

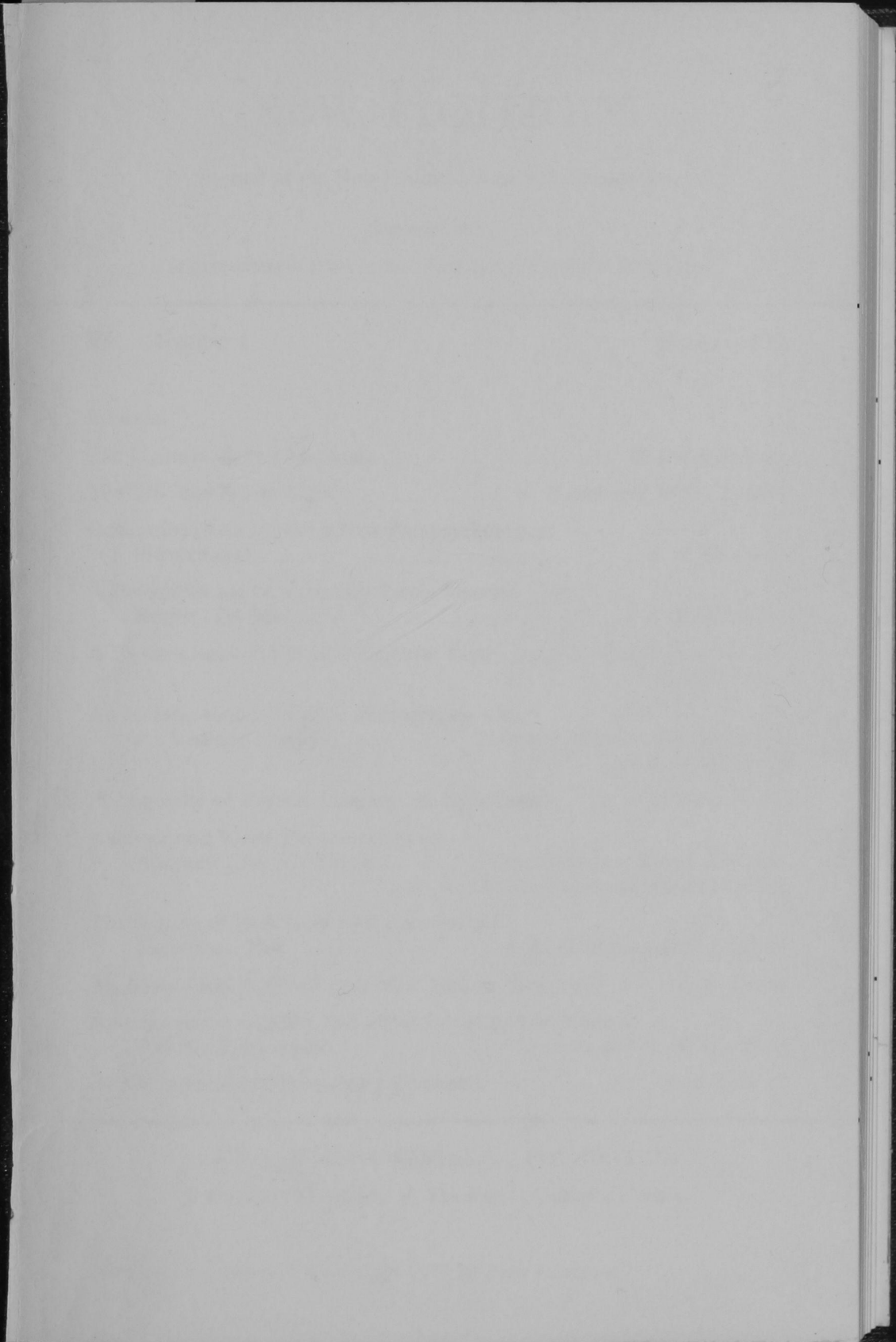
**NEW HORIZONS  
JOURNALS**





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# New Horizons

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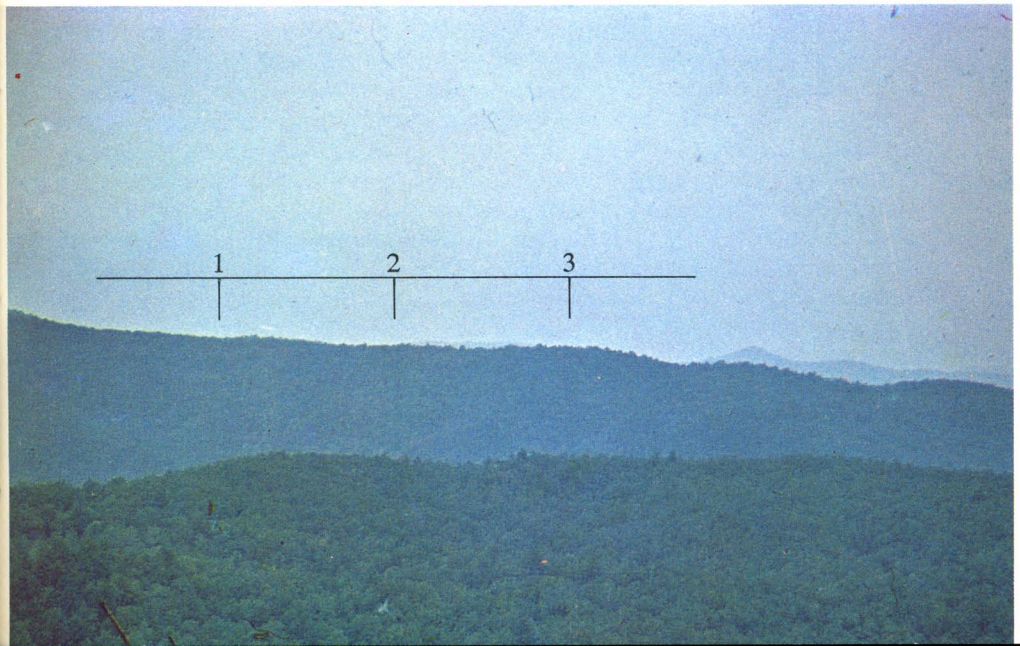
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*Plate 2. One of the flashes of light of type 2.*

*Lights of types 1, 2 and 3 appeared below the level shown by the horizontal line, and near to the vertical lines indicated.*





## EDITORIAL

The purpose of this editorial is not to express any corporate view or interpretation other than the Editor's own but to comment briefly on the position of the papers in this Journal relative to existing fields of knowledge.

The first two papers are of some interest as showing that totally different mechanisms can result in phenomena which become honoured in local folk lore as 'mysterious lights.' Mr. Bessent's paper is also interesting in drawing attention to the peculiarities of lightning and its existence in aberrant local forms. The Brown Mountain Lights would appear to be an instance of a 'lightning nest.' The reason why these 'nests' exist where they do seems to be as yet unknown (Cade and Davis, 1969).

The study of the aura, whether regarded as a subjective or objective phenomenon, has never been a recognized part of parapsychology. It is clearly a difficult field in which to do objective research. Any possibility of rendering this kind of research more objective would seem to be worthy of being reported.

Psychokinesis is a field in which much interest is being expressed at the present time. Numerous eye-witness accounts exist of spontaneous psychokinetic movements, but it is always good to have contemporary accounts by competent observers even of isolated incidents. Voluntary psychokinesis is extremely rare and we think it is important to record the kind of demonstration made by Mr. Merta and his own theories concerning it, in case it is helpful to other PK subjects and investigators.

'Psychic photography' is very difficult to assess, but important if true. It is interesting that different subjects with different investigators produce 'blackies' and 'whities'. Since Mr. Cook put forward his hypothesis that Ted Serios and the Veilleux produce some effects by a PK action on the shutter, Dr. Eisenbud working independently has come to the same conclusion (Eisenbud, 1972). Mr. Cook put forward a similar hypothesis in respect of the photograph taken at Scarborough.

The writers of the report of the investigation in the alleged haunting at Scarborough very properly make no claim that the phenomenon were paranormal. The case is, however, quite illustrative of the variety of misadventures that befall recording systems in possibly 'psychic' situations. There is a great deal of unpublished data of this kind relating to cases in which good equipment properly installed develops apparently inexplicable electrical failures, or records noises not perceived by the investigators. It is very understandable that such data are unpublished, as the paranormality of such occurrences is extremely difficult to establish. They remain however obstinately suggestive of psychic effects on electrical and magnetic apparatus, and raise the possibility of validating these effects in a laboratory situation.

The papers on verbal responses by sensitives are presented with some diffidence. It has always been a dilemma of parapsychology that tests with

clear cut material, e.g. card guessing, though infinitely superior for rigorous assessment to spontaneous responses, perhaps tend to restrict the functioning of ESP into narrow channels. Investigators such as Dr. J. G. Pratt (1969) have therefore sought for methods of evaluating verbal material. If this could be properly done it would be important, because it is possible that work of this kind could cast light on the *modus operandi* of Psi. Here we report two experiments in free response. While we think that the statistical methods used are adequate, we have considerable reservations as to the degree to which this kind of research can be made reliable. Otherwise we think it might be of some value in adding to a corpus of knowledge from which an investigator can gain an idea of the number of correct responses which can be expected from a sensitive of high repute. As a surprising number of people in all walks of life set some value on 'readings' given by sensitives, professional and non-professional, such statistics may have a practical application.

Dr. Zmenak's experience seems worthy of record as illustrating the peculiar twists and contingencies by which a prediction may become veridical.

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# The Lights of Brown Mountain

MALCOLM BESSENT

**ABSTRACT:** *The lights, which have been seen for many years over Brown Mountain, were observed and photographed. It is concluded that undoubtedly the lights result from a form of electrical discharge whose behaviour differs markedly from that of ordinary lightning or ball lightning.*

Brown Mountain is about eight miles northwest of Morganton, North Carolina. It is in the Pisgah National Forest, which is rather wild, wooded country, relatively uninhabited, except along the Blue Ridge Parkway, a well-known tourist route. The altitude of the summit of Brown Mountain is 2600 feet. Since about 1850 there have been reports of "lights" seen at night over the mountain. (Harden, 1949). These lights have been described as varying in size, but to somewhat resemble "toy balloons" and to be pink, orange, or reddish in colour. They are said to rise into view over the mountain and to hover for periods of one to fifteen minutes duration before fading out. Sometimes, it is claimed, as many as three lights can be seen simultaneously at widely separated points. They are alleged to be bright enough to be visible from Blowing Rock, which is twenty miles away. Sightings are said to be frequent in fine weather, but also occur when the sky is overcast or the mountain hidden in mist (Gaddis, 1967).

There seems to be only one report available of an observer claiming to see a "light" at close range. About twenty years ago a local resident told Mr. John P. Bessor that when he was with some companions on the summit of Brown Mountain at dusk, a brilliant light "as long as a man's arm" suddenly formed only a few feet overhead. It emitted a sizzling noise and hovered motionless for a time, and then lengthened and shortened several times in succession (Bessor, 1951). In recent years mysterious lights in various parts of North America have sometimes been speculatively linked with Unidentified Flying Objects. The testimony of Mr. Bessor's witness would, however, suggest an unusual form of lightning or electrical discharge over Brown Mountain. Though lightning has received much study since the time of Benjamin Franklin it is, however, far from being completely understood. In fact, it is only comparatively recently that the existence of ball lightning has been unequivocally recognized and data collated relating to other forms of electrical discharge (Ritchie, 1960: Cade and Davies, 1969). It seems reasonable, therefore, to suppose that the Brown Mountain

lights are an untypical form of electric discharge resulting from unusual local meteorological conditions. The rock at Blowing Rock is celebrated for the strong and persistent updraft of air at that point, which suggests that the vicinity of Brown Mountain may have its own peculiarities of local climate and atmospheric circulation.

At the suggestion of the New Horizons Research Foundation the writer visited Brown Mountain from 16th September to 18 September 1971. The weather was extremely poor, and it rained almost continuously during that time. On the first day I reconnoitred the mountain in the hope of reaching the summit as the best place for observation. In fact, there is a small observation tower there, presumably a fire-watch post. At 6.35 p.m., while driving along a narrow track, I saw a light flash briefly above me. At that time I had no idea as to the appearance of the alleged lights, and so did not immediately realise that I had just seen one. I waited for 15 minutes and, as the light did not occur again, continued my exploration of Brown Mountain. In the event I failed to find either a track or a footpath to the summit. As the mountain is densely wooded, and the conditions were very bad on account of the rain, I decided that the best place to make my observations would be from a hillside, perhaps one and a quarter miles from the ridge of Brown Mountain. I continued my reconnaissance until 7.30 p.m. and then left the mountain, in the hope of contacting some local informants. I did not make a watch that night, as I did not know what to expect, or what would be the best time for viewing the lights.

On the night of 17 September I maintained a watch from the chosen position on the neighbouring hill from 7.30 p.m. until 1 a.m. It had rained heavily all day. The rain stopped at about 8 p.m. but the sky was heavily overcast and the air exceedingly damp and misty, as can be seen from Plate 1. However, from 8.30 p.m. until 11.00 p.m. I witnessed the lights, which showed remarkable regularities. There were three distinct types of light, 1, 2, and 3, which appeared consistently below the level indicated in the figure and never above. Horizontally their locations varied little, and they manifested near to the vertical lines, 1, 2, and 3, indicated in the figure. Each light appeared to have its own characteristic colour, frequency of occurrence, and elevation. The timing was obtained using a watch with a second hand.

Light 1 was yellowish white and appeared at intervals of 8-11 seconds, having a duration of about half a second.

Light 2 was a reddish orange in colour, and appeared at intervals of 12-15 seconds, having a duration of about half a second.

Light 3 was violet in colour. When it flashed the duration was only about one eighth of a second. Its occurrence was much less regular than that of the others. Sometimes there would be a series of several flashes mutually separated by time intervals of approximately 35 seconds. These bursts would be followed by lengthy pauses with no activity until the next



burst. The duration of the pauses varied between 5 minutes and 30 minutes.

According to my visual observation the lights seemed to be electrical in nature, and had a distinct resemblance to lightning. However, the somewhat rhythmic cycles as described above were quite unlike what is normally expected of lightning. When I explored next day, driving on and around the mountain, I saw that there were several homes which I judged to be approximately below the area where the lights occurred. However, without having additional observers working synchronously, it was not possible to ascertain exact spatial relationships between the houses and the lights.

While observing the phenomena I was able to take photographs of Light number 2. However, on account of the poor lighting conditions and the brief duration of the lights, and also because of the characteristics of the film, it was not possible to achieve faithful colour rendition of the lights. Two Nikon FTN cameras on tripod were used. One was equipped with a Nikkor 135 mm f 3.5 lens, and the other with a Nikkor 35 mm f 2.8 wide-angle lens. The film was Kodak High Speed Ektachrome 125 ASA, rated at 400 ASA. Exposure was made by trial, as a light meter was not effective in these conditions. The first ten pictures were taken at 10 seconds exposure each, the next ten at 20 seconds, and the following ten at 30 seconds. Thereafter, the exposure was increased by five seconds for each new batch of ten pictures. The successful photographs, taken between 10 p.m. and 10.30 p.m., received an exposure of approximately 45 seconds prior to the lights flashing. The shutter was closed as soon as the lights began to fade. In one instance a photograph of two lights was obtained on one picture, as the second one flashed on almost immediately.

My visual impression was that the discharge in each flash travelled downwards.

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# The Tri-State Spook Light

J. A. HYNEK AND W. T. POWERS

**ABSTRACT:** *Observations of a "Spook Light" show it to be a purely optical effect.*

In the "Authentic Guide" to the Tri-State Spook Light, by Bob Loftin, there appear numerous quotations from newspapers such as the *Kansas City Star* and *The St. Louis Globe Democrat* extolling the mystery of these Spook Lights. It is stated that many scientists have visited the locale from which the lights are seen but that they failed to locate the source, and that during World War II the U.S. Corps of Engineers spent weeks in the area with the latest scientific equipment and came away baffled.

Far be it from us to disparage the prowess of the U.S. Corps of Engineers and the "prominent scientists," but the writers have solved the problem without the use of "the latest scientific equipment" but using only their eyes, an automobile, and some patience.

This will be stoutly denied by the operators of the local spook light concessions where descriptive booklets and spook light souvenirs can be bought. Indeed, we were somewhat reluctant to publish our findings, but the Editor assured us that in the interests of science this should be done. We agree: the legends will live and prosper, and so will the local entrepreneurs. And so will the Spook Lights. They are not a fake. They exist, and can be seen virtually every evening. Furthermore, they are worth seeing. It is easy to see why they are a source of local pride. But they have a most natural and mundane explanation!

Since it is always fun to keep up the suspense (except in pedantic scholarly works), let us describe first the experience that led to the denouement.

In 1967, one of us (Powers) and two investigators from the Condon Committee went to Joplin, Missouri, to investigate the spook lights. The location was a T-intersection of two dirt roads in the wooded hills south of Joplin; here a soft-drink stand and a telescope were being operated by a local entrepreneur. (The location for viewing, should you be in the vicinity, can easily be obtained from the local chamber of commerce or, actually, almost from any native. At one point, we sought the advice of a local filling-station attendant.)

After dark, looking horizontally and west down one dirt road from the intersection, the observers saw point light sources of varying colors and brightness moving in the distance, somewhere down the corridor made by the road through the trees. As one particularly bright light waxed and waned, it appeared to move closer and farther away, convincing one of the Condon Committee investigators that the light was poised over the hood of the automobile in which the observers were sitting! The lights were bright and seemed no more than a block away. (One unidentified observer was said to have likened the appearance of one bright light to that of a lantern being carried by a little old bald headed man walking up the road! Why it was necessary for the little old man to be bald was never explained.)

When the observers walked west down the road toward the lights, the predicted phenomenon occurred: the lights disappeared (after about walking some 100 yards). Although the observers went on at least another 300 yards, the lights did not reappear. But when we backtracked to the starting point, there they were again, and seemed as before, just a short distance down the road. It was a fine spooky phenomenon and well deserving of the alternate name of "ghost light." It is well worth a side trip if you happen to be in the general neighborhood.

The 1967 observers then drove down the road toward the lights, apparently a thing previous observers neglected to do. The lights again dutifully disappeared and were not seen for the next  $\frac{3}{4}$  mile. Then, however, they reappeared straight ahead. They were easily identified as the same lights by their brightness, colour and general appearance. They disappeared almost immediately, but the observers doggedly drove on, even though the road is not inviting.

Finally, about 2.7 miles down the road, the observers came to a hill, at the top of which the spook lights reappeared dead ahead, together with several dozen other lights. They were the lights of a town still some miles away — primarily street lights. Later the town was identified as Miami, Kansas, an airline distance of 18 miles from the soft-drink stand.

Mr. Powers, a long time associate of mine at the observatory, told me of his findings and so when in 1971 he and I were driving to Northwestern University's astronomical observatory in New Mexico, I insisted that we make a short side trip, so that I might verify the findings for myself. The spook lights were still there, and so was Miami, Kansas. I verified in detail the findings of Powers and his companions. There remains in my mind no question of the natural cause of these lights. Examination of the terrain shows that the line of sight from the initial sighting point grazes three rises in the road, perhaps even as closely as a foot. The crests of the hills form, thus, a series of "knife edges" along the line of sight, a perfect setup for the exhibition of light refraction. Air currents and slight varia-

tions in air density along the line of sight could thus easily produce light brightness and colour variations. I remember getting my eye progressively closer to the ground at the initial sighting point; the lights disappeared. Had there really been a little old bald headed man coming up the road carrying a lantern, his lantern would have remained visible.

The few natives of the area who were let in on the secret of the spook lights quite understandably objected. They remarked, amongst other things, that the lights had been seen there since Indian times. This is inadvertently denied in the Spook Light Souvenir booklet, where it is stated that the lights were first seen in 1903, and that "there isn't any town out there." But there is. Miami, Kansas, shines brightly every night.

The local reactions are an example of how folk stories become assimilated as facts. Nobody we talked to, of course, knew whether the lights had been seen in Indian times; only that he had been *told* that the lights were ancient, which is an altogether different matter.

Even with the mystery lifted, the lights are eminently worth seeing as a rare and excellent example of light refraction in open air. The heights of the hill crests are just right, and the line of sight is just right, to produce the weird effects. The lonely dirt road, flanked on both sides by a considerable stand of trees, forms a long corridor along which the lights are seen. This makes the display far more effective; one gets the impression one is looking through a natural telescope or viewing tube. The effect is dramatic, and we can hope that the soft drink and spook light souvenir concession stand will continue to prosper and the legends of the spook lights will continue to be told. But we also hope that the more scientifically minded will take the trouble to travel the three miles or so down the road and solve the mystery anew for themselves.

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20 March, 1972



# Generation of an "Aura": A New Parapsychological Phenomenon

A. R. G. OWEN

**ABSTRACT:** *Experiments on preception of the human "aura" are summarised. It is concluded that descriptions of the aura are so variable as between percipients as to cast doubt on the aura's objective existence.*

*However experiments of a completely different type are reported, in which an aura was seen out of the usual context, by several observers. It is concluded that objects of a nature, which is the same as or similar to, the alleged human aura exist or are generated under appropriate circumstances. As a corollary it is concluded that the case for the existence of the human aura is thereby greatly strengthened.*

## 1. Introduction

**1.1** The purpose of this paper is to report a peculiar and quite unfamiliar occurrence which happened spontaneously and unexpected but which was successfully "re-created" on a second occasion. Indeed it would be correct to say that at the second occurrence the phenomenon was deliberately re-created, the conditions having been consciously set up to imitate as closely as possible those obtaining on the former occasion. Despite the spontaneous and unpremediated origin of this research, the two sets of observations together meet many of the requirements of the "repeatable experiment" which is often regarded as a desideratum in psychical research.

The occurrences to be described will, for want of a better term, be called collective perceptions of an "aura". The perception of "auras" is an alleged phenomenon which is rarely, if ever, mentioned in the serious literature of parapsychology or psychical research, but is dealt with quite extensively in literature of an occultist or theosophical orientation. There appear to be three treatises only which consider the "aura" in a scientific spirit (Kilner, 1911, 1920, 1965; Bagnall, 1937, 1970; Karagulla, 1969). In his treatise of 1911 Dr. Walter Kilner, a respectable physician on the staff of St. Thomas's Hospital, London, England, defined the aura in the following terms.

"Hardly one person in ten thousand is aware that he or she is enveloped by a haze intimately connected with the body, whether asleep or awake, whether hot or cold, which, although invisible under ordinary circumstances, can be seen when conditions are favourable. This mist, the proto-

type of the nimbus or halo, constantly depicted around saints, has been manifest to certain individuals possessing a specially gifted sight, who, in consequence, have received the title 'clairvoyants', and until recently to no one else. This cloud or atmosphere generally termed the AURA is the subject of this treatise, in so far as it can be perceived by the employment of screens containing a peculiar chemical substance in solution. It may be stated at once that the writer does not make the slightest claim to clairvoyancy, nor is he occultist, and he specially desires to impress upon his reader that his researches have been entirely physical, and can be repeated by anyone who takes a sufficient interest in the subject."

Kilner, in fact, makes it clear that, in his opinion, the aura is the manifestation of a physical reality, and that its perception is not purely subjective. Also, according to Kilner, the perception of the aura was not mediated by any "psychic" or "clairvoyant" faculty, but took place by a form of physical vision. In 1908 at the outset of his work (which continued until his death in 1920), Kilner believed that the aura manifested itself by infra-red electromagnetic radiation, but in due course he came to the view that it involved ultra-violet radiation given off by the human body. He considered that the eyesight of so-called clairvoyant perceivers of auras was sensitive to the ultra-violet. As the result of his own experience with screens consisting of an alcoholic solution of the coal-tar dye Dicyanin contained in a thin rectangular glass vessel he concluded that 95 percent of ordinary persons could be trained to see the aura by looking through such screens, and that a considerable proportion of ordinary persons could be trained to see the aura without screens, provided that the background and lighting conditions were appropriately adjusted.

Oscar Bagnall, an English schoolmaster, with a science degree in biology, chemistry and physics, worked on lines rather similar to Kilner, and proceeded from much the same theoretical standpoint, developing new kinds of screens and filters. "Aura goggles" incorporating solid filters designed on Bagnall's principles are, in fact, presently marketed by a group in England. Unlike Kilner, however, Bagnall was not hostile to the existence of paranormal abilities, but tended to regard them as potentially explicable in terms of physical processes having some affinity with those responsible for generating the aura.

Very recently, Dr. Shafica Karagulla (1969) carried out a piece of work done from an entirely phenomenological standpoint without presuppositions as to the mechanisms involved. She collated the descriptions of auras as seen by three clairvoyants and came to the conclusion that the aura has objective reality (although different percipients may see it differently), but varies according to its possessor's state of health and vitality. This latter finding agrees with that of Kilner, who regarded the aura as a potential aid to diagnosis. Karagulla's investigation has thus refocussed attention on the

original *raison d'être* of Kilner's work which aimed to demonstrate a correspondence between the appearance of the aura and its possessor's state of health. Such a correspondence, if it could be scientifically validated, would, quite apart from any utilitarian applications, constitute a scientific proof of the objective reality of the aura.

It has to be admitted that, up to the present, really cogent and adequately documented proofs of the validity of the aura are lacking. Very few people have acquired the ability to see auras with the aid of Kilner screens or aura filters. Attempts to correlate measurements of the electric field with the aura are not far advanced. Neither thermophotography nor the so-called "Schlirren aura" yield photographs having much resemblance to the aura as described by percipients. Considerable interest attaches to the "Kirlian aura" (Ostrander and Schroeder, 1970). But so far, this is little understood in the West and it would seem premature to positively identify this aura with the aura as previously defined.

**1.2.** In summary, it would seem fair to say that there are two impediments to admitting the aura to the status of independent ontological reality. One is the lack of ability to measure or map out a physical counterpart to the aura as perceived. The other stumbling block is the great variety of descriptions which different percipients give to the same aura. This variability between observers seems to go beyond that degree of variability in the aura, which according to percipients of auras, is to be expected as a result of temporal variations in the physical, emotional or mental state of the possessor of the aura. For example, the writer recorded the colours assigned by various percipients to the aura of one person (code name T41). As will be seen from the table, the observations were made at different times and under different lighting conditions. However, there was no cogent evidence of T41 being in very different physical or emotional states on the different occasions. Each observer made his notes independently without hearing other observers' descriptions.

Where possible the observer's colour vision was tested, using the Ishihara Colour Test which is very easily administered. All had normal colour vision with the exception of one subject U1 (Mr. James Wilkie) who has the "red-green" anomaly of colour vision. None-the-less this subject saw T41's aura as green. U1 also observed the auras of eleven other persons and described them as having the colours:

lilac	deep blue
pale mauve (2 cases)	blue-purple
mauve	sky-blue
reddy mauve	green
azure	rosy orange

The red-green anomaly is therefore no impediment to having the experience, subjective or otherwise, of seeing auras in colour. Curiously enough,

another subject, Mr. Douglas Johnson (U16) — not participating in this experiment — who, like U1, is a psychic sensitive of international repute, and was ascertained to have the red-green anomaly, said that he sees auras but does not see them in colour. He added, however, that if he is perceiving auras *clairvoyantly* he then “sees” them in colour. It may be remarked that the observers whose descriptions of T41’s aura are given in the table all observed his aura with their eyes open, with the exception of observer T53 who gave his description with his eyes closed, which emphasizes the fact that in regard to aura perception we are moving into a conceptionally difficult field.

Where possible, also, the observer’s favourite colour was determined in the sense of his first preference out of the eight colour cards used in the Lüscher Color Test (Lüscher, 1969) which provides a choice from

dark blue	violet
blue green	brown
orange red	black
bright yellow	neutral grey

This test purports to be a test of personality and psycho-dynamics, but its use in the present context was merely to provide conveniently a standard set of colours to be chosen from.

Nine of the observers completed a questionnaire relating to the power of visual imagery. The questionnaire was in a form suggested by Dr. Humphry Osmond (1970), and is not regarded by himself or the present writer as being beyond the “drawing-board” stage, as the capacity for visual imagery is obviously very difficult to assess or to separate from other faculties such as memory. For what it is worth, the scores (V) of the observers are indicated in the table. The maximum score possible on the visual imagery questionnaire is 84 and the median score of a sample of about 70 subjects was 62. It will be seen that six of the eight observers who had been scored for visual imagery had rather high scores distinctly above the median, suggesting a correlation between aura perception and the capacity for visual imagery. However, it would be quite improper to make this a basis for hasty conclusions as the sample is too small for statistical significance, and the writer has at present considerable reservations as to what the visual imagery questionnaire actually measures. It is interesting that the observers T37 and T53 who are both powerful psychics have only lowish scores, 52 and 58 respectively, and U40, who has had some psychic experiences, scored only 51.

Also, U16, the psychic mentioned above, has the sub-median score of 58.



