargate project has made it a source for claims, counter-claims, and much hype. There are now innumerable books on this project and private remote viewing institutes have been set up not only by individuals who exaggerated their involvement but by others claimants who apparently were never even on the pay role. Perhaps the most objective account of the whole Stargate project with all its contradictions, absurdities amidst perhaps some real phenomena, has been given by Elmar Gruber (1999) - at least in so far as this account has May's personal endorsement. What seems obvious from this source, is that while the research centre at the Stanford Research Institute may have remained committed to doing real science, the operational military unit of remote viewers based at Fort Meade, once having climbed over the barriar of accepting that paranormal phenomena may be real, seems to have completely lost its foothold on reality.

The evaluation of the project by the US government (the CIA/AIR report) concluded that some form of an anomaly had been established but differed on the interpretation given to the anomaly, with one assessor (Hyman 1996) recommending more replication to establish its nature and the other (Utts, 1996) that the work on it should move into the universities and become process rather than proof orientated. Neither of these recommnedations was ever realised or gaioned any official support. In the absence of this, the account in this book given by one of the most successful remote viewers, becomes of interest for learning something about the process. One should not however expect this book to provide any hard data that is persuasive of the genuineness of remote viewing. Indeed, we are told for instance that McMoneagle demonstrated a 60% success rate and another unnamed individual reached 90% but without even being told what the chance baseline was (in most experiments this *seems* to have been 25%) and where the data is to be found.

But assuming it works, how does it work? Joseph McMoneagle attributes its success to entering a Zen state of mind in which openness to inner impressions is promoted at the same time as which it is considered to be vital to retain one's critical ability to distinguish what is pure imaginary from what is potentially real. It is tempting to think it may have been the latter maxim which saved McMoneagle from the same fate of flipping out that befell many of the US-army's remote viewers. In this achieving this de-centering process, any achievement motivation and ego-needs are obviously a source of disturbance and need to be put aside Given this, then the resulting stages of psi-meditated perception can be, in their natural order of progression, described as:

1) The presence of *gestalt outlines* or forms.
2) A groping after likenesses – what cognitive psychologists would call the beginning of *top down processes,*
3) The *emotional impact* of the content,
4) A *conceptual process* in which tri-dimensional images are formed and the viewer begins to "see elements of reality that usually remain hidden".

Much of this actually corresponds well with what is known about the psychology of normal perception, except that some primary emotional evaluation, in terms of threat versus non-threat, is generally thought to be one of the first stages of visual perception. Rather than being an absolute free response test, remote viewing is said by McMoneagle to be most successful when some constraints are given as to the targets location and least successful when there is a moving target. However too many constraints - or so-called *front loading* – can be counter-productive by activating intellectual processes or by being suggestive of the nature of the target.

What is naturally distinctive for psi-perception is that, as McMoneagle notes, the normal time limitations do not apply so the given information may be correct but not at this point in time. Of course the whole enterprise suffers then from what David Marks (2000) readily accuses remote viewing researchers of: *subjective evaluation.* To his credit, McMoneagle also stresses how an awareness of self-deception, the sources of unconscious and conscious fraud, and the types methodological error that can occur, are all important when working with remote viewing. Clearly this area is in acute need of a methodology which will allow us to evaluate the statistically significance of the apparently impressive hits against controls matches for subjective validation - a procedure which incidently one of my colleagues, Dr Joakim Westerlund at Stockholm University is currently working on.

Another complicating factor is that many of the successes of remote viewing are not just due to the form of guided imagery (which distinguishes this technique from others) but also are due to the large variety of other techniques and states of consciousness (including lucid dreaming, out-of-body-experiences, hypnosis and mediation), which have also been applied in this project.

The French chemical engineer René Warcollier is generally accepted to be the founder of remote viewing and is appropriately accredited this founder status in the current book. It may be of interest to mention in this context that under the able editorship of Russell Targ, many of the classics in parapsychology, such as Warcollier's *Mind to Mind* and Sinclair's *Mental Radio,* have become again generally

available and are a rich source of qualitative illustrative material and insight into how the psi-derived material may enter consciousness. A comparison with these account does reveal what is most unfortunately lacking in the present book: The illustrative examples are very few and are almost exclusively purely figurative. One wonders, given the enormous number of examples of good qualitative hits in remote viewing - especially from sessions that McMoneagle was involved in - why the book does not contain examples of just these. The text could then have been more convincingly built around such illustrations instead of using imaginary ones. If the book had succeeded in this respect, it might have joined the ranks of the above classics.

What I think is fairly unique for McMoneagle's account, is its emphasis on how the remote viewing work should be firmly centred on a ethical and even theological grounds, and one can have little doubt from reading this book of the sincerity and good intentions of the author.

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ERRATUM

The Research Note in the EJP, Volume 16, 2001 'Concerning the effect size in the Transliminal Connection between paranormal effects and Personality in an Experiment with I Ching' was co-authored by Michael Thalbourne as with as Lance Storm (who was by error given as the sole author).