Table: DESCRIPTIONS OF T41's AURA BY VARIOUS OBSERVERS

Date	Observer	V*	Lüscher Colour	Lighting		Colour ascribed to aura	Distribution
				intensity	colour		
1 Dec. 70	U45	—	—	medium	white	orange	
1 Dec. 70	U19	75	—	medium	white	orange with red and blue	seen as colour 'on' the face.
16 Sept. 71	T16	80	yellow	low	red	yellow	compact 'dense'
6 Oct. 71	U1**	74	yellow	high	daylight	green	compact in normal degree
12 Oct. 71	T52	72	yellow	low	blue-green	bluish	around head only.
12 Oct. 71	T55	76	dark blue	low	blue-green	white	around head and shoulders.
18 Oct. 71	T55	76	dark blue	medium	white	green	around head and shoulders.
12 Oct. 71	U41	—	blue-green	low	blue-green	light blue	
12 Oct. 71	T26	78	dark-blue	low	blue-green	blue (interspersed with yellow-green)	on torso
9 Nov. 71	T26	78	dark-blue	low	white	white green merging into blue	on neck exceptionally compact.
18 Oct. 71	U40	51	blue-green	low	white	creamy white	four inches round head and body.
11 Nov. 71	T56	—	—	high	white	bright gold	around head.
28 Nov. 71	T37	52	yellow	low	peach	brown brown, blue blue	around head. in front of neck around hands
28 Nov. 71	T53	58	violet	low	peach	blue grey pale yellow with light brown pale green	around knees above head
						steel grey	around neck and shoulders down the arms

\*Visual imagery score \*\*Red-green anomaly of colour vision.

## 2. The first occurrence of the phenomenon.

On the afternoon of January 16th, 1971, a meeting was held at the writer's home for an informal program of experiment and discussion. Besides the writer and his wife, and Mr. Thomas Ingus and Mr. Sidney Korman, who were operating a Sony CV-2100 videotape recorder (black and white), there were present for the relevant part of the proceedings in so far as the present report is concerned, Dr. Frank McInnis, Dr. William Castor, Dr. Donald Viggiani, Dr. Emil Zmenak, Mr. Ken Dixon, Mr. Jan Merta, and also T53, himself a physician. T53 has been mentioned above as a subject, but he was present on this occasion in the capacity of an investigator. Other investigators were present during the earlier part of the meeting, but had left prior to the observations to be described. It will be relevant however, to give a brief account of the earlier transactions, because the writer has found that the particular format adopted — an informal colloquium for *ad libitum* discussion and experiments — is very adapted to the production of psi phenomena. Provided that adequate minutes and recordings are taken of all events, however adventitious, and that the tone of discussion, though scientific, is courteous and cordial, such conditions are very favourable both to the manifestation of psi abilities and their competent observation.

The meeting began with a talk by Mr. Merta in which he outlined some of his own hypotheses and researches with regard to ESP and PK. From his own ESP experiences he had become convinced that current explanations of ESP are inadequate. He cited perception of auras as evidence of a field existing around the human body. Mr. Merta also gave an account of his own researches into PK, and demonstrated a PK effect on a lightweight device inside a sealed glass jar. (These researches and demonstrations are reported on elsewhere in this journal). Mr. Merta also showed three films. In one of these films he obtained a dowsing reaction from a rod held in his hand, the signal relating to a bottle of mercury which was moved to the back of his head without his knowledge.

After further PK demonstrations, the conversation reverted to the topic of dowsing. A highly informal experiment was carried out in which a polythene "forked twig" type of dowsing rod (the modern descendant of the "water-witcher's" hazel twig) held in the hands of another person was made to move upwards several times at Mr. Merta's command. All present were, of course, fully aware that this experiment had no pretensions to rigour, as the results could be ascribed to suggestion. An interesting subsidiary point emerged however, as it was noticed by Drs. McInnis and T53 that on each occasion when he gave a command to move the rod, Mr. Merta's pupils became momentarily dilated. Also, on one occasion when the rod was rising, Dr. Zmenak noticed that the PK object which was then directly behind Mr. Merta's back but inside its sealed glass vessel

spontaneously and suddenly rotated from rest through an angle of 90 degrees and then came to a stop.

It was decided to attempt a more rigorous experiment. An "angle-iron" as used in dowsing was selected for this purpose. The iron had been obtained from the American Society of Dowzers Inc. (Danville, Vermont, 05828, U.S.A.). It consists of a piece of mild steel rod (diameter 3/16 ins.) about 20 ins. long, bent at right angles at a point 14 ins. from one end and 6 ins. from the other. The short portion is in a loose sleeve of plastic or vulcanite. In use the sleeve is held in the hand so that the short portion is vertical and the long portion horizontal. If the hand is allowed to drop, even though slightly, the rod will swing to right or left. In dowsing the dowser will aim to keep the short part vertical and the long part horizontal and pointing straight in front of him. According to the theory on which dowsing is based, the dowser receives a 'signal' from the water, mineral or oil deposit which he is seeking; this is registered by him unconsciously but causes an automatic muscular response. His hand drops, though infinitesimally, and this is sufficient to cause the rod to swing away from the forward direction.

In the experiment, T53 held the rod with the long part horizontal and in front of him, and proposed that Mr. Merta try by mental command to turn the rod, but not specify in which direction (right or left) he wished it to turn, while he, T53, tried by mental command to cause it to stay still. As was admitted freely by all, this experiment was still not rigorous because if the rod had moved this result could have been ascribed to T53 having yielded to the suggestion that it would move and having unconsciously and involuntarily allowed his hand to drop. In the event, the investigators were not called upon to assess the significance of the rod moving. The rod remained still. But after about a minute of concentration by the two protagonists the following conversation ensued, as recorded on the videotape.

T53: "Look at the aura around the thing [the rod],  
It's fantastic, look at the aura."

Mrs. Iris Owen: "I saw it too, the aura around the rod. He [T53] was fighting it. They are having a sort of duel. I saw it a shimmering silver."

Shortly after, (by what may have been merely coincidence, and will be discussed later,) the television screen of the videotape monitor blacked out momentarily, an 'interference' line appearing horizontally across it. The two participants, T53 and Jan Merta relaxed their mental concentration and the "aura" faded. The rod had been under observation at the relevant time by five persons in all. They were asked to separately write down and report what they had seen without conferring among themselves. Their descriptions were as follows:

T53: "It was in the form of a circular cylinder occupying the space within about one inch from the rod. It was grey and streaming out from the rod in the directions perpendicular to the (horizontal portion) of the rod. It was brightest when he and Mr. Merta were concentrating on the rod. It resembled an aura of the type which he, T53, had seen around an electromagnet."

Mr. Merta: He found it difficult to describe, but said the nearest approximation was to compare it to hot air as seen over a road surface or a hot metal plate.

Dr. E. Zmenak: He saw a shimmering aura at the end of the rod extending about one inch in all directions and extending three or four inches back along the rod. The appearance was like that of a heat wave [hot air] on a cold day [i.e. near a hot object in a cold atmosphere.]

Mrs. Iris Owen: She saw the aura as extending about one inch in all directions around the end of the rod and about four inches back along the rod. It resembled hot air, but there was also a swarm of sparks or luminous particles, which except for their silvery colour resembled the sparks in the welding of metal.

Dr. D. Viggiani: He saw the aura as extending about one inch in all directions from the end of the rod and several inches back along its length. It resembled hot air and was also shimmering and silvery.

The question of suggestion needs first to be settled. Of the observers, T53 sees auras regularly, but only in a weak and muted form around inanimate objects such as the dowsing rod. He was, in the opinion of the writer, genuinely surprised at the size and intensity of the appearance around the rod. T53 is normally very judicial and reserved in his remarks on both parapsychological and orthodox scientific questions and, in the writer's opinion, only drew attention to the appearance because of its (to him) quite unexpected nature. Also, it is worth remarking that his initial statement concerning the appearance was delivered in tone which betokened genuine interest but which could not be described as excitable or sensational. Mr. Merta also sees auras, but not as regularly or spontaneously as does T53. Like U1 mentioned above he needs, as a rule, to give special attention to aura perception and prepare himself mentally prior to making observations.

As regards the three other witnesses, the writer can only record his own opinion which is based on considerable experience of them. He regards them as witnesses of integrity and objectivity. In particular none of them, according to their own account, has previously had the experience of seeing anything in the nature of an aura. It is true that auras were mentioned at the commencement of the session in connection with Mr. Merta's theories of the vehicle by which his phenomena are mediated, but



in the two hours of discussion of other topics, especially PK and dowsing, which had elapsed, the memory of his remarks had faded.

What appears to be decisive in relation to the question of suggestion is the fact that in the initial exclamations of T53 and Iris Owen, little in the way of description of the appearance as seen by these two observers was conveyed by what they said. T53 merely conveyed that the aura he saw was "fantastic" and Iris Owen that it was "shimmering silver". The written descriptions by Drs. Zmenak, and Viggiani, Mr. Merta, T53 and Mrs. Owen, obtained by the writer immediately after and without mutual consultation or permission to engage in verbal discussion, are, in fact, decisive evidence as to the objectivity of the perception. The accounts differ in less degrees than do accounts of human auras by different observers. The coincidence in respect of topography, the hot air appearance, and even the shimmering silvery element seen by some are remarkably concordant, and the validity of the observation is not really open to question.

### **3. Theoretical discussion in relation to the first occurrence.**

The rod was handled immediately afterwards, and seemed to be at room temperature. (70°F). What was seen was not actually hot air. No static electrical shocks were received from the metal. There is no evidence that it received either a static or varying electric charge.

The interference effect and blacking out of the videotape monitor were interesting, but possibly, quite coincidental. In the repetition of the experiment (to be described below), no such effects took place. In recording the first occurrence old videotape was used, which had been used and re-used several times before. On examination a scratch was found on it at about the relevant place, and this may have been the cause of the behaviour of the monitor. It is not claimed at present that the scratch was itself a PK effect.

We are moving in a conceptually difficult field, and inferences as to the nature and causes of the "aura" on the dowsing rod are at best perilous. Several distinguishable hypothesis present themselves:

- (a) The "aura" resulted from a confluence or from a "collision" of the auras or the "fields" of the two protagonists, Mr. Merta and T53. The visibility of the aura by the non-aura percipients present would then be explicable as a threshold effect.
- (b) The "aura" resulted from a confluence or collision of special fields, distinct from the protagonists' auras but generated voluntarily (even if unknowingly) by the protagonists.
- (c) The "aura" was a "state" induced in the space or in the atmosphere locally around the rod by some influence not of a "field" type, emanating from some layer or other of the mind of one or both of the protagonists.
- (d) The "aura" was not objective (either as a physical object or other

ontological reality localised near the rod), but was a mental image induced by one or both of the protagonists in the minds of the beholders.

It will be clear that the observations of 16 January 1971 admit of no decision between these possibilities, except that the writer thinks explanation (d) is most unlikely.

#### **4. The Phenomenon Repeated.**

A meeting was held on the morning of Saturday 17th April 1971 in the hope of repeating the phenomenon. The expectation that the experiment might be successfully repeated was a private resolution of T53 and the writer, and care was taken not to implant a suggestion to this effect in the minds of the other persons present who were Dr. Claude Brodeur, Dr. William Castor, Mr. Donald C. Webster, Mr. Douglas Johnson, Mr. Jan Merta, Dr. Donald Viggiani, and Mr. Robin Owen who made the videotape record of the proceedings. The precautionary silence of the writer and T53 was occasioned not only by the desire to avoid suggestion but by a wish not to create an "examination atmosphere" that might have militated against the production of paranormal phenomena. In the event, T53 arrived late on account of his professional duties, and until his arrival the writer allowed events to proceed under their own momentum. The first hour was spent in a discussion on unconscious muscular and body responses as in dowsing and radiesthesia, and Mr. Merta demonstrated a mechanical device for indicating very slight body movements.

By the time T53 arrived the theme had shifted to psychokinesis. A dowsing rod of the type previously described (either the original one or its twin) was fetched and set up in a camera tripod. Mr. Merta said that it was too massive for him to move by psychokinesis and T53 therefore suggested that the experiment of trying to move the rod when held in his hand be repeated. By this transition, the stage had been set for a repetition of the previous (spontaneous) experiment, without generating an atmosphere excessively charged with hopes of success or fears of failure.

As before, T53 held the rod by its vertical sleeve so that the long portion of the iron was horizontal and steady. He challenged Mr. Merta to move the rod or to cause him to allow it to move in an unspecified direction. Mr. Merta stood in front of T53 with his right hand held out before him so as to be about one foot from the end of the rod. The protagonists held this stance for about two minutes. They were then allowed to maintain their position with somewhat diminished concentration while a comment was invited from Mr. Douglas Johnson. Mr. Johnson, as mentioned above, normally sees auras. He was not present on the previous occasion and had not been told of the phenomenon observed then. He said at the height

of the contest he had seen a structure or appearance extending from Mr. Merta's hand to the rod. His further description (as recorded on videotape) was: "It was like a fringe coming from his fingers, so therefore I think there was something extruding from his hand. It was about the diameter of a piece of spaghetti".

*Mr. Merta said:* "Yes, I saw the light rays like he described, very thin and very smooth. I saw something come from all of my five fingers, something goes out".

The following comments were separately recorded as to what various of the investigators had seen at the height of the contest.

*Dr. W. Castor:* "When I observed I saw what I presumed was an orange or yellowish type of glow around it [the rod]".

*Mr. D. C. Webster:* "It was very faint. It looked more like a light refraction".

*T53:* "It was silver [around the rod] but it did have a blue tinge close to it. It was silver".

*Dr. A. R. G. Owen:* "I was very surprised because I saw, or thought I saw, a very slight appearance like hot air [around the rod]".

Mr. Merta and T53 resumed their concentration on the rod, and the following comments were recorded.

*Mr. D. Johnson:* "I can see two sorts of strings and they appear to be pulling against each other".

*T53:* "It still has a silver aura".

*Mr. D. Johnson:* "Yes, I can see a fan-shaped sort of light develop at the end of it [the rod], sort of bluish".

*T53:* "It's still a cylinder of aura. It's grey almost. There are still silver things flying off of it."

After a few minutes the experiment was terminated and the observers were separately asked to say, what if anything, they had seen. At this stage the gathering had broken up into separate conversations in various parts of the room. The microphone was taken by the writer to each observer individually. Each statement was consequently made in effective independence of the others.

*Dr. W. Castor:* "I thought I saw something at the purple-blue end of the spectrum along the whole [of the horizontal part of the rod] — pretty much two thirds of it [the rod]".

*Dr. C. Brodeur:* "It was like heat, it changed colour depending on the background. It was a silver grey or white depending on the background. I was observing it against".

*Dr. E. Zmenak:* "I saw again like light refracting off a road. It was all the way round. It was about an inch out [from the rod]".

*Dr. D. Viggiani:* "I saw something — a bit of an aura — from just at the very tip, and it couldn't be more than a half an inch at that point".

During these experiments there was no misbehaviour of the videotape monitor or evidence of electromagnetic interference. The "aura" was not shown by the videotape on replay.

As on the previous occasion, the angle-iron rod showed no sign of being hot, abnormally cold or electrically charged. Nor did the subjects, T53 and Mr. Merta, report any unusual sensations in their hands.

### **5. Further Experiments.**

**5.1.** The observations of Mr. Johnson and Mr. Merta suggested as a reasonable working hypothesis that the appearance around the rod resulted from or was induced by, an interaction between the "fields" or "auras" or other emanations from T53 and Mr. Merta. On this view, the role of the rod, though important, would be subsidiary. At Mr. Johnson's suggestion, therefore, Mr. Merta and T53 each held out his right hand towards the other's right hand, but without contact, the tips of their extended fingers being about six inches apart. The following comments were video-recorded, after the experiment had been in process for about a minute.

*Mr. J. Merta:* "I just saw something reaching from my finger to his finger".

*Dr. W. Castor:* "Around the fingers; yes, his [T53's] was weaker than Jan's; Jan's was much larger — a light area around the fingers".

*Mr. D. Johnson:* "Yes, I can see lines across — an aura — not so much from the thumbs but from the fingers particularly. Yes, now it's stronger".

"Try with one finger individually".

(This instruction was obeyed).

"Yes, that's strong". "Move your fingers further away from his".

(This was done)

"Yes. It's getting thinner".

*Unidentified:* "It seemed to get a shimmering effect between the fingers".

**5.2.** The investigators were, naturally, much interested in the fact that an appearance could be generated in the region of the opposed hands of the subjects. Mr. Merta proposed that they bring their hands closer together and open them so that their two sets of fingers would enclose an approximately spherical space. This was done, and several observers saw an appearance within the "cage" formed by the fingers of the subjects. The appearance seems to have been rather distinct and vivid as judged from the recorded comments which were as follows.

*Mr. D. Johnson:* "Now it's quite thick, very thick".

*Dr. D. Viggiani:* "A very broad band".

*Mr. D. C. Webster:* "It looks about the size of an Easter egg, roundish. It's got a silvery glimmer. It's like a mist or fog".

*Mr. D. Johnson:* "There's a lot around his wrist [T53's] it's all there".

The experiment was terminated after about two minutes and the investigators' comments were separately invited and recorded thus:



*Mr. D. C. Webster:* "At the beginning it looked like a slight haze a few centimetres off his wrist".

*Dr. C. Brodeur:* "I saw a haze between their fingers [i.e. in the enclosed space]".

*Mr. D. Johnson:* "I saw a lot dance from the fingers, then eventually to the thumbs, then around his [T53's] wrist".

*Dr. E. Zmenak:* "I saw a line between the two (hands). Then it developed to about the size of an ostrich egg".

*T53:* "I saw them [the lines] in colour, and a slightly violet haze around the middle [of the enclosed space]. The colour was violet".

*Mr. J. Merta:* "There was quite a strong coloured bridge between our hands. As we opened them it remained strong near the tips of our fingers, but got thinner and thinner inside until it resembled a cup. When we brought our hands closer together it became stronger and built up".

*Dr. A. R. G. Owen:* "I saw an appearance somewhat resembling hot air refraction. This was particularly apparent in the form of bands stretching from the tip of each of Jan's fingers to the tip of the opposed finger of T53. These bands, though transparent, conveyed an impression of 'rubbery-ness'. Morphologically they resembled the bands that I can often see in the 'Bagnall effect' but were much more definite than those".

(The Bagnall effect is a term used by the writer in referring to a simple experiment. If one opens one's two hands in front of one and against an appropriate background and lines up the fingers so that the forefinger of the right hand is opposed to the forefinger of the left hand, and so on, the tips being about two inches apart, then one is likely to see faint bands joining the tips of opposed fingers. As the writer is a "psychic moron" he has previously been inclined to accept the opinion often rendered by authorities on vision that this is a normal quirk of visual perception).

Drs. Castor and Viggiani had both been observing through 'aura goggles' obtained from the Metaphysical Research Group (Archer's Court, Hastings, Sussex, England, U.K.). These are essentially motor cyclist's goggles with plain lenses incorporating dry filters constructed on principles derived from Bagnall's work. These two observers gave descriptions as follows:

*Dr. W. Caster* (purple filters): "I concur with what Jan says except that to me it appears to be purplish, but maybe the lens had something to do with it, it seemed almost defined all the way along.

*Dr. D. Viggiani* ('standard' filters, magenta coloured): "I saw a strong band between the two fingers when they were close together, and as they drew apart the band enlarged and then got to be that egg shape, very clear".

Mr. R. E. Owen was asked if he had seen any appearance at any time, that morning, and replied that he had seen nothing.

The writer then asked T53 and Mr. Merta if they had felt any kind of force during this experiment or the preceding one. T53 said he had experienced nothing, but Mr. Merta said "Somehow we were conducted [i.e. drawn or pulled] together".

**5.3.** Mr. Merta and T53 then withdrew for brief conferences. They proposed that the last experiment be repeated with the observers watching very closely. Towards the end of the experiment the following spoken comments were recorded on the videotape.

*Mr. D. C. Webster:* "Now you are starting to get a bulb forming between [the hands] of the two of you".

*Dr. A. R. G. Owen:* "I can see an appearance as of hot air".

*Dr. W. Castor:* "I can see bands coming off the fingers".

T53 then announced that he and Mr. Merta were trying to create the form of an object inside the cage formed by their fingers. After a few minutes they relinquished their stance and the observers independently wrote down what they had seen inside the cage. Their reports were as follows:

*Dr. C. Brodeur:* "Haze between T53's fingers. No image between the hands of the two. However, I received a strong overt verbal suggestion [i.e. a mental impression in the form of words] of a triangle. Jan's hands were then forming a triangle shape [or tetrahedron?] with thumb and little finger as base and middle finger as apex".

*Dr. W. Castor:* "At first wide bands from finger to finger—intensity brighter near the fingers. After several minutes an oblong shape seemed to appear between the hands. The shape then became round".

*Mr. D. Johnson:* "At first lines of force slowly forming into an elliptical cone; then a roundish ball of blue light slowly transforming into a pear shape of yellow light".

*Mr. J. Merta:* "A bright blue triangle".

*Dr. A. R. G. Owen:* "A 'hot air' appearance, as formerly".

*T53:* "A yellow and violet triangle".

*Dr. D. Viggiani:* "I saw strong bands (silver) especially from T53's index finger; also a changing shape, like fog, between the two hands".

*Mr. D. C. Webster:* "I saw it as before, but very faintly".

*Dr. E. Zmenak:* "Bands extending from finger to finger, varying in thickness, according to the distance between hands".

T53 and Mr. Merta then said they had agreed to think first of a window and then of a pyramid. T53 sketched the latter on a piece of paper in the form of a regular tetrahedron — triangular base and three triangular sides — not quite the same as a conventional pyramid which has a square base, and four triangular sides. Dr. Brodeur's impression, if not a mere suggestion derived from the tetrahedron made by Mr. Merta's thumb and first

two fingers, would appear to have been at most an impression received by mental telepathy. Whether Dr. Castor's perception of an oblong shape, corresponding to the thought of a window, was also a telepathically induced mental impression, or instead, an actual visual impression of a shape actually imposed on the aura by T53 and Mr. Merta, is not easy to decide. Mr. Johnson's "elliptical cone" and "pear shape" may certainly be taken in this context as good approximations to a pyramid or tetrahedron, but in view of Mr. Johnson's well authenticated abilities in ESP and his admitted capacity for clairvoyant perception, it would be unwise to assume that such capacities were not operative during this experiment.

## 6. Conclusions.

Most of the issues arising have been discussed in the foregoing sections, and attempts at further analysis would seem to be unprofitable without additional experiments. The writer will register his own conclusions, which are not necessarily the same as the other investigators, as follows:

From these experiments the writer concludes that under certain circumstances an object having certain attributes resembling those which the human aura is supposed to have, can be generated.

The case for the objective existence of the human aura is thus much strengthened.

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# A Psychokinetic Event of Poltergeist Type

FRANK McINNIS AND IRIS M. OWEN

**ABSTRACT:** *An isolated event of poltergeist type is described by the two eye-witnesses.*

The event took place on Saturday, November 21st 1971. A buffet supper had been arranged in the dining room at Dr. and Mrs. Owen's home, the guests at that time having a pre-dinner drink in the living room. Frank McInnis and Iris Owen were having a conversation in the kitchen, which adjoins the dining room. Frank was standing at the sink, (having collected some glasses up), and Iris was standing in the doorway, half turned towards him, and halfway towards the table. Frank was completely facing the dining table, as he had turned to answer a remark by Iris. His eyes went past and he said, "Look at that spoon". Iris turned, completely, and saw the spoon referred to just landing on the floor underneath the rung of one of the dining chairs, and some three feet away from the table. Frank saw the spoon rise from the bowl on which it was laid, float horizontally for a couple of feet, and then go down under the rung of the chair. It made just a tinkling sound as it landed.

The spoon had been placed some minutes before on the top of the bowl of rice, in the centre part of the table. The rice was only warm, not hot, as there had not been room for it to be heated in the oven. If the spoon had fallen in the normal way it would have landed on the table, the bowl was fully 18 inches from any edge of the table. Nothing else moved at all.

(Signed) FRANK McINNIS, M.D.  
IRIS M. OWEN.

Toronto Society for Psychical Research

23 November, 1971

# A Demonstration of Voluntary Psychokinesis: Report of a Seminar

A. R. G. OWEN

**ABSTRACT:** *A seminar is described where a phenomenon was exhibited which to those present seemed prima facie to be PK.*

Mr. Jan Merta was guest speaker at a seminar held at New Horizons, 16 January 1971.

(Mr. Merta was born in 1944 in Moravia, Czechoslovakia. He obtained the Degree in Social Work from the University of Prague in 1968. Shortly afterwards he came to Canada, and studied at McGill University. His studies, in the field of Animal Behaviour, Physiology, and Experimental Psychology, put special emphasis on experimental techniques. He obtained the B.Sc. Degree from McGill in 1971 and is now taking the M.A. course at Sir George Williams University, Montreal.)

Mr. Merta said that he became interested in ESP in Prague twelve years ago when he had participated in the work of a psychical research group, and benefitted from acquaintance with Dr. Martin Rysl. From his own experience in psychic development he had come to the conclusion that current explanations for ESP are inadequate. His goal was to put psi effects on a scientific basis for laboratory testing. He wanted to measure the energy that activates Psi. Auras are evidence of fields existing in the vicinity of the human body. He believed that when psi effects occur the energy of the field around the person concerned is somehow diminished. He said that he had come to conceive of the field as a protection of the organism. If the body is threatened the energy of the field tends to react protectively. On this theory, persons with a strong field would be poor ESP receivers, but potentially good transmitters of ESP.

Mr. Merta also said that he believed that one was able, by self-training, to control one's own field in some degree so as to reduce the effects of contact of the skin with hot objects and to prevent injury to the hand when smashing an object with a Karate chopping action. Though he had never studied Karate he felt that he had had some success with this in his experiments. He also thought his technique had been effective in reducing injury from hot objects. A film of Mr. Merta touching a hot iron was shown.

With regard to psychokinesis, Mr. Merta said that he had done extensive research on moving a device consisting of two chicken feathers suspended from a nylon thread in an air-proof glass chamber. He had constructed three sets of apparatus of this sort. In one apparatus, the feather hangs in a

vacuum. He showed graphs which had been automatically recorded via a photocell device which showed the voluntary random oscillations of the feather when it was not interfered with, and also the much more pronounced movements when it was under his conscious mental control. A film demonstrating both the random and controlled movements of the feather was shown.

Mr. Merta said that when successfully exercising mental control over the feather, he found that he had to be in a relaxed state of mind and let the thought of moving the feather in a particular sense (e.g. to the right) come into his mind according to his conscious choice and intention, but be passively entertained without striving or vehement willing of the desired result. In this state the control of his breathing was also important. The relevance of breath control to PK and possibly other parapsychological operations was a hint which he had acquired in a theoretical study of the principles of yoga.

He said also that, so far, at ordinary room temperatures, he had been unable to move inorganic objects by PK which worked, in his own experience, only with substances that at some time had been living tissue. Temperature was important. With the feather he could achieve as follows:

- |                     |  |
|---------------------|--|
| Under 26°C (78.8°F) | No psychokinesis.  |
| At 26°C (78.8°F)    | He can induce motion, but has no control over the sense or amplitude of the rotation.  |
| At 28½ °C (83.3°F)  | He obtains the optimum ratio of controlled to random motion.   |
| Over 30°C (86°F)    | It is hard to distinguish controlled and uncontrolled movements of the feather. However, he gets large psychokinetic rotations and a pendulum motion also. |

Mr. Merta also remarked that above 30°C he can move inorganic objects, and that at 28½ °C he believes that any person, after appropriate training, would be capable of moving the feather.

Mr. Merta then kindly demonstrated motions of the feather, using apparatus he had brought. This consisted of a large pyrex jar, height 24 inches, and cross section 12 inches square. It was not evacuated, but sealed with a 14 ins. square glass plate, over the top, which, with a little grease, made it effectively airtight, with the interior immune to penetration by air-currents. The twin feathers, united at their quills to form a symmetrical 'pointer' which hung horizontally by a nylon thread secured by adhesive tape, were free to rotate horizontally within the jar without contact with the sides. The general temperature of the room was about 70°C. A sixty watt electric lamp was stood near the jar to bring its temperature somewhere above 80°F.



At the beginning of the experiment the feather had effectively ceased random oscillation and was at rest. Mr. Merta stood about six feet away from the jar; he raised his right hand. The feather started from rest and swung to the right. Demonstrations of this kind were repeated many times. In each case the feather was allowed to come to rest before giving it another command. Commands "right" or "left" were also given as directed by the observers and not at the choice of Mr. Merta. Also, a series of movements was executed with Mr. Merta's back to the apparatus, thus obviating the possibility that he was visually observing slight incipient motions of the feather, and adapting his instructions accordingly. Throughout, Mr. Merta was not only remote from the apparatus, but also physically passive, and in one series of demonstrations made no motions of his hands, head, or body, and made no announcement of the expected direction of movement, the feather moving in accordance with the requests of the observers, which they communicated verbally to Mr. Merta. On some occasions when the feather had just completed its movement, Mr. Merta was asked to continue it to swing in the same sense, and it regained momentum. On other occasions he was asked to stop or reverse the motion just after the start, and successfully did so. In a final series Mr. Merta sat completely passive about 25 feet away from the jar with his hands clasped behind his head. The responses of the feather were no less definite than the ones at closer range.

No vote was taken, but it seems fair to say that the majority of the observers (and perhaps all of them) were convinced after these demonstrations that an unusual physical effect had been shown in operation. It was certainly felt unanimously that the results were not explicable in terms of any elementary causes such as ordinary electrostatic force, nor in terms of random motion of the feather. Telepathic anticipation of the feather's movement seemed also to be clearly excluded by the form of experiment adopted in some of the series described above. It would appear that the phenomenon could provisionally be termed psychokinesis, because this word has traditionally been used (e.g. in reference to experiments with dice-throwing) to characterise the situation in which the motion of a physical object corresponds to an actual intention previously mentally formulated. Mr. Merta himself outlined his own philosophical position. He does not think any valid distinction can be made between the physical and non-physical. He regards his phenomena as caused by an obscure mechanism, falling outside elementary or well-known physical causes, but anticipates that one day they will be subsumed in a more extended scheme of physics, physiology, and psychology. Meanwhile, he is indifferent to the terminology employed in discussing such phenomena.

New Horizons Research Foundation

20 January, 1971

# An Investigation of Psychic Photography with The Veilleux Family

JEANNE P. RINDGE, WILLIAM COOK AND A. R. G. OWEN

**ABSTRACT:** *Four independent experiments in psychic photography with the same subjects are described. Production of "whities" was noted.*

1. Messrs. Joseph, Richard and Fred Veilleux participated as subjects in experiments at the Human Dimensions Institute, Rosary Hill College, Buffalo, on the 14th and 15th March 1970, the investigators being Mrs. Jeanne and Mr. Fred Rindge, Dr. Justa Smith, Dr. Jule and Mr. John Eisenbud, and Mrs. Iris Owen, who kept custody of new film. Also present as witnesses were Mrs. Shirley Harrison, Mrs. Ruth Hyde, Mr. Charles Honorton, Dr. William Wolfson, Dr. A. R. G. Owen and Dr. & Mrs. E. Zmenak.

The subjects were seated on different sides of a T-shaped table, separated by groups of the 13 observers, and were encouraged to take pictures at will, but under close scrutiny. The three cameras used were carefully examined by several of the observers, and loaded and unloaded with Polaroid black and white film by Mr. John Eisenbud. Before taking a picture each subject announced what he was going to do, which facilitated observation. Nothing unusual or unorthodox was observed in the subjects' handling of their cameras. No unusual prints resulted on the first day. On the second afternoon (15th March) two prints were obtained (interspersed in a series of normal ones) with clouded areas. These clouds did not appear on the control shots taken by Mr. Rindge simultaneously with the Veilleux's photographs.

On the morning of the 15th March the party visited Forest Lawn Cemetery, Buffalo, where one white print was obtained. On the evening of the 15th March a smaller party consisting of the Veilleux and seven of the investigators and witnesses visited Mr. & Mrs. Rindge's home. A photograph of a dark corner of the living room showed a shaft of light which was absent from the control shot taken simultaneously.

2. Joseph, Richard and Fred Veilleux visited the New Horizons Research Foundation on the 14th and 15th May 1970. The investigators were A. R. G. Owen, Mrs. I. M. Owen, and Mr. John Cutten, Secretary of the Society for Psychical Research (U.K.). A total of 96 photographs were taken indoors with a Polaroid "Colorpack II" camera, without flash, and

using standard Polaroid 3000 black and white film. The Veilleux at no time had unsupervised access to this camera which belonged to New Horizons. It was loaded by Mr. Cutten, using packs of film fresh from a local shop, which were only broken open in the presence of all three investigators. The loaded camera was only handed to a subject immediately before he took a picture. In the first series of experiments each subject's handling of the camera was closely and continuously observed from the time he received the camera until he handed it back, which was immediately after taking a picture. To facilitate observation, the subjects were required to announce when they were about to "shoot" and asked to take a picture of a videotape camera focused on the subject. Thus to every photograph there corresponded a videotape record with sound, which showed exactly the subject's handling of the camera and the mode of operation of the trigger. Any unusual mode of operation of the camera or interference with the lens, trigger or "eye" would have been fully recorded by this means. Nothing unusual in the handling of the camera, or operating it, was disclosed.

Later, use of the videotape was discontinued and replaced by a very simple but seemingly effective mode of control. The subjects were asked only to take photographs of one or more of the investigators while one of these was actually looking into the camera, observing the handling and listening to the sound of depression and release of the trigger. Again nothing unusual was observed in the subject's employment of the camera. As a result, it can be said that the subjects gave no evidence of acting other than in complete good faith during this investigation.

The day was rainy and the lighting was very poor; 91 of the photographs were precisely as would be expected in such conditions. The investigators were surprised early in the second series by one of the developed prints. Although the print was exactly in correspondence with the actual scene, it appeared to correspond to what would have resulted from a much brighter illumination of the room. Four more such abnormally "bright" photographs occurred during the second series, making a total of five in all. Photos were taken by all three of the subjects. All the "bright" ones were taken by Mr. Fred Veilleux, the photographs taken by Joseph and Richard Veilleux being all normal.

3. Work with the subjects was continued at Buffalo on 16 and 17 May with Mr. Fred Rindge and Mrs. Jeanne Rindge as investigators. Mrs. Rindge kept custody of the film, and Mr. Rindge that of the camera (a Polaroid 360 owned by the Human Dimensions Institute) at all times, except when required for the taking of a photograph, and Mr. Rindge developed the films. Any movements by the subjects were observed carefully by the investigators.

The first day was occupied by a round of visits to sites which it was thought might be propitious for psychic photography. Pictures were taken at a cemetery at Clarence, N.Y., at another in West Seneca (where strange "lights" occurring at night-time had been reported in the newspaper) and at one on the Cattaraugus Indian Reservation including a visit to the home of Mrs. Twylah Nietch, grand-daughter of the late Seneca medicine man, Chief Moses Shongo, to whose grave she escorted the party. *En route* there was a drive through Lily Dale Spiritualist Conference Grounds. The entire trip was hampered by increasing rain which drove the group out of the last cemetery in a heavy downpour.

On the second day pictures were taken at the Rindges' home at random, interspersed with several experiments. One of these, previously suggested to the Veilleux during a Ouija-board session at their home in Maine consisted in balancing a Bible on a pair of shears which were balanced on the index finger-tips of two people. Questions were put to the improvised "oracle" and answers "yes" or "no" inferred from the motions of the Bible. Photographs were taken during the experiment. In a second experiment the subjects tried to photograph (against a white screen) a target being concentrated on by Jeanne Rindge in another room. The subjects also wrote down or drew their impressions of the target.

126 pictures were snapped. Of these, only 5 were of paranormal interest. Four of these were taken near the Moses Shongo grave. These consisted of increasingly bright areas (moving towards "whities"), although the sky was becoming increasingly dark, culminating in a heavy downpour. It was with disappointment that this series had to be terminated. The fifth picture, taken on Friday evening at the Rindge's showed a patch of bright light where no light exists, actually or in control shots.

The target shots drew blank, although Fred drew close hits in his visualisation of the targets. Richard got aspects of the target in his visual report.

The Rindges were impressed with the integrity and serious intent of the photographers and with their desire to maintain a scientific and carefully controlled approach to their work. They were scrupulous in ruling out effects on the photos which they knew, from former experience, were not paranormal.

4. Mr. William Cook, Research Officer of the Research Association for Parapsychological Study (Portland, Maine), worked with the subjects at the home of Mr. Richard Veilleux at Waterville, Maine, on 25 and 26 February 1971. Mr. Cook examined the notes, records and photographs compiled by Richard Veilleux over several years, and as a result was impressed by the meticulous and painstaking care of the recording, and derived, as he says, "a definite impression of integrity, sincerity and

honesty". Mr. Cook formed the opinion that a considerable proportion of the unusual imagery obtained by the subjects in previous years was only explicable as having been produced in a paranormal fashion. This was not to say however, that in every case of an abnormal photograph it could be determined unambiguously whether the picture resulted from a paranormal influence, or from what might be ascribed to the known idiosyncrasies of the Polaroid photographic process.

At about 4 p.m. on 25 Feb, Richard and Fred casually shot about a dozen photographs in Richard's study. No paranormal imagery was produced, though Mr. Cook noted at the time that the fifth photo of the series was a "blackie", i.e. completely underexposed. In the evening, Mr. Cook, Fred and Richard went to Mr. and Mrs. Joseph Veilleux's apartment, where Mr. Cook attempted to play only the role of an observer without intrusion on or interference with the manner in which they carried out one of their customary Ouija-board sittings. A "communicator" - "Tara Hill" - was asked to explain how psychic photographs are produced and to produce one. The communicator "said" that it would assemble a thought which the subjects could rearrange with a camera. It undertook to walk over to Richard, then to Mrs. Joe Veilleux who would feel something. Shortly after, Mrs. Veilleux stated that she felt cold on her right arm, and was getting cold all over. Richard tried to take a photograph but there was, in Mr. Cook's opinion, an abnormally quick shutter release. The photograph was a "blackie". Mr. Cook reports that at this point two cameras were used, both with automatic shutter control. An initial pressing of the shutter-release button simply opened the shutter. Actual exposure time was controlled by a light-sensing device in the camera. Under the lighting conditions the usual exposure time was between one and two seconds.

In a table-tilting experiment with fingers lightly resting on the surface audible knocks were obtained in replied to questions.

A coffee break followed, and a photographic session commenced at 9.45 p.m. in a relaxed atmosphere. Initially, Fred produced three blackies. At Mr. Cook's suggestion Fred then used Joe's camera and immediately produced two more "blackies" in spite of the fact that Richard's and Joe's cameras had worked quite normally for them. Mr. Cook suggested a further experiment. Both cameras were unloaded. Fred took his empty camera and simulated exposure, pointing the camera in a specific direction from a particular position in the corner of the room. The shutter interval was clearly audible and a "blackie" would be indicated by a rapid shutter "click". Numbers 4, 5, 6, 7 (out of ten) in the series were audibly short exposures (i.e. they would have been blackies). Joe repeated the ten exposures under precisely the same conditions. All were normal (1-2 seconds). Richard repeated with the same camera, and his ten were

normal. When Fred made a second run, numbers 5 and 6 were short exposures. Fred repeated a run with camera at chest instead of eye level. Out of eleven exposures all were normal. Repeating with camera at eye level, Fred got one short exposure out of ten, and then repeating with Joe's camera, numbers 3 and 7 were short exposures. An experiment devised by Richard in which Fred attempted, by mental concentration, to break a photo-cell beam was negative after a few minutes' effort by Fred.

That night when Mr. Cook examined all the photographs taken he noted that several of the non-blackies showed a cloudy effect and others exhibited a somewhat unusual lighting effect, but recorded as his opinion that it would not be easy to show that this kind of imagery was truly paranormal and not due to normal effects.

On the afternoon of 26 February Fred and Richard took sixteen photographs in Richard's study. All were normal.

Mr. Cook summarised his conclusions as follows:

1. Fred, Richard and Joe Veilleux have indeed produced paranormal photographic effects, although Richard's own personal production graphs show that Fred produces about 4 or 5 paranormals to any single one produced by Richard or Joe.
2. So far this year, the Veilleux production is very low; in a good year they will average about 20 paranormals per month (their figure).
3. During the Feb. 25 - 26 meeting unusual imagery effects were minor, and I would not attribute them to a paranormal phenomena.
4. I do believe that Fred's frequent production of a blackie does indicate the occurrence of a paranormal phenomenon. I will elaborate on this hypothesis in a separate section.
5. I believe the effects obtained from the wooden table were genuine, testifying to the psychic ability of the Veilleux's as a group.

Canadian-American Association for Psychical Research, 10 March, 1971  
Human Dimensions Institute, Buffalo, N.Y.

Note: The CAN-AM Association (Canadian-American Association for Psychical Research: President, Mrs. Jeanne P. Rindge) is a voluntary association of institutions and individuals for cooperative work in psychical research. It consists of the Human Dimensions Institute, the New Horizons Research Foundation, the Toronto Society for Psychical Research, Professor Douglas Dean, Dr. William Wolfson, Dr. Jule Eisenbud, Mr. William Cook and Mrs. Shirley Harrison. Research is coordinated by a Research Committee (Chairman, Professor Dean; Secretary, Mrs. Owen.)

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# Photography of Psychic Imagery; An Hypothesis

WILLIAM COOK

**ABSTRACT:** *A "psychic field" is postulated as the mediator of many psi phenomena, including the production of "blackies" and "whities" by Ted Serios and Fred Veilleux.*

After carefully considering much of the evidence produced in favour of the reality of the phenomenon known as "psychic imagery", "thoughtography" or "paranormal imagery" I am prepared to present a working hypothesis as an initial step in the attempt to explain this highly unusual phenomenon. In order for this hypothesis to be plausible, it must explain a variety of effects produced by the phenomenon under many usual circumstances. This will be examined.

To date, science recognizes four force fields: gravitational, electromagnetic, and the two nuclear fields (the "strong" and "weak" interactions). They all have one thing in common — the scientist can measure the *effects* of these fields at different locations in the field, but he cannot explain how they are really produced. As with the explanation for gravity, the scientist simply says "it is a force acting at a distance".

I contend that we must recognise one more force field, and that it should be called the *Psychic Field*. I submit that this field is generated by every living cell, but that the effect can be concentrated to a very high level in specific organs — primarily the brain in most animals — reaching highest potential in man.

The Psychic Field exhibits unusual qualities. The process known as thought or concentration, can energize and shape this field. Thoughtography is simply a spatial focusing of this field at a region in space, or alternately, on a designated or desired surface, such a photographic film or plate. This can be done simply by the power of thought.

I believe that the repeated triggering of abnormally fast shutter speeds by Fred Veilleux can be explained by the fact that the light sensing element in the Polaroid camera senses the intensity of this psychic field at that position, and simply reacts as if there was high illumination in front of the lens. Eisenbud (1968) reported that on many occasions Ted Serios would produce a "whitie" which is a complete over-exposure of the image. The stated hypothesis would simply explain this as a very high energy level in the image field at that point.



Fukurai (1931) was successful in getting certain sensitives to produce a preselected image on to a selected photographic plate among a stack of as many as a dozen plates. I believe this illustrated the focusing effect of this psychic field when done by a gifted sensitive.

In summary, I believe what we are witnessing in thoughtography is a physical manifestation of this psychic field. I also believe that is closely related to many other effects commonly referred to as psi phenomena.

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Research Association for Parapsychological Study                      10 March, 1971  
Portland, Maine, U.S.A.

# Auditory and Visual Phenomena in an Allegedly Haunted House

THOMAS INGUS, SIDNEY KORMAN, ROBIN OWEN AND ALBERT PEACOCK

**ABSTRACT:** *Alleged poltergeist phenomena in a dwelling house were investigated by taking statements and maintaining two watches by night with recording apparatus. Various sounds of unknown origin were heard or recorded. An apparition was seen. A flashlight photograph showed unusual features.*

Investigations of a house at Scarborough, Toronto, were carried out intermittently between 27th November and 21st February 1971. The house is a "town house" at the end of a row, so that it adjoins only one neighbouring house, which was occupied by a family during the whole period. The dividing wall between the two houses is rather thin. The house has two stories above ground (street floor and first floor) and a basement, (comprising laundry, a stairway, and a rumpus room) which is entirely below ground level. The house appears to be of perfectly sound construction and is in good condition inside and out, and shows no sign of cracking, slipping or foundering, such as might cause unusual noises.

About three years ago a housewife "B" resident there with her husband and children committed suicide by hanging herself from a pipe near the ceiling at an end wall of the laundry room of the basement. About a year later a lady "M" moved in with her husband, teenage son, and a daughter now about eight years old. After she had been about three months in residence she was told of the tragedy by a neighbour. M was somewhat distressed to learn of it and the effects of suggestion cannot be discounted in assessing her subsequent experiences which commenced soon after.

M's experiences were narrated to our interviewing team (W. Bragg, A. R. G. Owen, and L. Sima) who visited the house on 27 November 1970.

M said that she had felt uneasy in the house generally, and especially uncomfortable in the laundry. Also, over a long period she had repeatedly heard noises which she could not account for as occurring by normal causes. The noises were — raps on inside doors — sounds as of small objects falling on the floor, and sounds as if someone were walking around upstairs. M had also had two dreams, separated by an interval of about a month, in which a figure of a woman had come towards her in a menacing manner. In the second dream the woman had attempted to strangle M. Two neighbours who were present at the interview of 27th November said that the physical description of the dream could apply to the appearance

of B during life. However, as the description given by M was a rather general one, the interviewing team attached no great significance to the resemblance.

On 19th December 1970 a sound recording team (T.I., S.K., R.E.O. and L.S.) visited the house at 9.15 p.m. A cassette tape-recorder was left running in each of the two bedrooms and a large reel stereo tape-recorder (Sony TC-200) was positioned in the laundry room of the basement. The investigating party and M remained in the sitting room on the street floor during the first hour of taping which began at 10.15 p.m. No other persons were in the house. No significant noises were heard during that hour. The team tried to keep their level of noise down to a minimum, but the house was not completely silent as there was a dog barking next door, and occasional interruptions by the telephone. The furnace in the basement made small knockings and clankings just before and after it automatically turned itself on and off.

From 11.15 p.m. to 12.15 a.m. (20 December) the team sat with M in the sitting room playing back the tape-recordings. The tape-recorder in the basement had on it only the noises of the furnace and one or two normal knocks. A cassette tape-recorder which had been left in one of the bedrooms upstairs had, inexplicably, failed to record at all. The tape had remained at the beginning. The batteries of the cassette tape-recorder (S.K.'s) from the other bedroom were found to have run down and the tape had stopped half-way. However, there was a noise on it which sounded like someone breathing heavily. It came at intervals of about ten seconds. The team were inclined to ascribe it entirely to malfunctioning of the tape-recorder.

While the last-mentioned tape was being played back S.K. M and L.S. heard a woman's voice humming three notes. They said it seemed to come from somewhere in M's direction but from mid-air. T.I. and R.E.O. did not hear the humming. But L.S. was taping the conversation at the time and consequently picked up the humming on his tape-recorder.

A tape-recorder was placed in the bedroom, where the breathing sounds had been recorded, and kept running from 12.30 a.m. to 12.55 a.m. Nothing of significance was recorded.

The investigating team left at about 1.35 a.m. leaving M alone in the house. At about 1.15 a.m. the team set a two-hour tape running in the basement on the reel recorder. It was agreed with M that she would not enter the basement until 3.15 a.m. when she would turn off the tape-recorder. On replaying this tape during the afternoon of that day, it was found that at about 1.20 a.m. the recorder had apparently picked up a rather faint voice of a woman singing the first few bars of 'Holy Night' and then speaking for a few seconds, the words being indistinguishable. At that moment the team were still in the house on the street floor, collect-

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ing the equipment and making arrangements to leave. They did not hear any singing or speech other than their own conversation amongst themselves and with M. More song was recorded after the team left at 1.35 a.m. but it was very brief and faint. However, it sounded as if it might be the same voice. At about 1.40 a.m. eight very loud heavy thumps were recorded, somewhat resembling noises alleged in other haunting or poltergeist cases.

During January and February of 1971, M continued to feel uneasy in the house and another investigation was carried out on the night of February 20th by T.I., S.K., and A.P., who decided to spend the night in the basement. The basement consists of the laundry and a rumpus room separated by the stairway. Talcum powder was spread on the stairs so as to leave an indication should anyone walk on them. Tape-recorders were set up in the laundry, including the Sony and a high quality Phillips reel tape-recorder. The only lighting used was that provided by two candles in the laundry.

On replaying tapes at various times during the night and next day, it was found that the tape-recorders had registered an occasional sound of a light clicking or clanking kind, rather as if a metal object was being struck, or a small metal object was falling to the ground. From time to time the investigators listened carefully and were able to identify other noises that they heard such as proceeded from the boiler and heating system, but did not hear any sound that they could identify as the clanking sounds recorded on the tapes.

About 3.30 a.m. on what was now February 21, one of the party, T.I. said that he had a strong impression of something 'building up'. He advised S.K. to be ready to take a photograph should anything develop. A few minutes later T.I., while looking towards the end of the laundry where the tragedy had taken place, exclaimed that he could see a face, and that the face was smiling but in a rather horrible way. It was not completely solid. Indeed, it was somewhat sketchy. However, its features were recognisably those of a face. A.P. said that he could see it also. T.I. called to S.K. to take a photograph of it, which S.K. did, using a Kodak 414 Instamatic camera loaded with Kodachrome X slide film, and with a flash cube attached. While looking through the viewfinder with one eye, the other eye being open, S.K. had an impression that at the instant of the flash he saw something odd which he could not identify. All three observers agree that the flash went off, and was at least of normal brightness. However, it seemed, if anything, to be brighter than usual, and to give a very bright white light with a bluish tinge. This may, of course, have been an effect of contrast, the lighting before and after the flash being the very subdued light of the two candles. The observers did not feel entirely satisfied with this explanation, as they had previously taken eight flashlight photographs in the basement with the same lighting. A tenth photograph was taken sub-

sequently, and the flash seemed normal. The brightness and blueness of the flash for picture number 9 may however, have been a subjective impression resulting from the heightening of the observers' attention at the time.

No other apparitions were seen during the remainder of the watch, which was terminated about 7 a.m. At 8.45 a.m. the party came for breakfast at the home of George and Iris Owen, and gave an account of their experiences to them and Dr. S. Krippner who was present. The sequences of events and the observers' remarks at the more interesting junctures were confirmed by playing the tapes.

The next day, Monday 22 February, S.K. took the film personally to Kodak's processing laboratory in Toronto and left it with instructions for special care in processing, and personally collected the slides on Tuesday, 23rd February. It was found that all the slides 1 through 20 as shown at the back of the camera, and as listed in the logbook of the watch made through the night (and as numbered on the cardboard slide mountings) were completely normal, except number 9, the one taken at the time of the apparition. (Ten flashlight pictures 1 through 10, were taken in the basement, the remaining 10 pictures were taken afterwards at the Owens' home, in order to use up the film, and to serve as control shots.)

Slide number 9 was not a normal replicate of the view at the end of the laundry as taken by a previous flashlight photograph. It was not blank (unexposed), nor faint (overexposed) nor black (underexposed). It showed a mottling of greyish blue, interspersed with white. It was the kind of defect that conceivably might have been caused by an incorrect developer fluid in the processing. As, however, all the other slides were normal this explanation seems inapplicable. Another possible explanation might be that the shutter stayed open too long in consequence of malfunctioning of a normal type. Some 200 or more slides had been taken with this camera, some with flash, and there had been no failures or abnormalities. Also, the next twenty or thirty slides taken were normal.

The slide had two blue spots. One of them corresponded approximately to the location of an electric light bulb which appears in the normal picture of the scene, and which could function as a reflector. However, there were much brighter objects in view which appear to have contributed nothing. The blue spots may have no significance because they are of a type quite explicable as processing failures.

A copy of the slide was sent to Mr. William Cook who said that in his opinion it was quite possible that a sufficiently highly energized psychic field (i.e. psychokinetic field) might have operated to alter the exposure control of the camera or its shutter mechanism. Mr. Cook noted that Mr. Ted Serios appeared to have produced this effect on many occasions (Cook, 1972, this Journal).

The slide was also taken (with some others relating to a different house)

to Kodak Canada Ltd., Toronto. Mr. R. G. Grigg of Kodak's Photo Information Services wrote back to say; "After careful examination by our Film Service Department, it would appear that the white hazy appearance of these transparencies has been caused either by light reflected from high gloss surfaces into the camera lens or by undetected smoke directly in front of the camera lens during original exposure." As neither of the conditions postulated by Kodak apply, the writers can offer no explanation other than that suggested by Mr. Cook.

It is not claimed by the writers that on the evidence presented the house can be presumed to be "haunted". Nor does the evidence scientifically prove the occurrence of paranormal effects.

Toronto Society for Psychical Research

20 April, 1972

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# The Scoring of ESP Tests with Free verbal Responses: Part 1

A. R. G. OWEN AND J. QUITTNER

**ABSTRACT:** *The statistical analysis of ESP tests when the targets have unequal probabilities is considered. The situation is the same as that occurring in experiments with free verbal responses, except that in the latter case, exact values for the probabilities are unknown and have to be supplied in a somewhat arbitrary fashion.*

*Two new forms of score are introduced — the 'likelihood score' and the 'performance score'.*

*Estimation of psi effects is illustrated by worked examples.*

*Non-parametric approaches are sketched.*

## 1. Introduction

The purpose of this paper is to outline some of the methods appropriate for scoring calls in ESP tests. The experimental situation primarily in view is the one in which a psychic sensitive gives a "reading" on one or more indicated persons by psychometry or otherwise. In such situations we encounter the notorious difficulty of assigning the probabilities that statements made shall be correct by chance. Towards the end of the paper we shall consider methods which do not require the assignment of such probabilities. These methods, though powerful, only apply however in cases where the sensitive has done readings on more than one subject. Consequently situations requiring the assignment of probabilities have to be kept in view.

One of the earliest attempts to score data by assigning probabilities was that of Saltmarsh and Soal (1930). Their approach was equivalent to the following procedure:

Any statement by the subject is termed a "call". For each call we record the number of hits  $h$  or number of misses  $m$  which it represents. Both  $h$  and  $m$ , of course, can only take the values 0 or 1. If a statement is incorrect it is termed a *miss*, and for such a call  $h = 0$ , and  $m = 1$ . A correct call is termed a *hit* and has  $h = 1$  and  $m = 0$ . Let  $p$  denote the probability that a particular call is a hit by chance without the intervention of ESP. We write  $q$  for the probability of the call being a miss by chance. We note that  $p + q = 1$ ,  $q = 1 - p$ ,  $p = 1 - q$ .

Saltmarsh and Soal then attached to each call a "score" calculated as  $(hq - mp) \log r$  where  $r = 1/p$ , the reciprocal of  $p$ . As Burdick and Roll (1971) have pointed out there is no very cogent theoretical discussion



for using this particular form of score. We may remark that it is the factor  $(\log r)$  which is the most open to criticism because any intelligently constructed system of scores must involve the item  $(hq - mp)$ , even though this item may only occur in a disguised form.

Here we advocate two forms of score each appropriate for certain purposes. One is the 'likelihood score', denoted by  $s$ , and is equal to  $(hq - mp)/p$ . Because  $p + q = 1$  and  $h + m = 1$ , it follows that  $s = (h - p)/p = hr - 1$ . This last form is the best for numerical calculation as illustrated in sections 3 and 4. This score is well adapted to estimating the magnitude of psi effects and carrying out tests of statistical significance. Its use has an affinity with the approach of Burdick and Roll who discussed the problem in terms of the Neyman-Pearson theory of hypothesis-testing which involves setting up a ratio of likelihoods. Our own point of view is somewhat different, being based on estimation theory, but its point of departure is the same — the logarithmic likelihood of the observations.

The second form of score (see section 5) is called the *performance* or performance score  $P$ , equal to  $\frac{1}{2}h + \frac{1}{2}q = \frac{1}{2} + \frac{1}{2}(hq - mp)$ . We think this score may be conceptually useful to non-mathematical research workers.

If no psi effects are present the expectation of  $(hq - mp)$  is zero and the expectations of  $h$  and  $p$  are respectively zero and 50%.

If we wish to estimate the magnitude of psi effects, a variety of mathematical models are available. Here we restrict discussion to the simplest one. We assume that in any call ESP intervenes with a probability  $\psi$ , assumed the same for each call. The probability of ESP not intervening for a particular call is therefore  $(1 - \psi)$ . In calls of this kind the call is a miss with conditional probability  $q$ . The probability of any call being a miss is therefore  $q(1 - \psi)$ . The probability that a call is a hit is therefore  $1 - q(1 - \psi) = 1 - q + q\psi = p + q\psi$ . This last expression may be verified to be correct as it is the sum of the probability of being right by chance and the probability of a call which would have been wrong by chance being correct by the intervention of psi. On this model the scores  $(hq - mp)$ ,  $s$  and  $p$  have expectations respectively equal to  $q\psi$ ,  $(r - 1)\psi$ , and  $\frac{1}{2} + \frac{1}{2}q\psi$ . Thus evidence of psi effects is provided by a positive value of the aggregate  $s$  scores or by an excess of the average performance scores over 50% (i.e.  $\frac{1}{2}$ ).

## 2. An example of free verbal response material

Dixon (1972, this Journal) describes an experiment in which a psychic sensitive made 62 calls on a group of 7 people previously unknown to her. Of these calls 37 were judged by the individuals to whom they were directed to be correct, and 25 inapplicable. Of the 25 misses none, to date, have proved to have been precognitions and therefore are still counted as misses. The present writers, irrespective of the scoring as hits

or misses, have attached probabilities  $p$  to the calls. The table shows the numbers  $H$  and  $M$  out of  $C$  calls aggregated in groups for each value of  $p$ .

$p$	$q$	$H$	$M$	$C$	$E$ Cp	excess of hits	$V = E^2$ Cp $q$
0.9	0.1	9	5	14	12.6	-3.60	1.2600
0.8	0.2	4	8	12	9.6	-5.60	1.9200
0.7	0.3	2	3	5	3.5	-1.50	1.0500
0.6	0.4	3	0	3	1.8	1.20	0.7200
0.5	0.5	4	0	4	2.0	2.00	1.0000
0.4	0.6	3	1	4	1.6	1.40	0.9600
0.3	0.7	1	4	5	1.5	-0.50	1.0500
0.25	0.75	1	0	1	0.25	0.75	0.1875
0.2	0.8	1	4	5	1.0	0.00	0.8000
0.9	0.1	9	0	9	0.9	8.10	0.8100
Totals		37	25	62	34.75	2.25	9.7575

The percentage of hits was  $37/62 = 59.68\%$ .

The column  $E$  gives the values of  $Cp$ , the number of the hits expected in each group of calls. The next column gives the actual hits less  $E$ . The column  $V$  gives the values of  $Cp^2q$ , the variance of  $H$ , calculated as  $E^2p$ . Critical ratios or chi-squareds for one degree of freedom could have been calculated for each group. But this has been omitted as in most cases the numbers  $H$  and  $M$  are too small for this to be reliable even if Yates' correction were used.

A rough test of the overall significance of the data can be obtained by totalling the column "excess", and comparing it with the square root of the total of the  $V$  column. The quotient is (rather crudely) a C.R. (critical ratio) for testing whether the hits overall are significantly in excess of expectation. We obtain  $C.R. = 2.25/\sqrt{9.7575} = 2.25/3.1238 = 0.72$  which is not merely less than 1.96, the 2.5% point, but less than unity, so that the data *overall* show no evidence of psi effects.

This conclusion, of course, does not exhaust the information in the data and actually underestimates the significance. As the  $p$  values were assigned to the calls regardless of whether the sitters had classed them as hits or misses, it is legitimate to examine separately the results in the different groups of calls. The group of 9 calls on statements with  $p = 0.1$ , consisted entirely of hits. It may be verified by inspecting these calls as given in Mrs. Dixon's paper, that there is no reason for regarding them as other than independent. The probability of making nine statements each with a probability of 0.1 is 1 in  $10^9$ ; i.e. the odds against this occurring by chance are  $10^9$  to 1, (one billion to one). Unless the writers have set the probability too low at 0.1, we are entitled to take 1 in  $10^9$  as the significance level attained by the sensitive in her performance on this group of hits. No exception need be taken to selecting certain areas of the experi-

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ment for statistical treatment in isolation, because Psi is clearly an intermittent factor and it is legitimate to note separately the "goodness" of the good patches when they occur. It will be seen from the table that overall significance is lost because the best hits are swamped by an excess of misses in the groups of calls with high p values. It would not be legitimate however to assume that this is evidence of "Psi-missing"; it may merely indicate that we set the p values too high. We have the general impression that our p values, if in error, erred on the side of conservatism, i.e. were such as not to exaggerate the odds; which is a fault on the right side.

We need to stress that all the analysis given in this paper proceeds from the assumption that calls are independent. We think that in the case of Mrs. Dixon's data this is substantially true.

It is interesting to apply an exact test of significance to the data in groups and in aggregate. The table shows for each group of data the exact probability (correct to five decimal places) of obtaining a value of H as great or greater than the one observed. The reciprocal of the probability is converted into a chi-squared for two degrees of freedom by taking twice the natural logarithm, or equivalently 4.60517 times the logarithm to base 10.

p	H	M	Probability	Reciprocal	Chi-squared-2
0.9	9	5	1.00000	1.00000	0.000
0.8	4	8	0.99994	1.00006	0.000
0.7	2	3	0.96921	1.03218	0.062
0.6	3	0	0.21600	4.62963	3.070
0.5	4	0	0.06250	16.00000	5.545
0.4	3	1	0.47520	2.10438	1.484
0.3	1	4	0.83193	1.20200	0.368
0.25	1	0	0.25000	4.00000	2.773
0.2	1	4	0.73728	1.35634	0.609
0.1	9	0	1/10 <sup>9</sup>	10 <sup>9</sup>	44.145

Chi-squared for 20 degrees of freedom = 58.055 = Total

It is pointless to examine the significances of the individual chi-squares as these will be the same as the probabilities already calculated. However the 10 chi-squareds for two degrees of freedom each can be added to give a chi-squared for 20 degrees of freedom appropriate to test the overall significance. Its value is 58.055 which is outside the range of tables. However if it is doubled and the square root taken and then diminished by the square root of 39 (i.e. twice the degrees of freedom less 1) we obtain a critical ratio.

We have C.R. =  $\sqrt{116.1} - \sqrt{39} = 10.78 - 6.25 = 4.53$ .

The odds against a C.R. exceeding 4.5 by chance are 147,190 to 1. The data are therefore significant at the level 1 in 150,000 about.

This method is more reliable than the one used above which does not give the correct relative weightings to the groups of calls.

### 3. Scoring calls by the likelihood method

We wish to test whether the number of hits significantly exceeds that which could have resulted by chance. The statistically correct way of doing this results from the "likelihood" method of estimation (Fisher, 1958). Using this method to construct an estimate of  $\psi$  for the data as a whole, we apply a test of significance to ascertain whether this estimate significantly exceeds zero. Both the estimate and the test of significance depend, of course, on the  $p$  values which have been attached to the calls. (If the estimate should come out negative the test of significance is inapplicable, and the data need to be re-considered examining various hypothesis including that of "Psi-missing" as well as the possibility that the  $p$  values have been set too high). To estimate  $\psi$  we may, in the first instance, proceed as follows.

For each call set down the value of  $p$  which has been postulated for it and calculated the reciprocal value  $r = 1/p$ . For the call enter the item "weight" (denoted by  $w$ ) which is calculated as  $(r - 1)$ . If the call is a hit, enter  $w$  (i.e.  $r - 1$ ) as its "likelihood score" (denoted by  $s$ ). If the call is a miss enter  $(-1)$  as its score. Now form the likelihood score  $S$  for the totality of calls by adding the  $s$  values for all calls. Next form the total "weight"  $W$  of the score by totalling the separate weights (i.e.  $w$  values) for all the separate calls.

The estimate  $e$  of  $\psi$  is then obtained by dividing  $S$  by  $W$ , i.e.  $e = S/W$ . If this estimate is small (i.e. not much in excess of 0.15) it is a good approximation to the true value of the estimate and there is no need to do a more refined calculation. If this is the case then we may record the result in the form:

$$\text{Estimate of } \psi = e \pm \text{S.D.},$$

where  $e = S/W$  and  $\text{S.D.} = 1/\sqrt{W}$  is the standard deviation of the estimate. The test of significance is then based on the critical ratio (denoted as C.R.), which is calculated as  $e/(\text{S.D.})$ .

(The C.R. may also be calculated as  $S/\sqrt{W}$ . Alternately one can work with the quantity  $eS = S^2/W = (\text{C.R.})^2$  which is 'chi-squared for one degree of freedom'. If the chi-squared test of significance is used the resulting probability or significance level should be halved.)

The table shows a fictitious example illustrating the scoring of the kind of statements that might be made in a psychometry reading concerning a person totally unknown to the psychic. The  $p$  values which have been postulated are not based on statistics; they are merely illustrative and not intended to be taken liberally.

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Is female	1/2	2	1	Hit	1
Plays the violin	1/20	20	19	Hit	19
Plays the piano	1/4	4	3	Hit	3
Has a limp	1/200	200	199	Miss	-1
Has lost one parent	/10	10	9	Hit	9
Totals		236	231 = W		31 = S

(As a numerical check it may be noted that W, the total weight, is equal to the summation of the r values less the total number of calls made. The score S is equal to the summation of the r values for hits less the total number of misses).

$$S = 31, W = 231, \sqrt{W} = 15.20, 1/\sqrt{W} = 0.0658 = 6.58\%$$

$$e = S/W = 31/231 = 0.1342 = 13.42\%$$

$$\text{Estimate} = 13.42 \pm 6.58\% = 0.1342 \pm 0.0658$$

$$\text{C.R.} = e/(S.D.) = 13.42/6.58 = 2.04$$

The estimate is sufficiently small to be regarded as a good approximation. The C.R. can therefore be used to provide a test of significance. The probability that a C.R. exceeds 1.96 is 0.025 or 2.5%. The C.R. is slightly in excess of 1.96 hence we may conclude that there is evidence of Psi at the 2.5% significance level.

If the test based on chi-squared is preferred we use the value of  $eS$  or  $S^2/W$  which is 4.16, being merely the square of 2.04. The 5.0% point of chi-squared for one degree of freedom is 3.84 which is less than 4.16. As the chi-squared test is a "two-tailed test", i.e. includes negative as well as positive deviations, and we are interested only in positive deviations, the 5.0% should be halved obtaining as before a significance level of 2.5%.

The chi-squared form of the test is useful when it desired to combine data from different experiments. The chi-squared for k experiments can be added together to give a 'chi-squared for k degrees of freedom' whose significance can be obtained from tables. If the scores and total weights of the separate experiments are summed to give a 'grand score', S and a 'grand weight' W then the quotient  $S/W$  gives an estimate based on the whole series of experiments with an S.D. equal to  $1/\sqrt{W}$ . The quantity  $S^2/W$  is a chi-squared with one degree of freedom testing the average Psi effect manifested by the series. If it is subtracted from the chi-squared with k degrees of freedom previously obtained, the resulting quantity is a chi-squared with (k-1) degrees of freedom and provides a test of the homogeneity of the data i.e. the degree to which the separate  $\psi$  estimates agree with one another.

#### 4. A worked example of likelihood scoring

If the data discussed in section 2 are scored by this method, they yield

an estimate of 61%, which is so large as to be open to the suspicion of being inaccurate. A more refined method of likelihood scoring has to be used. Choose a value  $\alpha$  (called a starting value) which, it is hoped will be a good approximation to the true value of the estimate. Let  $\alpha'$  denote  $(1 - \alpha)$ . For each postulated  $q$  value calculate  $r$  as the reciprocal of  $(1 - q\alpha')$ . The score  $S$  is then obtained, as before as the summation of  $(r - 1)$  over all hits less the total misses, the result being divided by  $\alpha'$ . The weight  $W$  is obtained as the summation of  $(r - 1)$  over all calls, the result being divided by  $\alpha'^2$ . The calculation is completed as before except that the quotient  $S/W$  is not the estimate but an item known as the *adjustment*. The estimate of  $\psi$  is obtained by adding the adjustment to the starting value  $\alpha$ . If the adjustment is small further calculation is unnecessary. If it should be large, the new estimate is taken as a fresh starting value and the calculation is repeated as often as is necessary to make the adjustment small.

In the case of the data quoted a preliminary cycle of calculation suggests that the value of the estimate is close to 31.54%. Taking 0.31540 as the starting value we have  $\alpha = 0.31540$ ,  $\alpha' = 0.68460$ ,  $\alpha'^2 = 0.46858$ , and construct a table of scores as shown.

$q$	$q\alpha'$	$1 - q\alpha'^2$	$r - 1$	hits	calls	
0.1	0.06846	0.93154	0.0735	9	0.6615	14 1.0290
0.2	0.13692	0.86308	0.1586	4	0.6344	12 1.9032
0.3	0.20538	0.79462	0.2585	2	0.5170	5 1.2925
0.4	0.27384	0.72616	0.3771	3	1.1313	3 1.1313
0.5	0.34230	0.65770	0.5250	4	2.1000	4 2.1000
0.6	0.41076	0.58924	0.6971	3	2.0913	4 2.7884
0.7	0.47922	0.52078	0.9202	1	0.9202	5 4.6010
0.75	0.51345	0.48655	1.0553	1	1.0553	1 1.0553
0.8	0.54768	0.45232	1.2108	1	1.2108	5 6.0540
0.9	0.61614	0.38386	1.6051	9	14.4459	9 14.4459
		hits		37	24.7677	36.4006/ $\alpha'^2$
		misses		25	25.0000	
					$-0.3393/\alpha'$	
Score		$S$		$-0.4956$		$W = 77.68$
Adjustment		$S/W$		$-0.6380\%$		$\sqrt{W} = 8.814$
Starting value				31.54%		
Estimate		$e$		30.90%		$1/\sqrt{W} = 11.35\%$

The adjustment is small enough for the calculation to be terminated, exhibiting the result as:

$$\text{Estimate of } \psi = e = 30.90 \pm 11.35\%$$

The probability that  $e$  exceeds zero may be got from the C.R. =  $e/(S.D.) = 30.90/11.35 = 2.722$

(or from chi-squared for one degree of freedom  $8.412 = eS$ )

The odds against a critical ratio exceeding 2.70 are 143 to 1, and the odds against it exceeding 2.80 are 195 to 1. Thus the odds against exceeding 2.72 are about 153 to 1. The data overall therefore indicate that Psi was operating about 31% of the time. The data also provide evidence as to the existence of Psi, the significance level being about 1 in 153, i.e. or 0.0065 or 0.65%.

The fact this test of significance yields considerably smaller odds than those got from the test based on the exact probabilities is not a cause for concern. It merely reflects the fact that the data are inhomogeneous. In the former test the groups having  $p$  values of 0.7 or more had probabilities very near to unity. Consequently their total contribution to the chi-squared value was very small, in fact 0.062 only. Consequently these groups, which were characterised by an excess not of hits but of misses, contributed little to the odds in the former test. However the second test was concerned with estimating  $\psi$  and therefore the groups with an excess of misses markedly reduced the estimate of  $\psi$  and the odds derived from this estimate.

### 5. Scoring calls by the 'performance' method

As we have seen, a statistically adequate treatment of the data is elaborate and time consuming. It is convenient to have a score which can be easily calculated in order to render the sensitive's performance on the calls, individually or in aggregate, more obviously good, bad or mediocre as the case may be. We suggest the use of another score 'P' which we call the *performance* as defined mathematically in section 1. A hit is awarded a performance score equal to  $\frac{1}{2} + \frac{1}{2}q$  or, if expressed as a percentage,  $50 + 50q$  where  $q$  is a decimal, or  $50 + \frac{1}{2}q$  if  $q$  is taken in percents. A miss is scored  $\frac{1}{2}q$  (or  $50q\%$  if  $q$  is a decimal, or  $\frac{1}{2}q$  if  $q$  is taken as a percentage.)

For an individual call the performance has the following properties. It is 100% for a hit when  $p$  is zero; it is zero for a miss when  $p$  is unity. Thus extremes of  $P$  correspond to extremely good or extremely bad performances. It is 50% for a miss when  $p$  is zero, and for a hit when  $p$  is unity.

The calculation of  $P$  is illustrated in the next section.

### 6. Practical considerations

The chief difficulty in scoring the subject's responses to a sitter or a psychometric object is in making the purely subjective and arbitrary decision as to the value to be given to the probability  $p$  of a statement being a hit in the complete absence of ESP. Sometimes, also, it is difficult to decide whether in fact the call is a hit or a miss.

In a typical sitting the subject might be handed by the sitter an object, such as a watch or a locket, and be asked to state whatever thoughts might arise in the subject's mind. Some of these thoughts show considerable

insight with hits being scored despite very low p values but, in all fairness to the subject, scoring should not also include "stray thoughts" which have nothing at all to do with the object held by the subject.

Another difficulty arises from the possibility that the subject may have scored a hit, but that nobody is able to recognize it as such, because the object concerned may have been used by someone other than the sitter, and the sitter simply does not know all the "experiences" of the object. For this reason objects used in psychometry should only be those whose complete history is known by persons (not necessarily only the sitter) able and willing to pass on this information to the experimenter before scoring. It would also help if this information would go beyond just stating whether it is a hit or a miss, possibly using internationally agreed norms of the degree of hit or miss and standards of estimating non-ESP probabilities of scoring a hit. In many cases questions by the experimenter or by the sitter at the time may not be welcome, as they may tend to interrupt the communication flow.

Sometimes several of the subject's psychometric responses to objects form a group, and should be given only one score for the whole group. "Pine trees up north" may relate to a very significant hit, for example, as part of a group, while as an isolated statement it may be scored as a miss with a probability of 0.25, because, after all, there are pine trees also east, south and west.

Because of the highly subjective scoring, including the determination of what "p" might be, any calculation using figures without regard to the tolerances involved is subject to doubt; assuming, however, that values of "p" and of the scores are exact, the following example (Mrs. Dixon's data) will illustrate the methods:

q %	P per hit (%)	P per miss (%)	H	M	Aggregate P		
					hits	misses	
10	55	5	9	5	495	25	
20	60	10	4	8	240	80	
30	65	15	2	3	130	45	
40	70	20	3	0	210	0	
50	75	25	4	0	300	0	
60	80	30	3	1	240	30	
70	85	35	1	4	85	140	
75	87.5	37.5	1	0	87.5	0	
80	90	40	1	4	90	160	
90	95	45	9	0	855	0	
Totals			37	25	2732.5	480	3122.5

If the S score were calculated with the starting value zero it would have given 61.5% for the ESP probability  $\psi$ . This is because it is highly influenced by the 9 hits with p values of 0.10. The average performance

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score, which is  $3122.5/62 = 51.81\%$ , to some extent offsets the q hits with the 16 misses with p value near 0.80, and is nearer to the final S score estimate 30.90%.

## 7. Non-parametric tests

In cases where the sensitive gives readings on more than one sitter, it may be possible to use tests of significance which do not require probabilities to be attached to the calls. Such tests may be described as *non-parametric* and are obviously desirable. The simplest instance of such a test may be illustrated from the experiment already discussed. Excluding Mr. Dixon on whom no hits were made, the totality of hits for each sitter can be regarded as constituting a description which the sitters as a group felt to apply to that sitter only and to none of the others. We need consider therefore only the distribution of the six descriptions over the six sitters. This can be done in  $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1$  ways, i.e. in 720 ways. The odds against the descriptions being correctly allocated by chance is therefore 720 to 1. The result is therefore significant at the 1 in 720 level.

We may go further and consider the distribution of at least the most highly specific hits over the seven sitters. Taking the 9 hits which had been noted at  $p = 0.1$  we see that over the 7 sitters they had been allocated as 2, 0, 0, 4, 1, 2. The odds against such an allocation being made correctly by chance is  $9!/2! 0! 0! 4! 1! 2!$ . In this expression 0! is to be taken as equal to 1, so that the sitters with no hits can be omitted. The odds are  $362,880/2 \times 24 \times 2 = 3780$  to 1. This is considerably less than the billion to one odds based on nine statements each with a p of 0.1, but this is to be expected.

The conditions under which a simple calculation of this kind is valid are as follows. (a) Each statement in the group of statements considered is true of the person of whom it is made and of no other of the sitters. (b) Each statement is made only of one sitter. The calculation can still be done even if condition (b) does not hold, but it is somewhat more complicated.

## 8. Remarks

Non-parametric tests are desirable as they remove the arbitrary and subjective element involved in assigning p values to the calls. They will, in general, give lower values for the odds than tests based on p values. However, these odds will be more reliably determined. Non-parametric tests can, of course, only be applied when the sensitive gives readings on more than one sitter, and this should be borne in mind when designing experiments. (Pratt, 1969).

Nonetheless a p-values-analysis is useful, provided that the p values are set up in a conservative fashion, because quantitative estimates of psi

effects are of real interest, and are potentially informative as to the mode of operation of psi abilities and how this mode may differ between sensitives.

It will have been noted that different types of analysis of the same data yield different numerical odds. This is because each type of analysis singles out a different feature of the data.

Investigators should be reluctant to compare sensitives or rank them on the basis of a limited number of experiments. This is because different experiments may give very different opportunities to the sensitive for manifesting his talent. Different sensitives may tend to make calls of different types. One sensitive may tend to produce highly specific facts which would carry very small p values. Another sensitive however, might produce psychological insights which, though true, are also true of a large number of people and so carry larger p values, making his performance seem less outstanding than actually it may be.

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# An Experiment in GESP with Mrs. Theresa Marmoreo

JOAN DIXON

**ABSTRACT:** *An experiment in GESP is described. The subject gave her psychic impressions of seven persons previously unknown to her. The resulting data when scored by various methods, appear to be statistically significant, and to provide good evidence of ESP.*

## 1. The Experiment

On 20 October, 1970 my husband, Mr. Ken Dixon, brought Mrs. Theresa Marmoreo from her home in Scarborough, Ontario, to meet a group of sitters at the home of one of our friends at Don Mills, Ontario. Besides my husband and myself there were present five other persons who have been given code names, T50, U28, T32, T61 and T6. None of the sitters was previously known to Mrs. Marmoreo. As she scored no "hits" in her reading on my husband, the necessity of making allowance for the brief acquaintance with him during the car ride does not arise. He told her nothing about the sitters. As soon as she arrived the subject was asked to give any psychic impressions she might have concerning the sitters. In some cases, but not all, "feedback" was given, to the extent that a statement might be confirmed or denied, but care was taken not to elaborate, or to furnish additional information.

Mrs. Marmoreo's impressions are listed below in two columns — those counted as hits (statements correct for the person to whom they were addressed), and misses (not applicable at the present time). Annotations are indicated in brackets. Where the subject was working from a psychometric object, the fact is indicated. It is important to note that statements made to a sitter were not claimed at the time to apply to any other sitter. At the end of the session, the sitters were asked individually whether any statement, correct or incorrect, made to another member of the group would apply to them. They all felt that no statements made to other persons applied to them, with some obvious exceptions, such as hit 2 regarding an elderly woman. But this reference was not taken as being even possibly a misdirected hit because it was occasioned by the presentation of a definite object — namely my grandmother's locket.

The figures in brackets attached to each of the statements are p values assigned to the statements by Owen and Quittner (1972, this Journal).

### Hits

Mrs. Joan Dixon (my grandmother's locket with my picture inside).

1. Picture inside (0.9)
2. Elderly Woman (0.9)
3. Florence (my mother's name) (0.1)
4. Margaret (my cousin's name) (0.1)

### T50

5. Changing your job (0.8)
6. Argument at work (0.9)
7. Not first time — an ultimatum (0.9)
8. Fire insurance (0.8)  
(‘hit’ on insurance miss on ‘fire’).

Mr. K. Dixon

### U28 (Watch)

9. Something missing — food — hairy man with bushy eyebrows (0.1)
10. Drowning, river — motor boat “see him in water” (0.2)
11. Does Carl mean anything? I get ‘dislike’ (U28 had been talking about Carl).
12. Are you thinking of moving? I get a lot of coldness. You don't like it here (0.5)
13. Camera shop (U28 had been looking at cameras) (0.8)
14. Comic Books scattered (0.9)
15. Anglican Minister. He married you. Tells very funny jokes (0.8)
16. One of your children was hit on the head with a baseball bat (0.1)
17. Pay more attention to one of your children, he feels you don't love him (0.9)

### Misses

1. 1898 lamp (0.2)
2. Old Canadian soldier (0.2)
3. Julia (0.8)
4. Helen (0.8)

5. A man who puts his hand on waist and taps desk (0.8)
6. A Chief Inspector (0.30)

7. Do you like fishing? (0.8)
8. You with a shovel, digging a grave (0.20)

9. Going to happen again (0.9)
10. Cufflinks missing (0.7)
11. Darkness at top of stairs (0.9)
12. Do you have one bad ankle? (0.3)
13. Drastic changes around 40 years of age (0.9)
14. Niagara Falls (0.7)
15. Telescope (0.8)
16. Gun at head of children's bed (0.7)
17. Helen, Eleanor, Freddie (0.8)
18. Mrs. Campbell. III (0.8)
19. Bronchitis (0.8)

### Hits

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*Hits*

- 18. Newark, N.J. Man in connection with medical dispensary computers (0.1). (U28 on four occasions met a man in Newark who was the first to install these machines).

*T32*

- 19. Tears, Bickering, Treadle sewing machine (0.6)
- 20. Betty — Oxfords — cane — drags one foot (0.6)
- 21. Three children — middle one needs attention (0.8)
- 22. Artist — same name as sweetheart to Betty (0.3)  
(Betty's sweetheart has same name as well-known artist).
- 23. Black velvet band (0.6)

*T61. (26, 27 on T61) (mother's watch)*

- 24. Has your son been sick? Temperature 104? (0.5)
- 25. Many inner secrets kept to self (0.9)
- 26. I get 'fille' (0.1)  
(T61's mother called her that).
- 27. Mother a strong person. Much sobbing and crying (0.7)
- 28. Pine trees up north (0.25)
- 29. Hands rough (0.9)
- 30. On knees scrubbing floors — work hard always (0.4)
- 31. Mother had much jewellery — never worn (0.4)

*T6*

- 32. Someone who committed suicide (0.5)
- 33. Shy girl, always liked you (0.1)
- 34. I see roses (0.1) (T6 said mother always brought her roses)

*Misses*

- 19. Measles or mumps (0.4)
- 20. Bad fall on bicycle (0.3)
- 21. Toy train—coal cars—80 with dollar sign. Foreign franc (0.3)
- 22. Michigan. Cowboy on horse (0.9)

- 23. Clipper - ship - beard - tinge of red — could be great-grandfather (0.2)
- 24. Girl did not mean to kill herself (0.8)

### Hits

35. Heart seizure for T6's boss Nov-Feb (0.5) (had happened already).
36. Empty office (0.9)
37. Warm man, Accident at cottage with an axe (0.4) (Happened in Spring 1970 — Fatal).

### Misses

25. Trip to Florida (0.9)

### Numerical and statistical analysis

The statistical treatments are only given in brief as these data have been used by Owen and Quittner as an example to illustrate some of the methods possible.

The percentage of hits out of all calls is  $37/62 = 59.68\%$

The percentage average performance is 51.81%.

A test of statistical significance based on calculation of exact probabilities (i.e. exact relative to the postulated p values) shows that the odds against so many hits occurring by chance are about 150,000 to 1. It is concluded that ESP was functioning.

Application of the likelihood scoring method yields  $30.90 \pm 11.35\%$  for the estimate of  $\psi$ . This quantity  $\psi$  is the probability per call that the call is made in consequence of ESP and not by chance. The odds against getting an estimate of this size by chance in the absence of ESP are about 153 to 1. As pointed out by Owen and Quittner these odds are relatively low because the groups of statements to which p values of 0.7 or more were assigned show an excess of misses. This may be merely an artifact caused by setting the p values too high, i.e. by scoring the data somewhat conservatively.

The odds against the 9 statements with p values of 0.1 being correct by chance are of course a billion to one, provided that these p values are not in error.

Non-parametric tests may be applied as follows.

The hits on each of the six sitters on whom hits were made can be thought of as a single description of that sitter. The odds against assigning the descriptions correctly to the sitters by chance is  $6! = 720$  to 1.

Similarly it can be shown that the odds against correctly distributing the 9 calls whose p values are 0.1 over the seven sitters, assuming that each of these is a correct statement only for the sitter of whom it was made, are 3780 to 1.

Even admitting that the p values may be somewhat subjective, it is hard to do other than regard these data as providing good statistical evidence for ESP.

The form of experiment does not distinguish between the different modes of ESP, telepathy, clairvoyance, psychometry, etc. At the time of

writing it does not appear that any of the misses have come true as precognitions.

#### REFERENCE

OWEN, A. R. G. and QUITTNER, J. 1972. This Journal.

Toronto Society for Psychical Research

27 April, 1972

# An Experiment with Mr. Bob Milne Involving GESP and a possible Precognition

IRIS M. OWEN AND A. R. G. OWEN

**ABSTRACT:** *Readings by the subject on seven sitters are reported and statistically analysed. The data provide good evidence for the functioning of ESP, and suggest the occurrence of at least one precognitive hit.*

## 1. The Experiment

On 16 November 1971 an experiment in GESP was carried out at our home, the subject being Mr. Bob Milne, who was present, with ourselves and a group of seven sitters, who will be indicated by their code names, T9, T10, T19, T20, U21, T11, and T62. The experiment was done impromptu, and it was also unknown to us who would be attending, as the occasion was primarily an "At Home" to which all the members of the Toronto Society for Psychical Research had been invited without the necessity of sending an acceptance. Six of the sitters testified that this was the first occasion on which they had met or talked to Mr. Milne. We think that he could have obtained no prior knowledge of these persons by normal means. T62, however, said that she had spoken to Mr. Milne over the telephone a few months before, but that nothing of a personal nature was said. We think it is unlikely that the information given by Mr. Milne in his "reading" on T62 was derived by normal means in the course of the telephone conversation. However, we think it proper to separate her reading from those on the other sitters. This reading is therefore given last, although it was the fifth to be made. We believe this separation to be methodologically sound, for a reason apart and in addition to the possibility of conscious or unconscious inference during the telephone call. So long as we are in ignorance of the mode by which paranormal cognition operates we need to classify data in respect to degrees of contact. It is arguable that an earlier acquaintance, however slight or fleeting, between the subject and the target person, can reinforce the paranormal linkage between them, and so facilitate the flow of paranormal knowledge.

Except for T62 as mentioned, the impressions received by Mr. Milne are listed (often in condensed form) in the order in which they were given. The classification as hit or miss is that given them by the sitter to whom they were addressed. No statement made of one sitter was claimed by another sitter to apply to him or her. Annotations are given in brackets. The figures are the p values we attached to the calls. (see Owen and Quittner, 1972, this Journal).

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*Hits**Misses**T9.*

1. I see circle — no end-round and round-in regard to your home life (0.9).
2. You will achieve goal — yet I can see you falling off towards the end (0.9).
3. List objectives and possible means. A day later you will be able to make a decision. But stick to your decision. — you tend to give up (0.9).

*T10.*

4. (T10 asked if illness could be diagnosed from aura, which Mr. Milne examined). Loss of energy at front and back of left shoulder. (T10 scored as a hit, said he had a hole-in-heart) (0.2).

*T19.*

5. Corresponding with someone after a long lapse. (0.3). (T19: 'to stepmother and sister').
6. The sister married — three children (0.3).
7. Three years since you wrote (0.3).
8. She is argumentative etc. (0.5).

*T20.*

9. Tired recently, Very weak (0.2.).
10. Headaches? (T20: "dizziness actually") (0.5).
11. Breathing trouble (0.5).
12. You do field work and desk work at the same time (0.1).
13. Pencil, paper, fine figures, fine details. You really like it (0.3).
14. You'll get over the health problem. Having a check-up this week? I see you going to the hospital on Thursday (0.1).

1. Red and yellow in aura. You have been angry and upset today. (0.5)

2. Name L or M (0.1).
3. A visit from the East (0.5).

4. You have been a leaning post in last weeks. Someone draining you (of energy) (0.2).
5. Wearing hat (0.5).
6. Are you meditating more? (0.3).

*Hits*  
*U21.*

15. Not sleeping right (0.3).

*T11.*

16. I see you moving a little north-east (0.1).

(T11, in process of moving a few blocks northeast)

Some unverifiable statements (which may none the less have been true) have been omitted and are therefore unscored. These may possibly include accurate precognitions. The figures given in brackets are the *p* values (i.e. probability of being correct by chance) which we have attached to the statements. They are inevitably somewhat subjective. Statement 14 was not scored as a hit at the time of the experiment but became true in a curious way as will be explained later. As always with psychic sensitives, statements scored as misses may become true later, as could be the case with the eight misses here.

**2. Numerical and Statistical analysis**

The methods illustrated by Owen and Quittner (1972) were applied as follows.

The percentage of hits was  $16/24 = 66.67\%$

Expected hits = summation of *Cp* = 9.3

Excess of hits = 6.7

Variance = summation of *Cpq* = 4.33, S.D. = 2.08

C.R. =  $6.7/2.08 = 3.22$

The odds exceed 727 to 1 because these are the odds of a C.R. exceeding 3.20.

This method is not statistically fully reliable and the figure 727 should not be taken too literally.

The total percentage performance is half the percentage of hits plus half the summation of *Cq* =  $2910/48 = 63.96\%$ .

Carrying out a statistical test which is precise (relative to the postulated *p* values) we have

<i>p</i>	<i>q</i>	H	M	C	Probability		Chi-squared.
0.9	0.1	3	0	3	0.72900	N	0.632
0.5	0.5	3	4	7	0.77344	N	0.514
0.3	0.7	5	2	7	0.02877	S	7.097
0.2	0.8	2	1	3	0.10400	N	4.527
0.1	0.9	3	1	4	0.00370	S	11.199
		16	8	24	chi-squared (10)		= 23.969

The odds against a chi-squared for ten degrees of freedom exceeding 23.209 by chance are 100 to 1. Hence the results are significant at below the 1% level.

A crude estimate of  $\psi$ , the relative frequency of the intervention of ESP, can be obtained from the quotient of the total misses 8 divided by the summation of Cq, which is 13.1. The quotient  $8/13.1 = 61.07\%$  is an estimate of  $1 - \psi$ . The crude estimate of  $\psi$  is therefore 58.93%. This  $\psi$  estimate is very statistically unreliable and the likelihood estimate is to be preferred. Scoring with a starting value  $\alpha$  equal to zero gives the estimate  $e = 48.56\%$ . The data may therefore be rescored using  $\alpha = 50\% = 0.5$  as starting value. This gives  $e = 48.73 \pm 14.72\%$ . The C.R. =  $48.72/14.72 = 3.32$ . The odds against a C.R. exceeding 3.30 by chance are 1033 to 1.

Non-parametric tests are applied as follows. If the readings are taken as six descriptions uniquely applying to the six sitters the odds against them being correctly distributed by chance are  $6! = 120$  to 1.

If, as seems permissible on inspection, we regard calls with p values of 0.3 or less as applying uniquely to the sitter to whom they were directed, their distribution over the sitters is 0, 1, 3, 4, 1, 1. The odds against their correct distribution by chance are  $10!/0!1!3!4!1!1! = 10!/3!4! = 25,194$  to 1.

We think that our ascription of p values was reasonably conservative. The data, considered both parametrically, and non-parametrically, furnish very significant evidence of the functioning of ESP, even with the omission of the one sitter T62. The statistically assessable part of the reading on T62 was as follows.

#### Hits

1. Something has occurred in the last 8-9 weeks involving direct family, someone leaving (0.2).
  2. You have spoken to four people about this, two gave same answer. Two were way off (0.1).
- You have a healing gift (0.5).

#### Misses

1. Pain around chest (0.2).
2. Person has left (0.5).
3. You are not giving attention at home (0.5).

If the hits are considered as constituting a correct and correctly assigned description, the result of adding these data to those above is to increase the odds as regards distribution of descriptions to  $7! = 5040$  to 1. If hits with p not in excess of 0.3 are considered the distribution would become 0, 1, 3, 4, 1, 1, 2 with odds  $12!/3!4!2! = 1,662,804$ . The data are insufficiently extensive to warrant any conclusion to the effect that prior contact by telephone had improved the psychic rapport between T62 and subject, or, for that matter, diminished it.

The reading on T62 is not significant as it stands. The chi-squared for six degrees of freedom is only 8.035 which is not significant even at the 20% level. Though insignificant when considered in isolation, as the non-parametric test shows, it adds to the significance of the other readings when combined with them. It is worth noting that if hit 1 were assigned 0.1 as its p value, then the reading on T62 would be significant at the 2% level as the chi-squared (still for six degrees of freedom) would be 13.815.

### 3. A precognitive element?

Hit 14 on T20 was originally recorded as a miss. In reply to the statement that he would be going to the hospital on Thursday (18 November) T20 said that he would, in fact, be visiting his doctor next Tuesday (23 November). The following Wednesday, 24 November, T20, told us that subsequent to the reading, his doctor had telephoned him asking him to go to the hospital on the Thursday, 18 November, to collect some X-ray photographs.

### REFERENCE

OWEN, A. R. G. and QUITTNER, J. 1972. This Journal.

New Horizons Research Foundation  
Toronto Society for Psychical Research

25 April, 1972

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# An Odd Experience Involving a Prediction

EMIL ZMENAK

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**ABSTRACT:** *The fulfilment of a prediction is described.*

In the fall of 1970 while I was preparing to attend a meeting of the Toronto Society for Psychic Research, my wife urged me to stay at home, having received a strong feeling that something was going to happen. She received an impression of being awakened by a phone call from the police and visualised a body without legs.

At any rate, I attended the meeting and on leaving, I commented on being uneasy about the drive home to other members of the committee.

12 [In fact, his words were as he went out of the door — to me — “Iris, you had better make a note of this, Carol did not want me to go out tonight — she says she sees a death if I do — I don’t know whether she thinks I will be killed, I don’t think I shall be.” (Note added by Iris M. Owen).]

As I was driving home and reaching the Stoney Creek traffic circle I ran into trouble with my battery and my car lights quit, and my brakes (which are power assisted) failed. At that moment a large transport truck was barreling down behind me and just avoided hitting my Viva. I made it as far as the next road and walked from the Queen Elizabeth Way to Highway 8 where I found a telephone. As I was phoning my wife to ask her to pick me up a police cruiser pulled up beside me. I asked my wife to hold the phone and I arranged to have the cruiser drive me part-way to Grimsby where my wife could meet me.

I got in the car and as it started to pull away, another car stopped on the other side of the road and a man got out and signalled us to stop. He came across the road and asked for directions to a motel. The policeman spoke to him for a few minutes and the man started to return to his car. The policeman called him back again as he suspected he had been drinking. The man returned and the policeman spoke again with him and smelled his breath for alcohol. He decided to let him go back to his car, and as he turned to go he walked directly into the path of an oncoming car, and was killed instantly.

The impact of the car broke both the man’s legs and his body was crumpled up so that only his torso was visible. Since I had to stay behind

as a witness, the police had to contact my wife and let her know what had happened, thus both parts of her premonition were true.

(Signed) EMIL S. ZMENAK, D.C.

*[The tragic death was, of course, a matter of judicial record; Dr. Zmenak attended the inquest. The date and names have been suppressed to avoid distress to relatives (Note added by Iris M. Owen).]*

Toronto Society for Psychical Research

10 April, 1971

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# EDITORIAL

The reports in this number of *New Horizons* fall into two distinct groups — three papers on Extra-Sensory Perception and three on pyramids. What they have in common is that they all deal with the propagation of real or alleged invisible influences or forces.

In the case of pyramids we decided to find out by actual experiments whether the "cosmic" influences, which many people allege can be "focused" both by Egyptian pyramids and hollow models of pyramids, do, in fact, actually exist. This is a proper object of scientific research because, if true, it would be very important. The work which Mr. Alter and Mr. Simmons report on appears to have been done both carefully and imaginatively. Their findings seem quite conclusive, and to demonstrate that model pyramids have none of the occult properties ascribed to them. Although this is a negative result, we think it ought to be published. It is wrong for mistaken beliefs to stand uncorrected; they distract attention from discoveries that are both true and profoundly interesting; their effect is like that of Gresham's Law in the field of public finance where, "Bad coin drives out good". There is also the issue of consumer choice; model pyramids are marketed and advertised; prospective purchasers are entitled to adequate information as to what to expect.

The papers on ESP are, however, concerned with aspects of a class of phenomena that are both true and important — the acquisition of information by means which we call extra-sensory perception, because they do not depend on the ordinary human senses.

Mr. Wilkie's work is interesting because it exemplifies the remarkable accuracy which can be achieved on occasion by a highly endowed "psychic" person. It also raises the question of the nature of the "ESP channel".

The paper on ESP in relation to distance is self-explanatory. We think that the techniques described may be useful to other experimenters. The results reported tend to support the view that up to great distances "high-powered" ESP is independent of physical separation, and is not propagated broadcast like radio waves, but more resembles contact by telephone, i.e. is concordant with the "network" theory (Osis, Turner and Carlson, 1971). Whether this implies that ESP is "non-physical" is a deduction that we are not yet in a position to make.

Pride of place has been given to the remarkable paper by Dr. D. H. Lloyd. This is a pseudonym; however, the author is a Doctor of Medicine, engaged in medical practice and research in Canada; his bona fides, professional qualifications, and scientific abilities are well-known to the Editor. *New Horizons* takes particular pleasure in publishing Dr. Lloyd's paper. We believe it to be one of the most important papers ever to be published in the field of parapsychology.

Dr. Lloyd and his associates have shown that it is possible by deliberately projecting a thought or a mental image at a person, to evoke an electrical response in that person's brain. The evoked response is detected in the cerebral cortex, i.e. the "grey matter" constituting the surface of the cerebral hemispheres of the brain. The method of detection is closely similar to that used to detect the response evoked by an ordinary sensory stimulus, such as a light directed to the eye, or a noise presented to the ears. Thus it utilizes an established technique which has been understood and applied for many years past, so that its validity is not in dispute.

The type of response is very similar to that which occurs in the cortex when a sound is heard. The technique used can therefore be best illustrated by describing what happens in audition. Soundwaves impinging on the eardrum cause vibrations of its membrane which, via the middle ear, communicates motion to the fluid of the inner ear. This induces vibration of the cochlear partition where nerve fibres are stimulated. These fibres proceed in a bundle — the auditory nerve — to a region called the cochlear nucleus situated in the medulla in the lower part of the brain, whence the "message" in the form of nerve impulses is conducted through various other organs of the brain to the auditory cortex in the temporal lobe. Presumably it is at this final stage that (provided the sound is consciously noticed) the electrical stimulation of the cortex is, in some totally mysterious way, "translated" into an auditory perception.

According to circumstances, the occurrence of the sound may or may not be registered in the consciousness of the hearer. Or, as with some infants, it may register in the consciousness but not be recognized as a sound. In this case, it will be "perceived" but not "apperceived", i.e. the experience is not understood in relation to its source, or fitted into the general pattern of surrounding events. However, provided the ear and the auditory portions of the nervous system are complete and healthy, the resulting electrical stimulation of the cortex can be exhibited, even though it is not perceived or apperceived. This is because electrical activity on the cortex of the brain produces a small electric voltage on the scalp of the head. This voltage is very minute; its typical peak value is  $50\mu\text{V}$  (i.e. 50 microvolts = 50 millionths of a volt), but it can be measured by attaching two electrodes to different regions of the scalp and connecting them to the input of an amplifier. The output of a series of such amplifiers is sufficient to move the pen of a chart-recorder so that we obtain a graph (the celebrated EEG, i.e. electroencephalogram) of the voltage difference between the two regions of the scalp plotted against time. Alternatively, (or simultaneously), this voltage can be displayed on the screen of a cathode ray oscilloscope.

It has been proved that when the "messages" relating to a sound finally emerge on the temporal cortex, a characteristically formed "wave" of electrical activity results. For instance, a machine known as a tone generator can be arranged to give out a note of any desired pitch (e.g. an

audio-frequency of 2000 Hz = 2000 cycles or vibrations per second) for a short time (such as 200 milliseconds = 0.200 seconds =  $\frac{1}{5}$  of a second). Shortly after the commencement of the sounding of the tone generator the cortex develops a positive voltage, which increases to a few microvolts and then declines to zero, becoming negative until it reaches a negative peak of the order of  $50 \mu\text{V}$ . This is the peak N1 shown in Figure 1 of Dr. Lloyd's paper. Thereafter the voltage becomes positive again attaining the peak P2. It then executes two or three more oscillations between positive and negative values, declining finally to zero about half a second (i.e. 500 msec.) after the commencement of the sounding of the tone generator, i.e. about 300 msec. = 0.3 sec. after the sound ceases.

Now this evoked response of the cortex cannot easily be separated from its spontaneous electrical activity which continues meanwhile irrespective of the auditory response. In order to separate the response from the spontaneous activity, the tone generator is sounded repeatedly at regular intervals of half a second (500 msec.). Before being fed to the chart-recorder the amplified EEG signal is passed through an instrument known in the trade as a CAT (computer of average transients). The purpose of the CAT is to add together the signals occurring at regular intervals of 500 msec. In a typical experiment it will add together the signals occurring at 0, 500, 1000 . . . up to 29,500 msec., and divide the resulting sum by 60 which is the number of items, in order to get the average. Similarly, it will average the signals at 1, 501, 1001, . . . 29,501 msec., and in fact, if  $t$  is any number of msec., the CAT will average the signals at  $t$ ,  $500 + t$ ,  $1000 + t$  . . .  $29,500 + t$  msec., and it is this averaged signal which is registered by the chart-recorder. Now the averaged signal consists of two parts; one is the average of the spontaneous activity of the cortex (alpha waves and such), which is sufficiently irregular to average effectively to zero. However, in consequence of the repeated sounding of the tone generator the cortex has also produced 60 times what is substantially the same wave-form. The average of this constitutes the other and non-zero part of the averaged signal. The averaged signal therefore reproduces the typical form of the cortical response to an auditory stimulus. It is therefore called the *average evoked response* as it represents the response of the brain, evoked by the stimulus and not the spontaneous cortical activity which has been "scrubbed off" by the averaging process.

As will be seen from Dr. Lloyd's paper, he and his colleagues had the brilliant inspiration of replacing the repeated sounding of a tone generator by repetitious projection of a thought at an experimental subject hooked up to EEG apparatus and a CAT in a manner very similar to that employed for displaying cortical response to sound. They showed that the thought also produced an average evoked response in the brain cortex of the subject. In duration and form the telepathically induced response is

very similar to that evoked by an auditory stimulus. The magnitude of the response is slightly less than that of the response to sound but of the same order of magnitude.

As many readers will be aware, this result is unique in psychical research. For the first time it has been shown that there is a physically observable event in the brain which correlates with a telepathic stimulus. As Dr. Lloyd points out, it does not tell us by what route the message arrives at the cortex, or even which part of the cortex is electrically activated. However, this result, even as it stands, opens up so many exciting prospects for objectively based researches of many kinds, that it may legitimately be recognized as signifying the advent of a new era in psychical research with potential repercussions on the behavioural and other sciences.

The demonstration of telepathically evoked response is, we think, entirely new, and derives nothing either of method or of inspiration from observations attributed to Russian scientists (Ostrander and Schroeder, 1970). So far as we can ascertain, Soviet investigators have merely paid attention to gross changes in the overall spontaneous electrical activity of the cortex while subjects are engaged in telepathy experiments, and have not succeeded in exhibiting any specific cortical excitation evoked by telepathic communication. The discovery made by Dr. Lloyd and his associates must therefore be rated as a Canadian "first".

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- New Horizons Research Foundation 23 May, 1973

# Objective Events in the Brain Correlating with Psychic Phenomena

D. H. LLOYD, M.D.\*\*

**ABSTRACT:** *A new phenomenon is reported. A pilot experiment, using well-established techniques, is described, in which images transmitted telepathically are found to evoke responses in the EEG which are similar in form, and comparable in magnitude, to those evoked by physical stimuli such as sounds.*

*Remarkably, in this experiment, although the response is demonstrably present in the cortex, the recipient, though aware of the nature of the experiment, does not consciously register the content of the message or consciously recognize when it is sent.*

\*\*Pseudonym. See Editorial.

## 1. Apologia

This paper is a report of an experiment performed in September 1970 by the author, and two other physicians who wish not to be identified. The experiment is unique being the first investigation that the author is aware of to objectively and directly suggest the capacity of the human brain to respond to psychic stimuli. It demonstrates a new phenomenon. For this paper psychic stimuli is defined as transmitted thought from one brain to another with no known means of communication. Subsequent experiments have refined the techniques in this early work, and will be published at a later date. Because of lack of controls, this early experiment is not conclusive, but has stimulated further more statistically extensive research by the present author into objective correlates of psychic phenomenon.

## 2. Method

The method and instrumentation is not simple and considerable detail will be presented to allow the reader a full understanding of the techniques applied.

(1). *Averaged evoked response (AER)*. Within every living brain there is extensive and complex electrical activity, which is continuous and on-going. The process which measures this electrical activity on the scalp is electroencephalography (EEG).

If a subject is stimulated with an acoustic tone, an evoked response may be seen in the ongoing EEG. This evoked response usually cannot be visualized in the greater amplitude of the ongoing EEG, but is normally present. The response is time-locked to the stimulus, that is, it occurs at a specific time after the onset of the stimuli. This is called the latency of the response. The evoked response is multiphasic, (see Fig. 1), and the latency of each wave has been established. (5, 6, 7, 8, 11.)

The significance of each component is still controversial, but this does not concern us in this first report.

Now, the problem is that the response is too small to be readily identified in the ongoing EEG. A well established technique to extract a time-locked signal from background noise is therefore used. (2, 4, 5, 6, 12.) The technique produces in this instance an average evoked response (AER), and is as follows.

A subject is stimulated with a tone and a time segment (say 500 milliseconds) of EEG data is gathered and stored. If this is repeated 60 times, there 60 segments of EEG data each 500 msec. long. If these 60 segments are then algebraically added on a time point-to-point basis, one 500 msec. segment results. This segment is the algebraic electrical sum of 60 segments, and can be considered proportional to the average of the 60 segments.

If no stimulus is applied, at any point of the EEG segment the electrical activity is random in its amplitude around zero units; thus there are theoretically as many +4.5 units as there are -4.5 units, and so on. The average in the infinite (theoretical) case is zero units for each point in the 500 msec. EEG segment. In the finite case of 60 segments the theoretical average of zero for every point is not attained and there are minor voltage fluctuations around zero volts.

Now, as the cortex response to a stimuli is time locked and constant in its pattern (i.e. not random), an average of 60 EEG segments each containing an evoked response will produce an average evoked response.

The time-locked response patterns will not average to zero as will the background random EEG (whose amplitude in this experiment never exceeds 50 microvolts negative or positive).

The pattern of the AER appears to be characteristic for each sensory mode. (2, 3, 5, 9.)

The acquisition and storage of EEG segments and the averaging process is performed by a computer of average transients (CAT). The presentation of the stimuli and simultaneous initiation of EEG acquisition is synchronized by a device which also signifies by means of a light flash, unseen by the subject, when the process starts.

(ii). *Equipment.* The instrumentation is block-diagrammed in Fig. 7. Standard EEG electrodes placed on the vertex of the skull and mastoid process were used. The output from the CAT is to a chart recorder and is reproduced in Figs. 2 to 6.

To help eliminate muscle and noise artifacts usually the voltage differential is measured between two points on the scalp; and an amplifier, called a differential amplifier, is used to increase the minute voltage differential to a usable level.

To further reduce noise, a filter is inserted to block non-meaningful myogenic artifacts (less than 3 Hz i.e. 3 cycles per second) and background atmospheric and industrial artifacts (greater than 30 Hz). This filter is thus called a bandpass filter and usually is set to pass 3 to 30 Hz, the usual EEG frequencies seen from the upper brain cortex layers on the scalp in an awake subject. (10.) A tone generator is required to synthesize a reproducible, accurate acoustic stimuli which is presented to the subject in an electromagnetically shielded and soundproof enclosure.

The ideal or classical AER from an acoustic stimuli is represented in Fig. 1. Each peak is identified and has a known latency. (5, 6, 7, 8, 11.) In the practical case not every peak is always present, but the general pattern is reproducible.

(iii) *Procedure.* The experiment was performed in 2 parts. In the first instance, three tones with a duration of 200 milliseconds and a rise-fall of 20 msec. were presented to the subject and the respective AERs were obtained. Fig. 2 represents the AER from 60 samples to a tone of 500 Hz at 60 dB hearing level (a dB, i.e. a decibel, is a measure of loudness, and 60 dB HL is reasonably loud for a person with normal hearing). (1.)

In the second part the tone generator was turned off. A sender watched the flashing light on the synchronization device. When this light flashed on, it indicated that a tone was presented to the subject (if the tone generator was on) and that at that moment the CAT was gathering an EEG segment. In the second part when the light flashed the sender created a mental image and attempted to psychically communicate this image to the receiver, that is, to transmit his thought image. In essence the mental image and attempted thought transference represented a stimulus, and substituted for the acoustic tone. The image used was a "cup of coffee". Fig. 5 and Fig. 6 represent the response obtained from this second part of the experiment. Each figure represents the AER from 60 samples.

For the sender, an attempt was made as soon as the light flashed to visualize a cup of coffee and to send that image to the receiver. This technique requires considerable practice. In each case whether the stimulus was a tone or a thought, the period between stimuli was 1 second.

Each EEG segment was 500 msec. following a stimulus, and for each test 60 segments were obtained. An observer was always present. The receiver knew that telepathy would be attempted, but did not know the content, nor the period of repetition.

### 3. Results

The results of five tests are seen in Fig. 2 to Fig. 6. Observing the responses from acoustic stimuli, it can be appreciated that the early part



Figure 1: Ideal AER

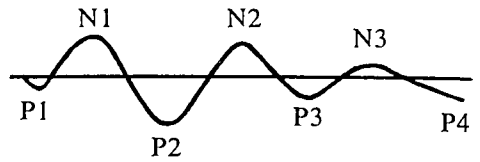


Figure 2: AER, tone  
500 Hz, 60dB

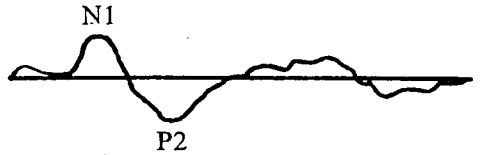


Figure 3: AER, tone  
500 Hz, 60dB

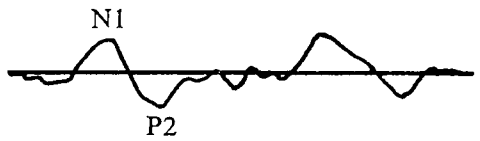


Figure 4: AER, tone  
2000 Hz, 60dB

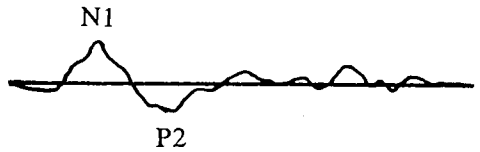


Figure 5: AER, psychic  
stimulation

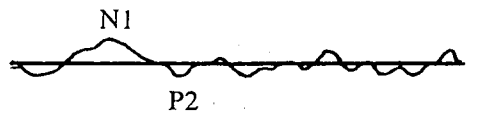
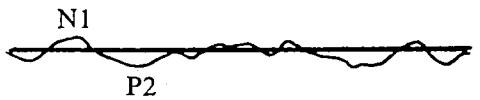


Figure 6: AER, psychic  
stimulation



Scale: vertical 4 mm. = 50 microvolts,  
horizontal 1 mm. = 1 millisecond

SOUND-PROOF AND ELECTROMAGNETICALLY SHIELDED ROOM

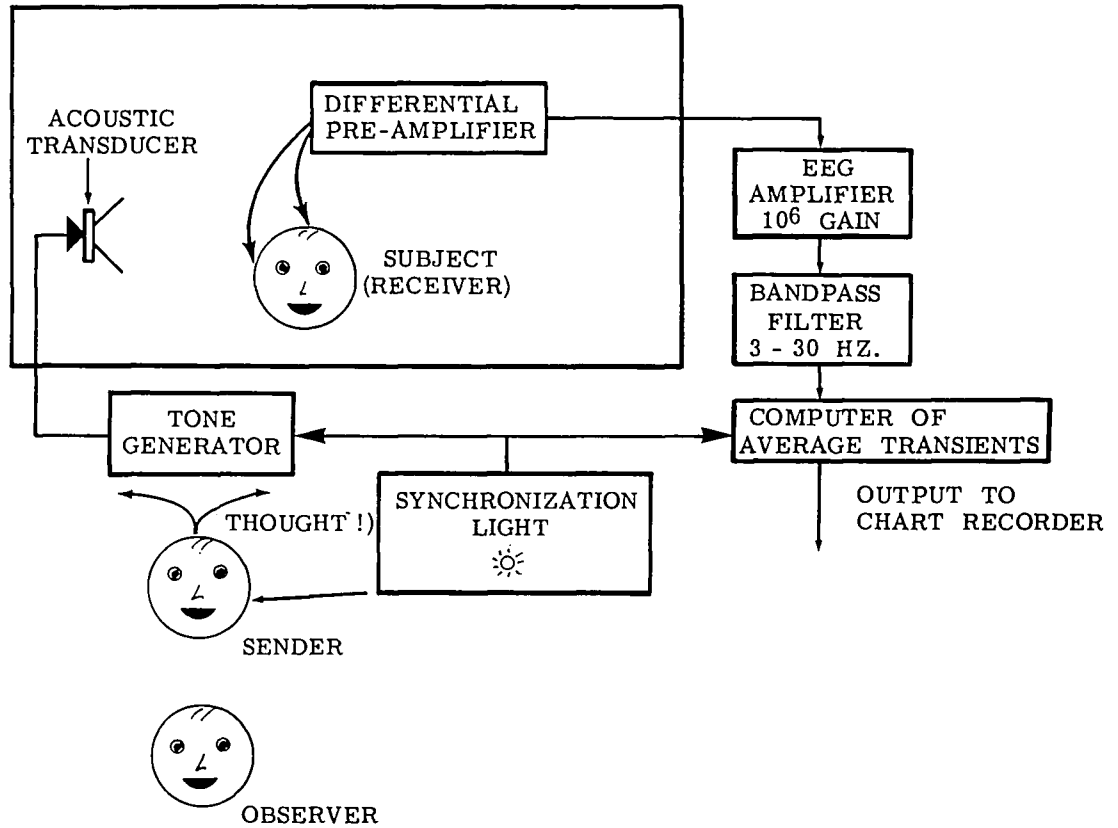


Figure 7

of each AER is similar. All three have an initial high amplitude negative peak with a latency of approximately 120 msec. followed by a positive peak of 200 msec. latency. This would correspond to N1 and P2 respectively on the ideal AER in Fig. 1.

The response obtained when the stimulus consisted of thought patterns is similar to those obtained using an acoustic stimulus. The amplitude is lower but a N1 and P2 with the expected latency are present.

#### 4. Discussion

The *results* of this experiment would suggest that the brain cortex of the receiver responds to acoustic stimuli and to what is believed to be transmitted thought in a similar manner. It does not imply that the same areas of brain tissue are used in each process. For example, the electrodes as used here were over the auditory cortex centers, but would have detected responses from the more posterior visual cortex if light flashes had been used as stimuli. (2, 7.) This is because, although each mode of sensory response is generated in a unique cortex area, the electrical response spreads over the cortex to involve other association areas. Each known sensory mode has a fairly unique pattern, but in this experiment no attempt was made to correlate the psychic response to known patterns.

The difficulty not dealt with in this experiment is assessing if the obtained response is a psychokinetic phenomenon. It could be suggested that the sender's thoughts may be influencing the equipment directly to produce the patterns, an equally important conclusion.

#### 5. Summary

This report describes in outline how an established technique devised for a different purpose can and has been newly applied to investigate the brain's response to a telepathic message. Although the results as presented from this experiment are not conclusive, if further research does establish the validity of the application, then the AER to psychic stimuli will be the first truly objective primary correlate of psychic phenomenon, and will suggest the human brain does indeed respond to psychic phenomenon.

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# Experiments on ESP in Relation to (a) Distance, and (b) Mood and Subject Matter

A. R. G. OWEN, M.A., Ph.D.

**ABSTRACT:** *Existing evidence does not permit the formulation of any mathematical law describing the decline, if any, of ESP with distance, but suggests that any decline is much less abrupt than that implied by any obvious physical model.*

*A technique for distance experiments is described.*

*Experiments are reported which seem to show that there is no ascertainable decline in ESP for distances up to 350 miles.*

## 1. Introduction

### 1.1 ESP in relation to distance

The effect on ESP of distance, considered as a factor in isolation from others such as mood or genetic endowment, is one of the most intriguing unsolved problems in psychical research. Spontaneous cases, as well as a few experiments conducted over distances of a few hundred miles suggest that there is little diminution of effect with distances of that order. On the other hand, Dr. Karlis Osis (1965) correctly emphasized that such evidence as there is, does not fully support the assertion (which is often made) that ESP is quite independent of distance. In the paper cited, he showed that when all experiments reported in English prior to 1965 were considered they testified to little reduction, if any, for distances of up to one mile, but thereafter manifested a steady decline with increase of distance through the range 500-3500 miles. Dr. Osis' later experimental work (1968, 1971) leaves this conclusion substantially unaltered. Hence it cannot be asserted that ESP is *independent* of distance. However, it must be admitted that the scoring rates for all the experiments quoted over distances in excess of 500 miles are rather low and correspond to low values of  $\Psi$ , the frequency of intervention of Psi as defined by Owen and Quittner (1972). Hence we cannot claim to know what kind of distance law would be found if we could compare the highest  $\Psi$  values obtainable at various distances, i.e. if we were in a position to compare the best with the best.

However, this question apart, Dr. Osis' summary of 1965 is extremely informative and suggests that  $\Psi$  falls off with distance considerably more slowly than does any quantity propagated by a known physical field. In a gravitational or electromagnetic field emanating from a point source the

field intensity diminishes inversely as  $R^2$  and the potential inversely as  $R$ , where  $R$  is the distance. With other physical fields, such as those based on "exchange" forces or multiple sources, both field intensity and potential diminish inversely as higher powers of  $R$ . However, both Dr. Osis' summary and experience based on experiments at various distances up to 200 miles suggest rather strongly that any decline with distance is distinctly milder than even the law  $1/R$  (i.e. as the inverse distance). In thinking about this problem the writer has found it convenient to work numerically not in terms of  $R$  but to measure distance as log miles or  $lm$ . The log miles between two places is  $\log R$ , where  $R$  is in miles and the logarithm is to base 10. Thus, for separations of 0.1 ml, and 1000 ml, the log miles are respectively (-1), zero, and 3  $lm$ .

In order to derive a simple empirical law fitting the 1965 data, and embodying the properties of  $\Psi = 1$  when  $R = 0$  and  $\Psi$  approaching zero when  $R$  is large, the writer plotted the logarithm of the ratio  $(1 - \Psi)/\Psi$  against  $\log$ miles. This revealed that the data could be represented approximately by the law.

$$\lg(1/\Psi - 1) = (1 + 1m)/2, \text{ which is equivalent to}$$

$$\Psi = 1/(1 + \sqrt{10R}),$$

expressing  $\Psi$  as a bilinear function of  $\sqrt{10R}$ . According to this "law"  $\Psi$  is unity at very small distances and at great distances falls off effectively as the inverse of  $R$  to the power  $1/2$ . No physical or other analogue of this law suggests itself; nor does the writer seriously propose it as correctly representing the "law" of ESP with distance. (Many mathematical laws can be found to give equally good fits to a limited set of data as we have here; e.g. Dr. Turner in 1965 fitted a law of entirely different form to Dr. Osis' data.)

The writer's present opinions can be summarized as follows.

(a) no data now available enable us to infer the general character of such laws as relate ESP to distance.

(b) Present evidence suggests a falling off of ESP with distance in excess of a mile.

(c) The rate of decline with distance is much less pronounced than even the inverse power law  $1/R$ , and if there is a decline it is related to  $\log R$  or to a fractional power of  $R$ .

(d) Present evidence for distances of more than a few hundred miles relates entirely to relatively weak ESP performances with  $\Psi$  at 1% or less. None of the foregoing conclusions might apply to high scoring performances if obtainable.

## 1.2. ESP in relation to mood and subject matter

It is the writer's impression, based on study of the literature and some personal experience with ESP experiments, that, broadly speaking, some of the factors influencing ESP performance can be listed as follows:

### *Conducive to ESP*

- (a) individual make-up (i.e. constitutional or genetic factors),
- (b) personal involvement (especially characteristic of spontaneous cases),
- (c) certain states of mind such as "dreaminess", abstraction, falling asleep, and the dream state itself,
- (d) vivid, dramatic, or emotive targets,
- (e) open-mindedness, as to the possibility of ESP, with lack of excessive scepticism on the part of both subjects and investigators.

### *Repressive of ESP*

- (a) boredom (as occurs in long drawn out experiments with emotionally or intellectually neutral subject matter),
- (b) mental concentration on intellectual or practical tasks,
- (c) excessive scepticism on the part of subjects or bystanders,
- (d) excessive desire to perform well.

The writer therefore generally does not take subjects at random but tends, so far as is possible, to select persons with some claim to manifest ESP abilities at least sporadically. He has also developed an experimental format which he thinks is appropriate for distance experiments in which there is no possibility of sensory clues so that the conduct of the experiment admits of a degree of informality. The images to be mentally transmitted are not prearranged. This reduces the likelihood of fraud; but more important still is the fact that the agents are encouraged to select their own subject matter, which tends to ensure that the chosen topics are ones which genuinely interest them. We aim also at creating an atmosphere of cheerfulness without flippancy, with the participants hopeful of success but not buoyed up to high expectancy. We seek, somewhat paradoxically, to bring the group into a state which is simultaneously one of relaxation and of involvement with the subject matter. This is hardly attainable with a single agent or percipient isolated with the experimenter but can be achieved with a small group of interested and congenial persons. It was especially successful in the experiment described in section 4, when the group, talking freely amongst themselves, "inadvertently" selected the target topic for mental transmission.

## **2. An experiment with Mrs. Theresa Marmoreo**

This subject on a previous occasion, while giving free verbal responses on persons in the same room (distances of the order of 10 feet, or minus 2.7 lm), had achieved an estimated  $\Psi$  value of 30.90% with ample statistical significance, (Dixon 1972). On 24th February 1972, a group at the writer's home attempted to transmit a randomly chosen two digit number (namely 23) to the subject at her home in Don Mills, Ontario

(distance about 7 ml or 0.9 lm). It had been previously agreed that the number would be chosen a little prior to 9.30 p.m. and transmitted from 9.30 p.m. to 9.40 p.m. and that the subject would record any additional "psychic impressions" that she might have. At 9.45 p.m. the subject was telephoned and her impressions taken down by four witnesses on extension telephones. She said that she first got the number 36, then 23, then visualizations of an ESP card with wavy lines, 36 in a circle of light, and finally 23 with its digits brighter than any of the numbers she had previously "seen". It seemed fair to the writer to score this as a hit with  $p = 1/90$ . She then mentioned the impression of coldness and reluctance about going to the basement, which was scored as a hit with reference to one of the members of the group. Another impression (the name Johnson and a connection with home economics) was correct, but not scored as the subject had met the person concerned on other experimental evenings.

The subject then mentioned a cut middle finger on the right hand. This applied to one of the telephone witnesses so the writer asked the subject to associate to this person, which she did, producing impressions mainly correct, and at a very fast pace. There was no "fishing" or feedback and, in the writer's opinion, no communication of information via sensory clues. Whether any psychic conductivity is to be ascribed to the telephone wire is a question at present outside the reach of rational speculation.

When the results as a whole were scored, there were 8 hits and 3 misses out of 11 calls. After attaching *a priori* p-values, the likelihood method (Owen and Quittner 1972) gave the estimate  $\Psi = 64.74 \pm 19.45\%$  with C.R. = 3.33 and odds in excess of 2083 to one.

### 3. An experiment between Toronto and Montreal

An experiment with Mr. Jan Merta as percipient was arranged for the evening of 11 November 1971. It was agreed that Mr. Merta would give descriptions of three persons who were to be chosen by a random process out of a group assembled at the writer's home. At 8.45 p.m. a lottery was held among the ten persons present. It was agreed that the target persons would be those who drew the lowest numbers, and would be presented as targets according to the natural order of their "winning" numbers. In the event the target persons were Mrs. Helen McNally, Mrs. Theresa Marmoreo, Mrs. Dorothy Johnson. Mr. Merta had met Mrs. Marmoreo very briefly in a large gathering in Toronto six months previously, but there was no reason to believe that he had acquired any appreciable amount of information about her. The other two ladies were totally unknown to him. At 9.00 p.m. the writer telephoned Mr. Merta at his home in Montreal, and with his agreement, invited Mrs. McNally to say over the telephone "Hello, Jan, How are you?" Witnesses on extension telephones were able to certify that nothing else was said or names. Mr. Merta then hung up, saying he would call again in fifteen minutes, which he did, providing a description of Mrs. McNally and her



personal tastes, interests, etc., which was taken down by three witnesses. The procedure was repeated exactly with the other two persons.

The statements made by the subject may be tabulated as follows. (H = hits, M = misses, U = unscored because of indefiniteness or unavoidable subjectivity.)

Target	Physical description			General attributes		
	H	M	U	H	M	U
Mrs. McNally	2	3	1	23	7	2
Mrs. Marmoreo	1	3	3	35	1	7
Mrs. Johnson	6	2	1	27	3	5
Totals	9	8		85	11	

The statements were scored on the spot (as well as being checked later at leisure by the target persons). It seems fair to record that everyone present was genuinely impressed and felt that the subject had indeed (even allowing for the misses) actually described the targets, and that real communication had taken place. Out of 113 statements Mr. Merta had 94 hits as against 19 misses. On reading through the hits the writer formed the view that all, or almost all, of the correct statements had a probability not in excess of 0.5 of being true of a person indicated at random. It would therefore not be unjust (except perhaps to the percipient himself) to score the hits each at the p-value 1/2. In such a situation we are not required to attach p-values to the misses, and the likelihood estimate of  $\Psi$  is simply (excess of hits)/(H + M)q. The S.D. is got from the weight  $W = M(H + M)/H(1 - \Psi)^2$  where  $\Psi$  is the estimate  $(94 - 56.5)/113(0.5) = 37.5/56.5 = 66.37\%$ . Thus  $W = 201.95$  and S.D. =  $1/\sqrt{W} = 7.04\%$  so that  $\Psi = 66.37 \pm 7.04\%$ .

It will be noticed that the largest number of statements and largest proportion of hits were obtained on the general attributes of Mrs. Marmoreo whom the subject had actually met, even though the physical description was the most meagre and least accurate of the three. In the writer's opinion this is unlikely to represent normally acquired knowledge, but raises the possibility that the "ESP channel" is more "open" between people who are actually acquainted with one another even though only slightly.

The experiment had an interesting sequel. On Saturday 27 November 1971 Mr. Merta visited Toronto and the group who had been present on 11 November were invited to meet him, but carefully instructed to give no clue as to which of them had been target persons. The latter were asked not to speak when joining the gathering in case Mr. Merta recognized their voices. Mrs. Marmoreo was unable to attend. Mrs. Johnson was the sixth person to arrive. The moment she entered the room Mr. Merta said "This is the one, the third". Mrs. McNally was the tenth to arrive and Mr. Merta said "This is the one, the first". In the writer's

opinion no one present gave Mr. Merta any silent clue on either occasion. There were also present several other people who had not been present at the initial experiment, and were not aware that Mr. Merta was hoping to identify any particular persons.

#### 4. A distance experiment with four sites

##### 4.1. The Plan of the Experiment

The writer's home (site T1) was used as a base for an experiment on 19 Sept. 1972. A group consisting of Mr. Attin, Mr. R. W. Cumming, Mrs. P. J. Hurlburt, Mrs. D. Nasmith, Mrs. I. M. Owen, Mrs. H. M. Sparrow, and the writer, convened at 8 p.m. The other participants were Mr. Jan Merta who was in Montreal, at 350 ml, 2.54 lm), Mr. Robert Neilly at another house in Toronto (site T2 at 2.7 ml, 0.43 lm), and Mr. R. Probyn and Mrs. N. Probyn at their Toronto home (site T3 at 4 ml, 0.60 lm). It had been agreed in advance that the experiment was to take the following form.

Between 8 and 9 p.m. the group were to discuss the objects they would seek to transmit later to the outside participants.

Between 9 and 9.15 p.m. Jan Merta in Montreal was to act as sender, concentrating on objects or actions of his choice. The group and the three other participants would, during this interval, attempt to receive his thoughts.

At 9.15 p.m. Jan would stop sending, and from then until 9.30 p.m. the group would together send the images they had already discussed. Jan and the other three participants would try to receive them.

At 9.30 p.m. Jan was telephoned for information as to what he had sent, and also for his impressions. Then Mr. and Mrs. Probyn were telephoned and gave their impressions, both of what had been sent by Jan and by the group. Later Robert Neilly telephoned in to give impressions received from both sources.

##### 4.2. The Experiment

The group convened at about 8 p.m. and the proposed experiment was described to them. General conversation then ensued, and quickly centred around the phenomenon of Unidentified Flying Objects. Someone remarked that Ezekiel was the first person recorded as having seen U.F.O.s and this fact was unfamiliar to some of those present. The group were very interested and two copies of the Bible were produced. Bob Cumming read aloud the first chapter of Ezekiel, which relates to this. The group continued in animated and interested discussion of what exactly was being described, and Bob Cumming then went through the chapter, phrase by phrase, and attempted to reproduce in the form of a drawing on the blackboard Ezekiel's description of what he had seen. There was a great deal of discussion, stage by stage, as the drawing progressed, particularly in respect of the "fire", swirling sand, and the effect of light on sand. Sandstorms were discussed. Much consideration was given to the form of

the beings visualized by Ezekiel — their four faces and four wings (two joined, two folded in front), and the manner in which the beings advanced together. Just before 9 p.m. the writer suggested that when transmitting later they concentrate on these topics.

On the coffee table around which the group were sitting, were the following articles set out as objects for the experiment: a long metal and glass box (actually a World War I periscope), a pack of playing cards, a pack of Zener cards, a small metal skull, a silver "god of plenty" from Bolivia, two quills. On the settee was a large fluffy panda toy bear with a circular rush basket (like a large pill-box) on his head.

The experiment was carried through as described above.

#### 4.3. Results of the first half with Jan Merta sending

Jan Merta in Montreal was in a sound recording studio. There was a blue rug on the floor, and the interior of the room was mostly red. He was dressed in a multi-colored shirt, grey and white trousers, and brown shoes. He concentrated on objects on the table in front of him — an empty coke bottle and a packet of Rothman's cigarettes. He moved his hands on paper as if writing a letter. He struck a book of matches. Trying to think of a movement, he thought of dancing. He looked into a book — the *New Horizons Journal*. He was smoking, and sitting cross-legged. There were many records about.

The recipients' impressions were as follows. The figure in brackets after each statement is the estimated chance probability of the statement being true.

##### Hits

P. HURLBURT

1. Cigarette burning away (0.5)
2. Himself sitting crosslegged (0.5)
3. Grey suit (0.5)
4. Music, classical record (0.3)
5. A cat walking on a narrow wall or on a chesterfield (0.1)
6. Gets up and stands at fairly large desk touching papers on it (0.2)
7. Navy and red oriental rug (0.2)
8. Brown shoes (0.5)
9. Black telephone (0.8)

##### Misses

1. Eiffel Tower (0.2)
2. Picture of elephant (0.2)
3. Mathematical equation (0.1)
4. Geometrical picture (0.1)

(Hit 5 was most impressive; on the wall of the studio is a series of cartoon pictures showing a cat jumping off a chesterfield. Call 7 was judged to be a hit because of the blue rug and red wainscoting.)

A. R. G. OWEN

- |  |                                   |
|--|-----------------------------------|
| 10. Shaking hands and dancing (0.5)                          | 5. Wearing hat like a crown (0.3) |
| 11. Walking on a tightrope or narrow line or "catwalk" (0.1) | 6. Bowing vigorously (0.3)        |
|  | 7. Calculating machine (0.2)      |

(Hit 11 may have been derived not from Jan at Montreal, but from Mrs. Hurlburt, who was sitting next to A.R.G.O.)

M. H. SPARROW

- |  |                              |
|--|------------------------------|
| 12. Reading New Horizons Journal (0.1) | 8. Chessman (0.1)            |
|  | 9. Stringed instrument (0.2) |
|  | 10. Shuffling cards (0.5)    |

MR. AND MRS. PROBYN

- |                                       |                            |
|---------------------------------------|----------------------------|
| 13. Tall (0.4)                        | 11. Dark hair (0.5)        |
| 14. Aged about 30 (0.2)               | 12. Car going uphill (0.3) |
| 15. Slim (0.5)                        | 13. A rubber ring (0.1)    |
| 16. Thick eyebrows                    | 14. A reading lamp (0.5)   |
| 17. Intense eyes (0.2)                |                            |
| 18. Unusual person (0.3)              |                            |
| 19. Intellectual face (0.3)           |                            |
| 20. Stands out in a crowd (0.3)       |                            |
| 21. Shirt, no coat (0.5)              |                            |
| 22. No tie (0.5)                      |                            |
| 23. Older part of town (0.5)          |                            |
| 24. Heavily draped windows (0.3)      |                            |
| 25. A box of matches (0.2)            |                            |
| 26. Writing (0.2)                     |                            |
| 27. Cards, King of Spades (0.1)       |                            |
| 28. Friend with him of same age (0.5) |                            |
| 29. Felt body spinning (0.2)          |                            |

(Hit 27 was so counted because Jan said that prior to the experiment he had considered using the King of Spades as a target. Hit 29 relates to the fact that while sending he had thought of himself spinning round.)

R. NEILLY

- |                             |  |
|-----------------------------|--|
| 30. Man aged about 34 (0.5) | 16. Crashed, unhurt, while driving white car (0.1) |
|-----------------------------|--|

(His other impressions appeared to be hits in the second half of the experiment. Miss 16 was not counted a hit although Jan said he had been reading New Horizons Journal 1, 1, p. 61-62 which related to the accidental death of a motorist.)

D. Nasmith, I. Owen, H. Attin and R. Cumming obtained no distinct impressions.

#### 4.4. Results of the second half with the group sending

JAN MERTA (He said his impressions were very mixed and that he felt nervous.)

- |  |  |
|--|--|
| 31. A telephone call, a chiropractor, aged about 45, but looks younger (0.1) | 17. A small box with small round things inside (0.2) |
| 32. Discs, many circles (0.1)  | 18. Pressure in the head (0.2)                       |
| 33. A metal box but not metal, metal and glass (0.2)                         | 19. Medical instrument, Syringe                      |
| 34. Relaxation (0.8)   | 20. Pyramid or triangle (0.2)                        |

(Hit 31 appeared to relate to a telephone call received about 9.12 p.m. from a chiropractor answering the description. Hit 33 was awarded on the periscope. Hit 34 could be taken to refer to the group most of whom deliberately relaxed themselves during the experiment.)

#### ROBERT NEILLY

- |  |   |
|--|---|
| 35. The group thinking of one crazy idea — one train of thought and emphasizing all the points in connection with it (0.2) | 21. A fit of rage (0.3)                         |
| 36. Sandstorm in a desert (0.1)  | 22. The number 12 (0.2)                         |
| 37. Hot sun, burning sensation (0.2)   | 23. Climbing down a manhole with a ladder (0.1) |
| 38. Running away and encountering a bear, the bear flees (0.1)   | 24. Seasick (0.1)                               |
| 39. The group had been trying to remember something (0.3)  | 25. Cuckoo clock (0.3)                          |
| 40. Not knowing how to do something (0.3)  | 26. Mice on wheels in a maze (0.1)              |
| 41. Going on a voyage in a large ship (0.2)  |   |

(Hit 35 agreed with the concentration of the group on the Ezekiel story. The drawing showed a spaceship in a desert, which was thought of as beneath a hot sun. It showed fire from the exhaust, which visually could equally have represented a sandstorm, as well as conveying the idea of heat — Hits 36, 37 and 41. The group had difficulty in constructing the picture from Ezekiel's description and resorted to drawing it line by line — hit 40. Some time had been spent trying to recall where the passage occurred in the Bible — hit 39. Hit 38 was allocated to the panda bear. It is a family joke that he is excessively timid.)

MR. AND MRS. PROBYN

- |   |                                  |
|---|----------------------------------|
| 42. Ornament from Peru with soldered arms (0.1) | 27. A Violin (0.2)               |
| 43. A fluffy animal (0.1)                       | 28. Mary (0.1)                   |
| 44. The Bible (0.2)                             | 29. Article like a compact (0.3) |
|   | 30. A ring (0.3)                 |
|   | 31. Book open at page 296 (0.1)  |

4.5. Analysis of the Results

Out of 75 calls, 44 were judged to be hits and 31 to be misses, so that the percentage of hits is 41.33%.

The total excess of hits over expectation is 23.7, and the summation of items Cpq is 12.73, whose square root yields an S.D. equal to 3.5679. A crude test of overall significance may be based on the C.R. calculated as  $23.7/3.5679 = 6.64$ . Table 11 of Soal and Bateman (1956) gives 500 million to one as the odds against a C.R. exceeding 6.0. Although the test is not fully efficient there can be no doubt of the statistical significance of the result of the experiment, provided that the p-values attached to the calls are sufficiently conservative, which the writer thinks to be the case.

A test based on the exact probabilities of the calls (grouped according to p-values) and transformed into chi-squareds for two degrees of freedom (Owen and Quittner 1972) gives an aggregate chi-squared for 12 degrees of freedom equal to 52.13791, which is beyond the range of tables and confirms that the statistical significance is very high.

The method of likelihood scoring applied with the starting value  $\alpha = 0.4256$  gives a score  $S = 0.021617$  and a weight  $W = 173.497$ . The adjustment is therefore 0.01276%. The likelihood estimate of  $\Psi$ , the frequency of intervention of Psi, is thus  $e = 42.57\%$ . Since  $\sqrt{W} = 13.17$ , the S.D. of  $e$  is 7.59%. The C.R. =  $42.47/7.59 = 5.6$  which shows that the odds against the result occurring by chance are more than 26 million to one.

The three locations in Toronto are within five miles of one another, and about 350 miles from Montreal. The distance factor is therefore at least 70, which should be sufficient for any gross effect of distance on GESP to manifest itself. To make the comparison the data were pooled in two batches, Toronto-Montreal and Toronto-Toronto, and scored by the likelihood method using 42.57% as the starting values, which gave

			Estimate (%)
Toronto-Montreal			
S	3.445983	W 116.49454	45.33 ± 9.27
Toronto-Toronto			
S	—3.439929	W 56.88471	36.52 ± 13.27
Combined data			
S	0.006054	W 173.37925	42.57 ± 7.59

The difference between the two sets of data is not statistically significant. This may be seen by calculating  $S^2/W$  for each of the two sets, adding the resulting values together and subtracting the value of  $S^2/W$

for the combined data. As each item  $S^2/W$  is a chi-squared for one degree of freedom, the final figure is a chi-squared for one degree of freedom which tests the homogeneity of the data (i.e. the agreement of the two sets with each other). We have, correct to five decimal places

Toronto-Montreal	0.10193
Toronto-Toronto	0.20802
Combined data	zero

The resulting chi-squared is 0.30995, which is quite insignificant. It is clear therefore, that this experiment, while furnishing evidence of ESP between locations several miles apart and between locations 350 miles apart, gives no hint that ESP transmission is a function of distance. The results in fact were in all respects on a par with those got in favourable circumstances between ESP sensitives in the same room. The only reasonable conclusion would seem to be that ESP reception is, so far as is ascertainable, substantially independent of physical separation up to distances of 350 miles.

The average percentage  $\Psi$  values for individuals were:

Hurlburt	50.75 $\pm$ 18.75
Merta	35.38 $\pm$ 22.02
Neilly	37.91 $\pm$ 17.00
Owen	13.59 $\pm$ 29.97
Probyns	66.03 $\pm$ 15.05
Sparrow	16.67 $\pm$ 36.00
General average	42.57 $\pm$ 7.59

The averages for sites were:

T1 - T2 (0.43 lm)	37.91 $\pm$ 17.00
T1 - T3 (0.60 lm)	28.40 $\pm$ 20.59
T1 - Montreal (2.54 lm)	54.19 $\pm$ 12.14
T2 - Montreal (2.54 lm)	0 $\pm$ 31.65
T3 - Montreal (2.54 lm)	66.22 $\pm$ 13.19

These may be compared with results of experiments mentioned in this paper and in Owen and Owen (1972), namely:

Marmoreo (same room)	30.90 $\pm$ 11.35
Milne (same room)	48.72 $\pm$ 14.72
Marmoreo (7 ml, 0.9 lm)	64.74 $\pm$ 19.45
Merta (T1 - Montreal)	66.37 $\pm$ 7.04

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# An Experiment with Mr. James Wilkie Involving Handwriting Samples

A. R. G. OWEN AND I. M. OWEN

**ABSTRACT:** *The subject gave personality sketches of nine persons totally unknown to him, on glancing briefly at anonymous specimens of their hand writing. The descriptions were sufficiently detailed and accurate to be matched blind to the names of the persons presented in random order. It was concluded that ESP ability of a very high order had been demonstrated, and that the speed of delivery of the readings was incompatible with handwriting analysis.*

## 1. The Experiment

On 30 Sept. 1971 Mr. James Wilkie, who was visiting, happened to mention that he could usually get a good psychic impression of a person from a quick glance at that person's handwriting, even though he was quite ignorant of handwriting analysis, and made no attempt to analyze the handwriting. With his agreement, therefore, an experiment was arranged in which Mr. Wilkie would give readings on nine anonymous specimens of handwriting which had been deposited with the authors for use in handwriting analysis. Each specimen was a copy of the same text, which had been adopted on the advice of a qualified handwriting expert. It was:

"It is our own vanity that makes the vanity of others so intolerable to us"—De la Rochefoucauld (French Moralist).

"Be just before you're generous"—Richard Brinsley Sheridan.

"There is no one like me, and I know and you know and God knows that one of us is enough"—Ralph Waldo Emerson.

The specimens were presented one at a time to Mr. Wilkie by one of us (A.R.G.O.), the other author not being present or participating at all in the experiment. At the beginning Mr. Wilkie was given the sex of the writers of the specimens but no other information. However, after giving four readings Mr. Wilkie said that he could also give the sex, which he did correctly for each of the remaining five specimens, three males, and two females. The chance probability of this result is about 1/32. The readings themselves were dictated at great speed, and A.R.G.O. had the impression that the subject looked at the specimens only very casually and was not actually analyzing the form of the handwriting. Mr. Wilkie had never met any of the persons concerned who were totally unknown to him and could not have been described to him by other intermediaries.

## 2. Results

The readings were not analyzed immediately. In fact they were put aside until 5 March 1973. They were then given in random order on separate sheets without indication of identity to I.M.O. as the only person other than A.R.G.O. who knew all of the persons sufficiently well to attempt to match Mr. Wilkie's readings to their names. The names were written on cards which were presented to I.M.O. in a random order differing from the random order of the sheets.

The descriptions contained in the readings varied somewhat in "depth" and amount of detail as between specimens. However, I.M.O. had very little difficulty in matching them exactly to the names, the operation being completed in about 5 minutes. The only problem arose with specimens F2 and F6 whose descriptions had a certain amount in common. However, further inspection by I.M.O. showed that several facts were given in the F6 description which identified her unambiguously. The probability of correctly matching the three males by chance is  $1/6$ , and that of matching the six females is  $1/720$ . The odds against Mr. Wilkie's readings being appropriate descriptions by chance only are therefore 4320 to one. Combined with the determination of sex the odds are 138,420 to one.

The above method of assessment is possibly an underestimate of the statistical significance because it neglects the particular acuteness of some of the readings. For example, concerning F1 the subject said "her psychic impressions and visions tend to be of disasters because of her sorrows, so that her psychic energy tends to select this kind of presentiment. She could change this and get pleasant precognitions if she became more secure and happy herself. At present she is fearful of her gift." We have quoted this (with the permission of F1) because it is remarkably accurate. F1 had exactly the somewhat specialized psychic talent and attitude to it, characterized in this reading. Also the occurrence of pleasanter precognitions consequent on a greater happiness, which had the status only of a prediction at the time of the reading, now appears to have become a fact. This particular reading is also of interest because in specificity it would seem to surpass anything that can be provided by handwriting analysis un-supplemented by ESP.

Some statements in the readings were not used in making the matching, which was based on the general personality sketches that emerged. These may legitimately be scored separately from the odds attached to the matching. In seven cases the subject correctly specified whether the persons were married or unmarried. Applying a crude test we can safely treat this as six hits on unmarrieds with a chance probability  $p$ , and one hit on married with a chance probability  $q = 1-p$ . The combined probability of the 7 hits can easily be shown to be a maximum when  $p/q = 7$ , i.e. when  $p = 6/7$ . In the absence of a reliable  $p$  value for "unmarried" we can nonetheless estimate the minimum odds as the reciprocal of the

probability calculated for  $p = 1/7$ , namely 17.651 to 1. (This method, which can always be applied in this kind of context, appears to be new. It has the advantage of being absolutely reliable, but is very likely to seriously underestimate the odds.) In six cases Mr. Wilkie characterized the persons according to their degree of psychic ability, ranging from "non-psychic" to "natural psychic". In the opinion of the authors these were all hits. Scoring them conservatively at a common p-value of 0.5 gives odds of 64 to one. In one case the subject spoke correctly of the person not being Canadian but born in the U.S.A. The other persons in the sample were all born in Canada or England. It would seem reasonable to count this a hit at odds of 9 to 1. Combining the odds for the three sets of additional hits gives odds of about 10167 to 1. Combined with the odds on matching we finally get as a fairly conservative estimate for the odds against Mr. Wilkie's performance occurring by chance as about 1407 million to one.

These odds would be increased if the individual hits were separately scored, but this is hardly necessary. However, to give a fair picture of the subject's achievements, it may be said that, when those statements that were scorable from the author's knowledge were listed and reduced in number by combining those that were not clearly independent of one another, they comprised 70 hits and only 2 misses. This proportion of hits is effectively as high as any that the authors have encountered even among the professional sensitives of best repute, and is remarkable as exhibiting what may be expected of the highest grade sensitives when "on form".

### 3. Discussion

As mentioned, the readings were given so swiftly and with such minimal visual concentration on the handwriting specimens that we are unable to believe that Mr. Wilkie was applying any handwriting analysis. In addition, we have his assurance that he has never studied the subject. Nor did Mr. Wilkie regard the sample as a psychometric object in the ordinary sense, where it is assumed that touching an object which has been in physical contact with a person puts the sensitive in rapport with that person. The paper on which the handwriting samples were written had been supplied by A.R.G.O. and had had only fleeting contact with the persons concerned. In several cases Mr. Wilkie did not handle the specimens himself, they were held in front of him by A.R.G.O. Of course, a great deal of the information was known to A.R.G.O. who was present, and to I.M.O. who was not, though little of it was consciously in their minds at the time. The possibility of Mr. Wilkie obtaining the information by psychic "memory-raiding" can therefore not be excluded. Mr. Wilkie's own opinion however, is that handwriting specimens are among the forms of "link" to the person concerned that he finds particularly felicitous for establishing rapport, and the present experiment does nothing to contra-

dict his belief that the handwriting sample constitutes a functioning segment of "the ESP channel".

It should be remarked that (in addition to his trance work) Mr. Wilkie, while in the normal fully conscious state, has several modes of apprehension of ESP knowledge. He gives readings on sitters in their presence, does psychometry in the usual sense on objects other than handwriting, and has spontaneous ESP messages regarding friends (see Wilkie 1971). Sometimes his information seems to come, as he says, "by ESP". On other occasions he says, "Rama tells me". (Rama is Mr. Wilkie's famous guide.)

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# The Pyramid and Food Dehydration

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**ABSTRACT:** *Extensive tests involving controls show that pyramidal containers are no more effective than those of other shapes in preserving and dehydrating organic material.*

## 1. Experiments

In April 1972 a research team (Mrs. D. A. Henwood, Miss Karen Perry, Mr. Dale Simmons, and the author) was organized to investigate various statements concerning the "secret powers" or "biocosmic energy" to be found within a pyramid.

To test if these claims were viable, cardboard pyramids were built according to specifications said to reproduce the proportions of the Cheops Pyramid; i.e. a base length of  $9\frac{3}{8}$  inches and edges  $8\frac{7}{8}$  inches long. As well, a commercially produced pyramid of the same size, purchased from the Equinox Book Store, Toronto, was used. Two major claims were to be studied:

(a) that food would dehydrate rather than spoil when placed in a pyramid at a certain level and in line with the true north,

(b) that dull razor blades would regain their sharpness under these conditions.

This report deals with the first claim only. The investigations on razor blades are the subject of a separate paper (Simmons, 1973, this Journal).

Several test materials were used: hamburger, potato, bean sprouts, banana, apple, liver, and bone marrow. In all cases the test material was supported on a rigid platform of thin cardboard and placed with its centre below the apex of the pyramid which was oriented to the true north. Bean sprouts were laid in a small bunch, randomly oriented on the platform. Specimens of other material were used in slices  $\frac{1}{4}$  inch thick laid horizontally on the platform. Whenever the specimen was other than circular (as it was with bananas) the major axis was aligned to true north. The experiments were first done with the top of the platform at the  $\frac{1}{3}$  level in the pyramid, i.e. one third of the height of the pyramid above the base. They were then repeated with the specimens at various other levels  $\frac{1}{2}$ ,  $\frac{3}{4}$  etc. and also with the specimens in the bottom right hand corner. Specimens were inspected at 48 hour intervals over a period of two weeks.

In each experiment a specimen of test material as similar as possible in

composition, dimensions and age to that in the pyramid was placed in each of various shaped cardboard containers, of volume equal to the pyramid, in the forms of rectangular parallelepipeds, cubes, triangular prisms, and cones. This use of control groups seems to have been omitted in testing done by other groups.

In all tests, the members of the research team, who performed their experiments independently in their various homes and offices whilst following the same agreed protocols, were quite unable to discover any significant differences between material placed in a pyramid and material placed in the control containers. If anything, we had only rediscovered the "Cookie-Jar Principle", that is: any substance placed in a container which keeps out air currents does not spoil as quickly as in the open air.

Specifically, we learned that hamburger and steak were bad test materials. A butcher explained to us that most commercial hamburger has preservatives added to it to prevent rotting, and good steak meat can be left at room temperature on a kitchen table for one week and still be good enough to eat.

Potatoes at first appeared to show less deterioration under a pyramid than in the other containers, but when the test was repeated with more care no difference could be noted. The explanation appeared to be that one slice of potato was somewhat thicker than the others. When care was taken to make all slices of equal quarter-inch thickness, there were no detectable differences. Results with apples and bean sprouts were also identical as between pyramids and other containers. Notably, bean sprouts are the easiest material to work with, as they dry out within twelve hours.

The tests with bananas carried out at various levels within the pyramid gave typical results as follows.

In the bottom north corner; some light areas, not completely sticky.

Half way up; more light areas than in the north corner, not completely sticky.

Half way up; some light areas, very sticky.

Control (in open air); dried out and sticky.

In the cases of liver and bone marrow the control and pyramid specimens were tested twice; oriented to the magnetic north pole and then oriented to true north. In every case the results were basically the same; the liver was hard and shiny with only slight odor; the marrow had no odor or change of color in either sample.

As a separate experiment potato slices were tested at different phases of the moon. Again no difference could be detected. (This experiment was conducted by Mrs. D. Kimber.)

## 2. Conclusions

There may, for all that is known to the contrary, be a mysterious force within the Great Pyramid itself, possibly because of the geomagnetic field at the site (Tomkins, 1971). However, our group unanimously concluded

that the statement made by supporters of the pyramid theory, that anyone can produce this effect in their own home, cannot be supported by our investigations.

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Toronto Society for Psychical Research

8 March, 1973

# Experiments on the Alleged Sharpening of Razor Blades and the Preservation of Flowers by Pyramids

DALE SIMMONS, DIP. ENGR. TECH.

**ABSTRACT:** *Photomicrographs of razor blades kept in the open air and in pyramids for a week show that there is a natural tendency for jagged points on the edge to be slightly rounded off. No effect of the container can, however, be observed.*

*It was also found that flowers kept in pyramids and in cubical containers of equal volume are preserved better to a very slight degree than those in the open air. The effect, which is in any case small, seems unrelated to the shape of the container.*

*It is concluded that model pyramids have no effects which can be related to their particular shape.*

## 1. Razor Blades

This experiment was performed in a metallurgical laboratory at Ryerson Polytechnic Institute, Toronto, with the aid of a metallurgical microscope and Polaroid Instamatic camera combination. Two types of pyramid were used:

(a) one manufactured by the Toth Pyramid Company of New York with base 6.125 ins. and edge 5.875 ins. (height about 3.75 ins.) and purchased from the Equinox Book Store, Toronto.

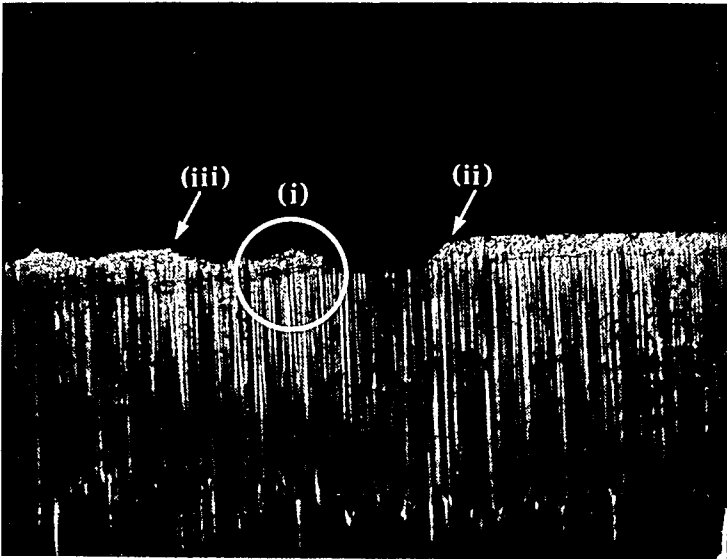
(b) one built out of carboard with a height of about 6 ins., base 9.375 ins., and edge 8.875 ins. as specified by Ostrander and Schroeder (1970).

On 7 Feb. 1973 the pyramids were set up according to instructions (i.e. oriented to the magnetic north) with a platform one-third of the height of the pyramid situated directly under the apex. During the experiment, which continued until 16 Feb. 1973, the pyramids were situated on the top shelf of a closet away from sources of temperature variation, and from any electronic or high frequency generating devices.

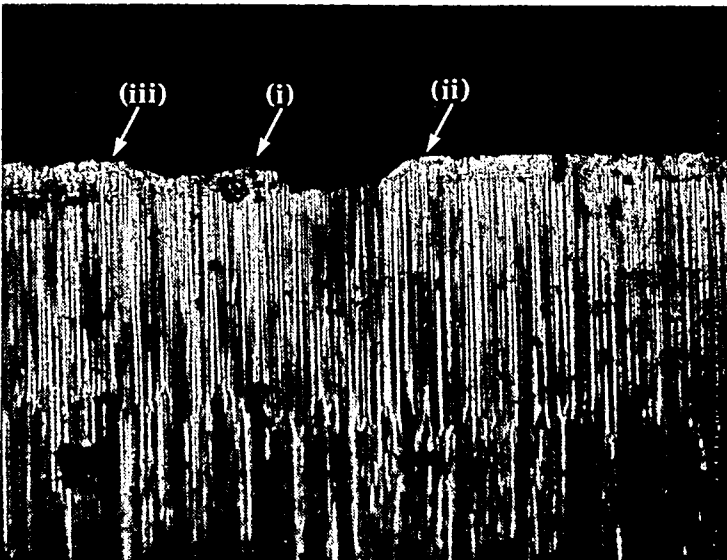
The razor blades selected for the experiment were GEM blades of the older type without any edge coating such as platinum or stainless steel. Three blades were used, blade A on the platform under the Toth pyramid, blade B on the platform under the home-built pyramid, and C sat in the open air as a control. Immediately prior to the experiment each blade was dulled by ten strokes of medium pressure through the bristles of a toothbrush, and a picture taken of its working edge with the aid of the microscope-camera combination. The blades were then laid in the locations mentioned and left undisturbed for seven days. All were oriented to



BLADE WHICH SAT UNDER PYRAMID WHICH WAS BOUGHT



Before Conducting Experiment (A.1) (100x)



(A.2) After Sitting under Pyramid for 1 week (100x)

magnetic north. After the seven day period the blades were removed and a photomicrograph of the end and side of the working edge of each blade was taken again. A picture was also taken of a Wilkinson Sword blade which had been used for shaving several times, as a standard of comparison to show that the blades in the experiment had been dulled to about the same extent as a used razor blade, but not too severely.

Plates A1 and A2 (taken with 1 sec. exposure and 100x magnification) show blade A before and after its sojourn under the Toth pyramid. Referring to points (i), (ii) and (iii) of the edge it will be seen that there occurred a definite levelling or rounding effect at each of these points after the blade had been under the pyramid for a week. Photographs of Blade B show a similar levelling effect operating on projections and notches. Plate C1 (taken with 1 sec. exposure and 100x magnification) shows the control blade (the one left in the open air) before the experiment. Plate C2 was taken after the experiment with 1 sec. exposure and a 400x magnification in order to achieve a closer look. It will be seen that, just as in blade A under the Toth pyramid, there was a levelling or rounding effect e.g. the small peak at point (ii) in C1 has been levelled off in C2.

To complete the study, end views of the blades (not shown here) were taken with 400x magnification some at 1 sec. and some at 2 sec. exposure. Focussing of the microscope was nearly impossible to achieve. However, the photographs, when obtained, showed very little difference between the before and after states of the blades.

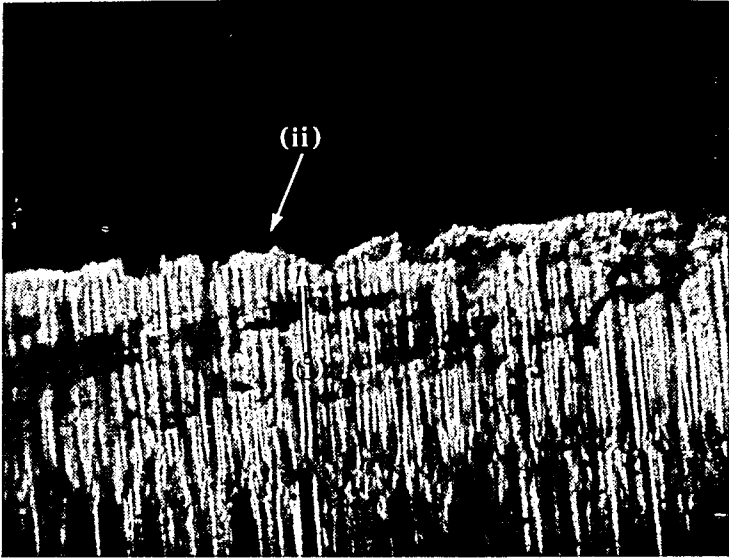
## 2. Conclusions concerning razor blades

Any changes in the blades which were under pyramids were mimicked in type by the control blade, the one kept in the open air. This would leave an impartial commentator to believe that the discernable changes in the blades were not caused by the pyramids. All the instructions prescribed for the use of pyramids were followed to the letter in the conduct of the experiment. As an overall conclusion the writer feels he must say that the pyramids did not affect the blades in any physical way and as such were a failure.

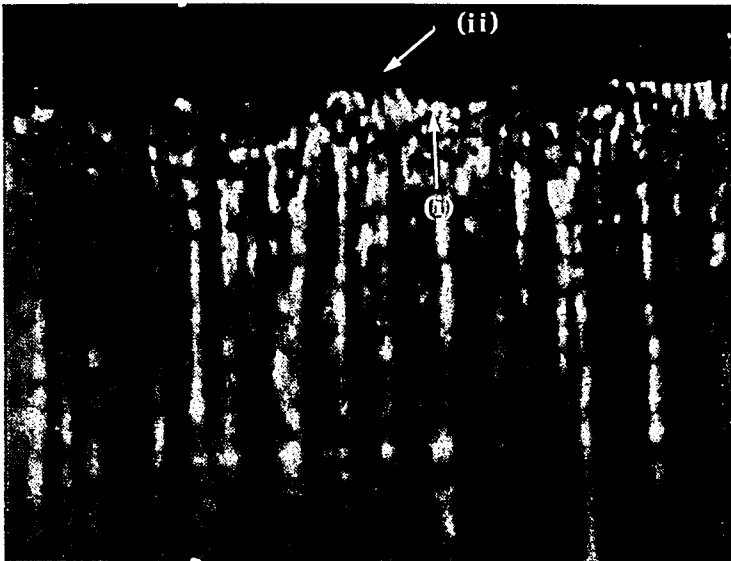
In all the literature which the writer has encountered describing the capacities of pyramids to preserve meat, re-sharpen razor blades, etc. (c.f. Owen 1973, this Journal), no statistics or circumstantial data concerning experiments, or examples of control experiments have been cited. The writer therefore feels it legitimate to draw attention to two important aspects of the pyramid fad.

(a) *Subjectivity; the psychological aspect.* How dull is dull when a person considers a blade too dull to shave with? Also, how does one tell whether a blade is really sharper or not after it has been in a pyramid for restoration? Judgement on either of these points is inevitably highly subjective, and liable to manipulation by underlying wishes, desires and

BLADE WHICH SAT UNDER HOME-BUILT PYRAMID

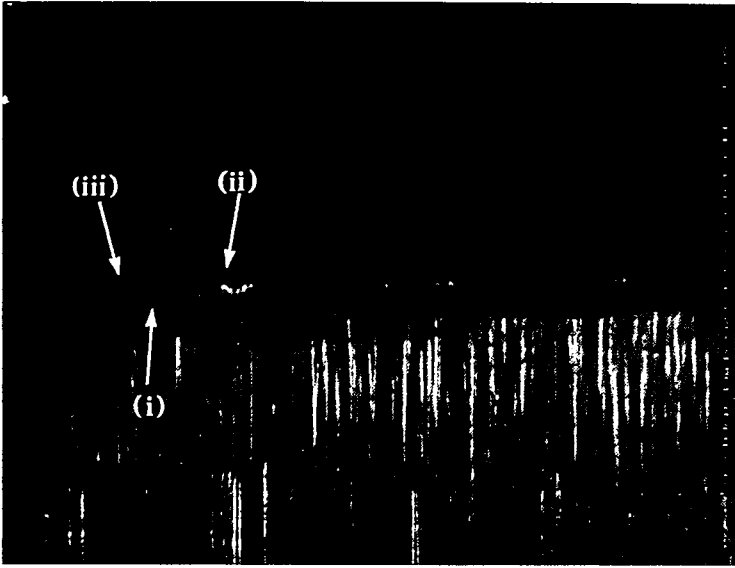


Before Conducting Experiment (B.1) (100x)

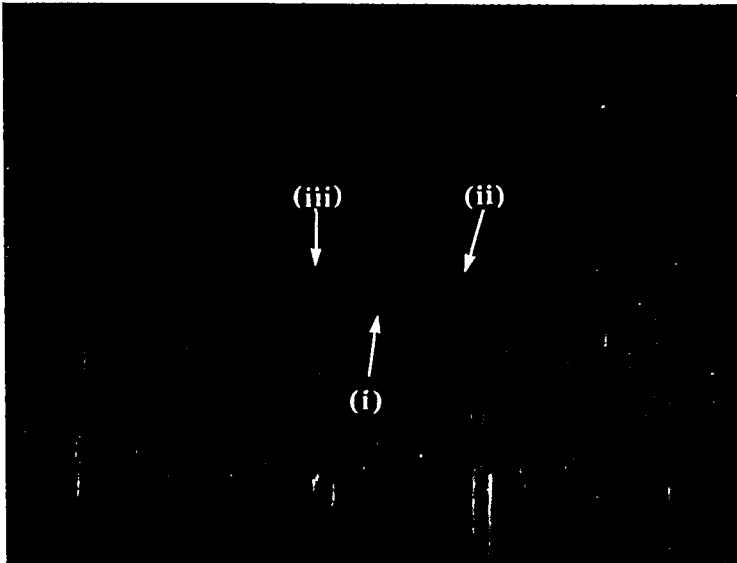


(B.2) After Sitting under Pyramid for 1 week (400x)

CONTROL BLADE (WHICH SAT IN AIR ON SHELF TOP)



Before Conducting Experiment (C.1) (100x)



(C.2) After Sitting in Air for 1 week (400x)

expectations, so that it cannot be equated in any way to an assay made by a scientifically based objective method. In addition, these subjective tests of sharpness are rendered imprecise by the unquantifiable factor of acuteness of memory, because the "before" and "after" tests are separated by a considerable lapse of time.

(b) *Natural equilibrium; the homeostatic aspect.* There is a tendency in Nature which though not universal is widespread, for things when disturbed to return to the previous state of equilibrium. In physics this is exemplified by Le Chatelier's Principle, in biology by homeostasis. It has long been known that a used razor blade tends to feel sharper if it is used after a period of rest. This can be ascribed to the motion of the air molecules around and against the blade which helps to wear down the weakest parts (which are, in fact, the jagged peaks or points). Also when a blade is used the stress upon its cells is changed, some being compressed and others stretched. During a period of disuse the forces of compression and tension will tend to restore the internal stresses to an equilibrium state.

Since, so far as the writer is aware, not a single scientific experiment on pyramids and razor blades has ever been published, he feels it is a legitimate inference that pyramid enthusiasts when testing their hypothesis have neglected to take adequate account of factors (a) and (b) or to do parallel control experiments.

### 3. Dehydration and preservation of flowers

Two experiments were performed between 16 Feb. 1973 and 26 Feb. 1973.

Four roses, small and evenly matched for size were distributed as follows: one in the open air, one under the Toth pyramid, one under the home-built pyramid, and one in a cube of volume equal to that of the latter pyramid. Each rose was placed on the shelf itself and not on a raised platform, but with its main axis pointing to the magnetic north. Each rose that was under a pyramid or cube was placed with its centre directly below the geometrical centre of the figure. The figures were oriented to magnetic north.

Three chrysanthemums were similarly distributed; one in the open air, one under a home-built pyramid, and one under a cube of equal volume. The flowers under figures were directly below the centres of the figures; flowers and figures were all oriented to the true north.

Both experiments were set up on a closet shelf away from temperature variations and high frequency or voltage generating devices, and left undisturbed for seven days before being inspected.

None of the roses differed appreciably in colour. It was found that the roses under the pyramids were more resilient and pliable than the one which had remained in air. However, there was no difference between the roses under pyramids and the rose under the cube. Any other differences

which there may have been between the roses were so slight as to be quite imperceptible, even to careful examination.

No differences whatever could be seen between the chrysanthemums, except that the one which remained in air was less brittle than the ones under the pyramid and cube. The condition of these was, however, identical.

#### 4. Summation

With flowers, as with the razor blades, there was no effect which could be attributed directly and solely to the shape of the pyramid. The lack of air circulation in both cube and pyramid could have been the agent responsible for such differences as there were between the enclosed and unenclosed flowers.

If there is any validity in the "Pyramid Hypothesis" the effects are minute and therefore not so easily provable scientifically as, it appears, some people believe. The variety of prescriptions put forward for pyramids, their dimensions and orientation, (Owen, 1973, this Journal), coupled with the frequent admonition that instructions must be followed very precisely if the desired effects are to result, are sufficient to cause wonder as to the validity of the claims, especially in the absence of any theoretical basis for the Pyramid Hypothesis.

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# The Shapes of Egyptian Pyramids

A. R. G. OWEN, M.A., PH.D.

**ABSTRACT:** *The dimensions of the Great Pyramid are considered in relation to Pyramidal figures constructed according to various geometrical principles and compared with those which advocates of "pyramid power" recommend for model pyramids.*

## 1. Pi and the Great Pyramid

So far as can now be ascertained, the dimensions of the Great Pyramid built about 2570 B.C. at Giza for Khufu (i.e. Cheops), probably by his cousin Hemon, were as follows. The average length of the four sides of the base was 755.79 feet and the height was 481.4 feet (Edwards, 1961). The ratio of the base length to the height was therefore  $b/h = 1.56998$ , and the ratio of the length  $e$  of a sloping edge to the base length  $b$  was  $e/b = 0.95169$ . The angle of the pyramid, i.e. the inclination of any face to the horizontal base, was  $51^\circ 52' 10''$ .

It will be seen that the builders of the Great Pyramid were not concerned with relating its form to one of the regular solids. Such a relationship could easily have been achieved by making each sloping edge  $e$  equal to the base length  $b$ . Each face would then have been an equilateral triangle. The Pyramid's base/height ratio would have been  $b/h = 1.41421$ , and its angle steeper than that of the Great Pyramid being  $54^\circ 40' 10''$ .

Another method of incorporating a degree of geometrical regularity would have been to make the meridian section (i.e. the vertical one through the apex and parallel to two sides of the base) equilateral. This would yield a pyramid with  $b = 1.15470h$  and  $e = 1.11803b$ . The angle would be exactly  $60^\circ$ . Instead, the principle diagonal sections could be made equilateral so that a diagonal of the base equals any sloping edge. Then  $b = 0.81650h$ ,  $e = 1.41421b$ , and the angle is  $67^\circ 47' 8''$ . Curiously enough, one Egyptian pyramid did approximate to this form; it is the "Layer Pyramid" at Zawiet el Aryan, 276 feet square at the base, which was built about 2700 B.C. and whose angle was about  $68^\circ$  (Fakhry, 1969). High angles between  $65^\circ$  and  $70^\circ$  are characteristic of the small pyramids built in the satellite kingdoms, such as Meroe, to the south of Egypt. However, the typical angle for all the classical pyramids in metropolitan Egypt approximates to  $52^\circ$ , the only real exception being the northern Stone Pyramid of Dahshur with  $b = 2.10020h$ ,  $e = 0.85248b$  and an angle of  $43^\circ 36' 0''$ .

The Greek writer Herodotus, who visited the Great Pyramid about 455 B.C., made a statement which seems to imply, erroneously, that its

height equalled its base, in which case the angle would have been  $63^{\circ} 26' 5''$ .

If its height had been half the base length, the Pyramid would have had an angle of  $45^{\circ}$  and constituted exactly one sixth of a cube, thus achieving a degree of regularity. Pyramids of this shape are the ideal ones for packaging commodities if pyramidal containers are desired, because they can be packed in sets of six without lost space.

A pyramid is a figure with five corners (the four at ground level and the apex). Therefore it cannot, no matter how it is proportioned, be a regular solid; the best that can be accomplished is the pyramid described above with equilateral faces. Such a pyramid is exactly a half of a regular octahedron. More than two millenia after the building of Cheops' Pyramid, Greek mathematicians, who, it seems, originated the concept of regular solids, proved that besides the cube and the octahedron there are only three other such figures. The simplest of these is the tetrahedron, which has four corners. There is no evidence that the concept of a tetrahedron was known to any pre-Hellenistic Egyptian. If any Pharaoh had decided to make a name for himself by ordering a tetrahedral pyramid for his eternal home, its three faces would have been inclined at an angle of  $70^{\circ} 31' 47''$  to its triangular base whose length on the side would have been  $1.22474h$ .

As noted, the angle of most of the classical pyramids is in the neighbourhood of  $52^{\circ}$ . Consequently, these pyramids, either by accident or design, embody a certain mathematical approximation to the value of Pi, the ratio of the circumference of a circle to its diameter. Correct to ten places of decimals  $\text{Pi} = 3.1415926536$ . Its value to this accuracy (and in fact to 35 decimal places) was first determined in the sixteenth century. If one constructed a pyramid, of a type which may for convenience may be termed a Pi-pyramid, having the property that the total perimeter  $4b$  of its base was equal to the circumference  $2(\text{Pi})h$  of a circle whose radius was equal to the height  $h$ , then the angle of the pyramid would be  $51^{\circ} 51' 17''$ , and the ratio of base to height would be  $b/h = \frac{1}{2}(\text{Pi}) = 1.5707963268$  to ten decimal places and  $1.57080$  to five decimal places, while  $e/b = 1.49456$ .

Many writers have assumed that the architects of the Great Pyramid aimed at proportioning it in this way either for aesthetic reasons based on a mathematical theory of perspective and proportion, or to embody in stone the numerical value of Pi. If this was in fact the intention of Cheops' architects and if Edwards' figures for its original dimensions are correct, then the Great Pyramid testifies to a value of Pi equal to  $2b/h = 2 \times 1.5699833 = 3.1399666$  to seven decimal places, which is to be compared with  $3.1415927$ . The error is only 5.2 parts in 10,000 or 0.052 per cent. If intended, this approximation was, for its time, a remarkable feat, because even at much later periods both Chinese and Hebrews (who had many contacts with Egypt) used 3 as an approximation to Pi.



The coincidence between the true value of Pi and that embodied by luck or judgement in the Great Pyramid, is even more remarkable if considered in the light of the engineering tolerances involved in such a massive structure. Supposing that the result was intended, the error in the ratio  $b/h$  could result from quite minute errors in  $h$  and  $b$ . For instance, with no error in  $h$ , the error in  $h/b$  corresponds to making  $b$  too short by 0.391348 of a foot, which is only 4.7 ins. Now, the actual errors made by the architects are in fact of this order, the lengths in feet of the four sides of the base being: N, 755.43; S, 756.08; E, 755.88; W, 755.77. The deviations from the average 755.79 are numerically 0.36, 0.29, 0.09, and 0.02, the standard error being 0.272 feet. Clearly the dimensions of Cheops' Pyramid are perfectly consistent with the dual hypothesis; (a) its builders intended it to be a Pi-pyramid, (b) were working to a value of Pi very close to the modern one 3.141593.

There is no direct evidence such as a manuscript or an inscription, to suggest that the architects of the Fourth Dynasty either sought to build Pi-pyramids or knew the approximation 3.14. The first indication of an Egyptian value for Pi, other than the crude approximation 3, occurs in the Ahmes (or Rhind) papyrus, a thousand years after the building of Khufu's Pyramid. The value given (which relates to the area of a circle and not to the circumference) is equivalent to  $256/81 = 3.160494$ , and differs from Pi by 0.6% or 60 parts in 10,000, an amount twelve times in excess of the Great Pyramid value. It is puzzling therefore that, if Cheops' architects were building a Pi-pyramid incorporating the value of 3.14, this knowledge became lost, unless, as is supposed by some writers on Egyptian antiquities, the sages of the Fourth Dynasty had relatively advanced mathematical knowledge which was guarded as arcane and esoteric lore. Against this, it has to be said that there is absolutely no evidence of it, except for inferences from the pyramids themselves.

According to Thom (1967) the megalithic builders of stone circles and alignments liked to work in distances that were multiples of 1MY or  $2\frac{1}{2}$ MY, where MY is a megalithic yard equal to 2.72 feet. At Avebury they set up two slightly distorted circles with diameters of 125MY and circumferences adjusted to be 392.5MY. This was equivalent to using for Pi the approximation  $157/25 = 3.14$  exactly. The same value occurs in a circle at Brogar, Orkney. Other sites indicate the approximations  $22/7$  (Aubrey Holes, Stonehenge), 3.139 (Stanton Drew) and  $25/8$  (represented in a number of small circles). These monuments were probably erected some time between the building of Cheops' Pyramid and the writing of the Ahmes papyrus.

One possibility which seems never to have been discussed is that the pyramid builders had a good empirical value for Pi. It would still remain a mystery why, apparently, this value was still unknown a thousand years later. However, there are various ways in which quite a good determination could have been made experimentally as, for example, by rolling a

wheel. The wheel was not in common use in Fourth Dynasty times, but was certainly known in Egypt; military scaling ladders were wheeled, as were various military wagons; sledges with heavy loads such as masonry were sometimes put on rollers (Hodges, 1970). Alternatively, the Egyptian savants could have measured the circumference of a carefully marked-out circle. They need not necessarily have used a rope to measure the actual arc but have approximated to its length by laying a measuring rod (perhaps equal to the Royal cubit, 20.62 or 20.63 inches in length) along consecutive chords of the circle. In so doing they would have carried out empirically a process rather like the one Archimedes performed mathematically about 225 B.C. He compared the area of a circle to the areas of inscribed and circumscribed polygons of 96 sides, and thus proved that Pi lies between the limits  $223/71 = 3.140845$  and  $22/7 = 3.142857$ . Shortly afterwards the approximations  $22/7$  and 3.1416 became current in the Greek world. The pyramid builders could in principle have laid off chords of the length of a cubit-stick on a semi-circle of about 100 cubits in length. If no additional errors came in, the value for Pi would be close to 3.1414, the theoretical error being less than 2 parts in 10,000. The practical error would of course be greater, but in view of the statistical tendency for random errors to compensate one another, it need not have been very great. If an empirical determination of Pi was made, it is surprising that it was not commemorated in an inscription, unless however it became a trade secret of the master architects. No ancient source connects Pi with the Great Pyramid. Any inscription on the white limestone casing of the Great Pyramid has, of course, disappeared together with the casing. The numerical coincidence was first noted by John Taylor in the nineteenth century (Taylor, 1864).

More recently (see Tompkins, 1971) a connection has been postulated between the Great Pyramid and the number Phi whose value to eight decimal places is 1.61803398 and 1.618034 to six places. This number is wellknown as it occurs naturally in very many problems of algebra and geometry, and in architecture corresponds to the famous "Golden Section", a rule sometimes used in designing rectangular structures for aesthetic effect (Gardner, 1961). Unlike Pi the value of Phi can be expressed exactly in an elementary arithmetical formula, because twice Phi less unity equals the square root of five. There is a passage in Herodotus (perhaps the same as that alluded to above), which apparently can be interpreted to mean that the Great Pyramid was designed so that the area of each triangular face should be equal to that of a square h on the side. It can be shown for such a pyramid that the slant height (i.e. the distance of the apex from the mid-point of a side of the base) is  $\frac{1}{2}$  (Phi) times the base length, and that  $b/h = 1.57230$ , which differs from the ratio for the Pi-pyramid by 9.5 parts in 10,000. Twice the ratio is 3.14461 which is a tolerable approximation to Pi. One school of thought therefore suggests that the Pyramid builders built not a Pi-pyramid, but a Phi-pyramid, and

were aware that  $\Phi$  is approximately equal to  $4\sqrt{\Phi} = 3.14461$ . A  $\Phi$ -pyramid would have an angle of  $51^\circ 49' 40''$  with  $e/b = 0.95106$ . (The Great Pyramid is, so it happens, closer to being a  $\Phi$ -pyramid than a  $\Phi$ -pyramid, from which it deviates by 15 parts in 10,000.) It is also suggested that the architects of the Great Pyramid knew a much better approximation to  $\Phi$ , namely  $6(\Phi)/5 + 6/5$ , which to eight places is 3.14164079.

Michell (1972) has drawn attention to a geometrical construction — the *vesica piscis* — which yields a triangle approximating in shape to the meridian section of the Great Pyramid. With any chosen radius  $r$  and centre  $C$  draw a circle. With the same radius  $r$  draw a circle centred on any point  $B$  of the circumference of the first circle. Let  $A$  and  $D$  be the points of intersection of the circles. Prolong the straight line  $BC$  so that it meets the two circles again in points  $E$  and  $G$ . With centres  $E$  and  $G$  draw two circular arcs  $HGK$  and  $HEK$  of radius  $3r$ . These arcs will meet in points  $H$  and  $K$  which lie on the prolongations of the line  $DA$ . Through  $D$  draw a line  $LF$  perpendicular to this line  $HADK$ , meeting the arcs  $HGK$  and  $HEK$  in the points  $L$  and  $F$ . Then  $AFL$  is the triangle approximating to the meridian section of the Great Pyramid.  $DA$  corresponds to the height and  $LDF$  to the base. An elementary calculation shows that the ratio  $b/h$  is given by  $(\sqrt{33} - 3)/\sqrt{3}$ .

This formula is something of a mathematical curiosity as the only digit appearing in it is 3. Numerologists may be interested in the fact that the four 3's total 12 which numerologically is  $1 + 2 = 3$  once more. Arithmetically  $b/h = 1.58457$ , corresponding to the approximation  $\Phi = 3.169144$ , an error of 87 parts in 10,000 as compared with 5 parts in 10,000 for the Great Pyramid itself and worse than the value in the Ahmes papyrus. Incidentally it may be remarked that the dimensions preferred by Michell for the Great Pyramid are  $b = 277.5MY$  and  $h = 280$  cubits. Using the conversion factors given by Michell, namely, 2.72 feet = 1MY and 20.6 inches = cubit, these give  $b = 754.8$  feet and  $h = 480.67$  feet, which may be compared with Edwards' dimensions  $b = 755.79$  and  $h = 481.4$ . Michell's dimensions correspond actually to  $b/h = 1.57032$ , which differs appreciably from the value given by the *vesica piscis* construction, but deviates from the  $\Phi$ -pyramid by only 3 parts in 10,000.

## 2. Pyramid Power

It has been claimed in recent years that hollow pyramids of cardboard, wood or metal, have the ability to inhibit putrefaction of organic material and to re-sharpen razor blades. It is interesting to compare the dimensions recommended by various advocates of "pyramid power". According to Ostrander and Schroeder (1970), the Czechoslovakian investigator

Karel Drbal prescribes a ratio  $b/h = 1.5708$  as appropriate for the hollow experimental pyramids, this value being derived from the dimensions of the Great Pyramid. As this ratio, to the number of decimal places specified, is identical with 1.57080, the theory is clearly based on the Pi-pyramid. Ostrander and Schroeder give a prescription for a home-made pyramid intended to be 6 inches high with  $b = 9.375$  ins. and  $e = 8.875$  ins. This results actually in a height of 5.900874 ins., an angle of  $51^\circ 32' 14''$  and a  $b/h$  ratio of 1.58875 which represents an error in the Pi value of 114 parts in 10,000 as opposed to 5 parts for the Great Pyramid. A specification for a pyramid of height 4 ins. quoted by Ross (1973) has  $b = 6.125$  ins.,  $e = 5.875$  ins. which gives a height of 3.96961 ins., an angle of  $52^\circ 21' 46''$  and  $b/h = 1.54297$ , deviating from the Pi-pyramid by 177 parts in 10,000.

Another recipe for pyramids (Flanagan, n.d.) sets  $e = 0.95b$  corresponding to the angle  $51^\circ 42' 31''$  and  $b/h = 1.57622$ , a deviation of 34 parts in 10,000. None of the above specifications appear to relate to the Phi-pyramid.

As the practical errors of cutting, folding, and gluing cardboard are very considerable it would seem that the advocates of pyramids contemplate imperfections of more than 2 percent and possibly as much as 5 or 6 percent, as admissible without seriously diminishing the efficacy of the models. In this connection, it is worth remarking a statement occurring in what appears to be an editorial article in *The Pyramid Guide* (Sept. 1972). "The Mysterious Power produced within these structures [i.e. scaled down models of the Great Pyramid] relies on the builder's strict adherence to the Great Pyramid's true degree and angle".

Most writers on pyramid power recommend that the model pyramids be oriented to the true north like the Great Pyramid, whose N, S, E and W sides deviated from the cardinal points respectively by only  $2'28''$ ,  $1'57''$ ,  $5'30''$  and  $2'30''$ . However the underlying theory is rendered somewhat uncertain by the recommendation made by Ostrander and Schroeder, and which presumably represents the Czechoslovakian view, to the effect that the pyramids should be oriented to the magnetic north. If both these prescriptions are valid, it would imply that the effect, if real, is not sensitive to orientation within several degrees of arc.

In this connection it is interesting to note that sometime prior to 1940 a letter appeared in *The Times* of London signed "Colonel Musselwhite", which advised that the performance of a razor blade could be improved if it were kept on a north-south axis so as to pick up the earth's magnetic field. It is now known that this letter, which was one of a series on various scientific topics, was composed as a hoax by Dr. Reginald V. Jones, now Professor of Physics at the University of Aberdeen, Scotland (Moss 1973).

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## EDITORIAL

This Journal, though shorter than the two numbers previously published (in line with our new policy which aims at publishing more frequently and at a reduced price), contains three papers which relate to entirely separate branches of psychical research; they are all of interest and novelty and represent work which has attained a degree of definitiveness and maturity sufficient to merit its early publication so as to be of use to other investigators.

The first paper, which reports the occurrence of psychokinesis in a specially contrived situation, describes a very originally conceived and innovatory piece of work that I believe has remarkable implications, not all of which have as yet been thought out. As most readers are aware psychokinesis (or PK) occurs in rather diverse situations. There is the isolated event (e.g. spontaneous movement of a domestic object) as well as the clustering of such events so as to constitute a poltergeist outbreak (McInnis and Owen, 1972; Owen, 1964). In these cases the phenomena do not seem to be under the conscious control of the people present. Voluntary PK, in which the effects produced have been consciously willed, usually only succeeds in manifesting physical forces much weaker than those which are produced involuntarily in spontaneous phenomena. Thus, Mr. Jan Merta (Owen, 1972), like Mr. Uri Geller, can generate a force of only about a tenth of an ounce. The forces deployed by Mde. Mikhailova in moving small objects on a glass table are probably not much greater in magnitude. The forces exerted in classical experiments on influencing the fall of dice are, doubtless, very minute. There are however other situations in which movements of physical objects are alleged to occur and to be often of large magnitude. These situations can broadly be classed as seance type, though in fact they fall into several different categories.

One category is the spiritualist circle in which sitters who believe in the possibility of communicating with the disembodied spirits of deceased persons sit in a circle, usually in the dark or in subdued lighting, and often around a table. Often, though not invariably, one member of the circle is regarded by the others as the "medium" or special vehicle through whom communication with the invisible spirits is effected in virtue of his or her psychic ability, but the presence of the other members of the circle is considered necessary as a source of "power". It has often been alleged that physical phenomena occur during these sittings — rapping noises from various parts of the room or in the woodwork of the table — movement or levitation of objects in the room — heavings, tiltings, or levitations of the table itself. In addition, the rappings or the table movements, it is said, can

be used for communication with one or more invisible communicators. For instance, the "communicator" is asked to answer questions by one rap (or table movement) for *Yes*, two raps for *No*, etc. etc.

Two questions (mutually independent) naturally present themselves. Are the physical phenomena real and paranormal? If the phenomena are paranormal are they caused by an actual spirit or merely by PK ability manifested by some or all of the sitters? Sometimes phenomena certainly results from fraud on the part of the official mediums, or semi-conscious manipulation of the table by some of the sitters. But it would be unscientific to argue that because of various exposures made in the past, none of the physical phenomena are ever genuinely paranormal. Proved cases are rare, partly because of the privacy in which most "home circles" are conducted, and the subdued lighting that makes seances vulnerable to criticism (including even those in which reputable investigators have participated). However, a number of cases with good lighting and careful observation are on record, such as the one reported by Sir William Barrett at Kingston, Ireland, (see Owen, 1964). Another remarkable instance occurred in London during the 1960's. On occasion the table was levitated several feet into the air so that the sitters had to stand and reach above their heads to keep their hands in contact with it. This astonishing scene was filmed. Unfortunately it was, for some obscure reason, omitted from the film later broadcast by the B.B.C. under the title *A Mild Case of Haunting*. Subsequently both Batchelder and Brookes-Smith in England have shown that similar phenomena can be generated under fairly good experimental conditions by moderately dedicated groups of people without the presence of a professional or acknowledged "medium".

It being admitted that sometimes the physical phenomena of seances are genuinely paranormal, does their occurrence imply the presence of a "spirit"? It would be unscientific to claim that in all cases there is no spirit, but only PK by the sitters, and we have no wish to make such a sweeping assertion. However, the experiment reported by Iris Owen and Margaret Sparrow in this Journal clearly shows that in the sittings they describe, though there are both paranormal physical phenomena and an appearance of "communication", there is in fact no spirit-communicator present, the phenomena instead being a kind of dramatization of a totally imaginary situation. This can confidently be asserted because the paranormal phenomena only developed months after an imaginary character had been developed. The position is the reverse of that usually encountered with ouija boards or table turning in which the character of the "communicator" is tailored to fit the "communications" already received.

The result got by our group of eight sitters is practically important in showing that in any situation caution is necessary before assessing the independent reality of an apparent spirit communicator. Still more impor-

tant, however, is the fact that they have demonstrated how psychokinetic effects can be obtained without an acknowledged "medium" as star performer and under excellent experimental conditions — in a bright light and under the close observation of witnesses who may be complete strangers. Since the paper was written, proceedings have been filmed in a very small brilliantly lighted room, continuously over a two hour period by a crew of four from the Canadian Broadcasting Corporation. Some brief excerpts showing cavortings of the table were broadcast in a *Man Alive* program. This would seem to be the first occasion in the history of physical research that paranormal seance type phenomena have been recorded under such public conditions.

It has also been found that the imaginary communicator "Philip" can still converse in raps when only four of the group of eight are sitting. No particular member of the group is essential for the occurrence of the phenomena, each member of the group having been absent at some time from successful sittings. The phenomenon would therefore seem to be collective psychokineses — PK by Committee". As with other committees, only a "quorum" has to be present for business to be transacted. This suggests that most people have latent or potential PK abilities which are either too feeble or too unchanneled to produce phenomena, unless combined with those of other persons. It seems that combination of PK powers is achieved only by the group members directing their thoughts to the same end. This is borne out by the varied ways in which "Philip's" raps respond to questions. If the question is phrased in a way which is easily understandable and is one to which all the group members individually see an obvious answer the raps (one for *Yes*, two for *No*) come immediately and loudly. But if the question is put in a complicated form, or is concerned with some aspect of "Philip's" imaginary "biography" on which the group has not previously reached an explicit concensus, then there is a very noticeable delay in response. Similarly, if the group remains divided as to what the "right" answer should be, then the rap is feeble. Sometimes members have second thoughts; this is reflected in the fact that a knock for *Yes* will be followed after a pause by a second and negating rap. Just like any committee decision there has to be time for thinking and taking a vote. These observations, which I have made myself, both as a bystander, and as a guest participant in the circle, are fascinating and to my mind, rather clear evidence that "Philip" is a group idea only and not a stray "spirit" who has chosen to impersonate Philip.

The work of the group of eight is of the greatest theoretical significance for physics and psychology as well as for parapsychology. It has the merit of establishing the validity of a method by which many groups of workers may, if they wish, generate PK forces in a relatively controlled situation, and encourages the hope that the nature and origin of psychokinetic force may soon become more amenable to elucidation by physicists and physio-

logists. A book by the group giving greater detail concerning their experience and embodying practical hints is in preparation.

I hope that the attention I have paid to "Philip" in this Editorial will not detract from the reader's appreciation of the paper by Professor Emerson which we are privileged to publish. In their own way the mental phenomena of his subject "George" are quite as remarkable as the Philip psychokinesis. It has often been claimed that "psychic" persons can obtain knowledge of the remote past, but few such claims have ever been substantiated by qualified archaeologists. Professor Emerson's verdict on "George's" powers, unlike the purely journalistic and unscholarly accounts of the alleged feats of some archaeological psychics, is entitled to the highest respect, because as a senior professor of anthropology in the University of Toronto, he is an acknowledged authority on the Indian antiquities of Ontario and neighbouring regions. Furthermore his findings as to the accuracy of George's statements are based on a long and careful study involving a large quantity of archaeological material. The fact that, prior to his experience with George, Professor Emerson had no reason for entertaining any degree of belief in psychical phenomena heightens the interest of what he has to say.

Professor Emerson's subject, George, exercises with a high degree of reliability a power of the kind which is often called "psychometric"; given a fragment of an object he will describe the complete object and the customs and lifeway of its long dead makers. Psychometry is only a word, it refers merely to the fact that it is physical contact between the object and the psychometrist which seems to put the latter into contact with information concerning the object's owners, living or dead. What the nature of the ESP channel between object and owner is we do not know, nor as yet can we even guess at the source of the information. Psychometry, especially when reaching into the distant past, is just an awesome and unanalysed fact of human existence. Whether George's responsiveness to archaeological sites is a form of psychometry or a different manifestation of his psychic ability is a moot point. Professor Emerson's book recounting his detailed studies will be awaited with lively expectation.

The third paper describes some extremely simple though new experiments intended to provide a scientific basis for the study of the "aura". It is fair to comment that hitherto much has been said about the aura and how it is perceived, but little, if anything, has been rigorously proved. Dr. Morgan and myself think that the "rim-aura", which seems to be our own discovery, is a universal and "non-psychic" phenomenon, but that its existence needs to be recognized before any investigation of the "mega-aura" can be reliably conducted. Of subsidiary interest is the fact that nowadays instructors in "psychic" topics often claim to teach their pupils, amongst other things, how to see auras. We suspect that often the instruction is confined merely to drawing attention to the rim-aura: *caveat emptor!*

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# Generation of Paranormal Physical Phenomena in connection with an Imaginary "Communicator"

IRIS M. OWEN AND MARGARET H. SPARROW

*ABSTRACT: An experiment in "constructing" an "artificial ghost" is described. In a series of weekly meetings a group of eight sitters attempted by meditation to generate a collective hallucination of an imaginary person concerning whom a detailed but totally fictitious "history" had been made up.*

*No apparition resulted, but after a year of sittings a new approach, suggested by the work of Batcheldor, Brookes-Smith and Hunt, was adopted, and led immediately to the regular production in good lighting conditions of paranormal physical phenomena.*

*"Communication" was established with "Philip", the imaginary presence; "he" answered questions with coded raps and "in character".*

*This investigation constitutes an interesting variation on the work of Batcheldor, Brookes-Smith and Hunt. But it entirely validates their thesis that the production of physical phenomena by a group not specially selected for psychic talent is a repeatable experiment which can be successfully performed by any sufficiently integrated and dedicated circle of sitters. It shows also, and perhaps more explicitly than previous work, that conscious thought can be translated paranormally into actual physical force.*

## 1. An attempt at ghost construction

In September 1972 a group of members of the Toronto S.P.R. decided to attempt to construct a ghost. This followed a discussion on the nature of ghosts and speculation as to whether, in fact, a ghost was an artifact conjured up from the mind of the beholder. If this were so, the reasoning went, why could one not deliberately conjure up an apparition?

It was decided that the proposed apparition would be an entirely imaginary character, a completely invented ghost. The group would sit for an hour, or maybe more, at least once weekly, and try by various methods to produce the appearance of this character. It was realized that, in any case, other types of phenomenon might occur, and the possibilities of collective telepathy, collective hallucination, etc. were discussed. It was agreed that the group would be kept to a small number, and that the members would attempt to keep regular attendance as far as possible.

The group consisted of M.H.S., B.M., A.P., D.O'D., L.H., A.H., S.K., and I.M.O. During the early part of the sessions one or two other people took part for short periods, but the group finally crystallized into the members mentioned above, five females and three males.

The story in brief was as follows. Philip was an aristocratic Englishman, living in the middle 1600's at the time of Oliver Cromwell. He had been a supporter of the King, and was a Catholic. He was married to a beautiful but cold and frigid wife, Dorothea, the daughter of a neighbouring nobleman. One day when out riding on the boundaries of his estates Philip came across a gypsy encampment and saw there a beautiful dark-eyed raven-haired gypsy girl, Margo, and fell instantly in love with her. He brought her back secretly to live in the gatehouse, near the stables of Diddington Manor — his family home. For some time he kept his love-nest secret, but eventually Dorothea, realizing he was keeping someone else there, found Margo, and accused her of witchcraft and stealing her husband. Philip was too scared of losing his reputation and his possessions to protest at the trial of Margo, and she was convicted of witchcraft and burned at the stake. Philip was subsequently stricken with remorse that he had not tried to defend Margo and used to pace the battlements of Diddington in despair. Finally, one morning his body was found at the bottom of the battlements, whence he had cast himself in a fit of agony and remorse.

The story continues that Philip has been reincarnated several times since then, but once every century or so, his ghost is seen on the battlements at Diddington. The group decided that the year 1972 was a period between incarnations, and that his ghost is again evident. The theory is that if he can be materialized and reassured that Margo has forgiven him and is indeed "on the other side", then he will be at rest.

The reason for a completely invented character is, of course, that there can be no question that any manifestation that may occur could be due to a real spirit (in the Spiritualistic sense of the word) — or in other words it would prove, to the group's satisfaction at any rate, that it arose from their collective minds. It should also be stated clearly that nobody in the group claimed to be psychic or a medium — the whole theory rested on the assumption that if anything could be produced it could be done by anybody, and not by a special type of person only.

The group spent more time elaborating the story of Philip, and fixing in their minds a picture of him that tallied with all their individual ideas of him as a person. In fact, an actual picture was drawn, which all agreed to. The venue of the story, Diddington Hall, is a real place in Warwickshire, England, and was at the time known to one of the group. Subsequently two other members of the group visited it during a visit to England, and brought back pictures of the house, Dorothea's home, the stables and surrounding countryside. Any history of the house is unknown to the group, but there is no evidence whatever that any such people as were detailed in the story

existed, nor did the group believe this in any way. The group also at this stage familiarized themselves with the customs and ideas of the times as far as possible.

## 2. The first phase: meditation methods

The sittings started with a group sitting in a circle round a table, and meditating in silence, initially for periods of ten minutes, later increasing the time of meditation up to half an hour. Sometimes they sat in a circle, without a table, in meditation, and the venue would not necessarily be constant, the group meeting in various homes. After the period of meditation the group would discuss their experiences and feelings during meditation, and also discuss the story and personality of Philip.

During this initial period difficulty was experienced by some members of the group in realising that Philip was a *group* entity. Individual impressions of Philip obtained during meditation were related which made it clear that the group were still in the throes of creating a unified personality.

At this stage also, an observer was stationed outside the group to witness any unusual phenomenon that might occur. This observer, who is an "aura-viewer", frequently described auras around the heads of the participants, and also energy fields passing from one member to another, and around different persons. On occasion all members were aware of a certain mistiness in the room or around the centre of the table, although the atmosphere was quite clear. Smoking was not allowed until after the period of meditation.

The group continued to meet in this way weekly for a whole year, and during this period the members had come to relate to each other extremely well; they were completely relaxed in each other's company, and a strong bond of affection and friendship was becoming evident.

## 3. The second phase; a change of approach

In the summer of 1973 work which had been done in England during the previous ten years came to the attention of the group. This work had been started in 1964 and continued with intermissions until 1972 (Batcheldor, 1966; Brookes-Smith and Hunt, 1970; Brookes-Smith, 1973). However those members who had read of it previously had not realized its relevance to their current experiment. Batcheldor, and later Brookes-Smith and his associates were specifically interested in producing physical effects, such as table levitation and raps, but our Toronto group wondered if a similar approach might also work in the creation of Philip. In any case it was felt at that time that a different approach was needed, as the effects produced had so far been minimal.

Batcheldor and Brookes-Smith and Hunt recommended an approach to physical phenomena more closely approximating the old type of seances as performed during the Victorian era. Instead of quiet concentrated medita-



tion, an atmosphere of jollity and relaxation should be created, together with the singing of songs, telling of jokes, and exhortations to the table to obey the sitters' commands. In their papers they gave a completely reasoned philosophy as to why this method worked. Our Toronto group decided that, as we had worked for a whole year on the other method without many obvious results, we would try this recommended method. Consequently at a meeting in late August 1973 at the home of one of the members the group tried this new method. They found it a little difficult at first to dispense with the meditation method they had become accustomed to, and were a little inhibited in producing an atmosphere of singing and jokes. Apart from a feeling of "vibration" in the table at times nothing happened at this session.

But at the following session, and on subsequent evenings, using this method, very extraordinary things happened indeed. The first experience was the "feeling" of raps in the table. At this stage "feeling" is the right word because these raps were definitely felt rather than heard at this initial stage, and also because the group was making a degree of noise at the time, and would not necessarily be able to hear the raps if they were audible. It should be stated that these sessions were conducted in a fair degree of light. During the first two or three there was a light in the corner of the room, and sometimes also a lighted candle on the table. Later the group worked in a rosy light which made it perfectly possible to observe clearly everything happening. At no time did the Toronto group work in the dark.

The year's building up of rapport now paid off. After the initial hesitation the group found no difficulty in relaxing, singing jolly or sentimental songs, telling jokes, and generally creating the kind of atmosphere recommended by Batcheldor and Brookes-Smith. When the group sang particular songs, especially songs associated with the period that Philip lived in, the table began to respond by producing raps which became louder and more obvious as time went on.

The group adopted the procedure of addressing the table as "Philip" and for convenience this mode of reference will continue to be used in this article. "Philip" himself adopted the procedure of one rap for *Yes* and two for *No*, with slight hesitant knocks when the answer was doubtful, or the question apparently not understood. "He" would also give a loud series of raps for a song of which he approved, and very soon adopted the habit of actually beating time to favoured songs. At the beginning of each session the members of the group would address him in turn, saying "Hallo, Philip", and under each hand in turn there would be heard a loud and definite rap. Again, at the end of the session the group would individually say "Good-night" and get individual responses. Questions were asked regarding Philip himself, his likes and dislikes, his habits and customs, and the "Philip" of the table responded exactly in the manner one would expect. In other words, the table recreated the personality of Philip. (However, on occasion the table would rap out an answer inconsistent with the story, which intrigued

the group — for instance, he twice denied quite vigorously that he had loved Margo — the keystone of the story!. This the group found most interesting and unexpected.)

It should be stated that the initial sessions were held in the home of one of the members. An ordinary plastic-topped metal-legged card table was used. After two or three sessions the group moved to the home of another member where a room was set aside for the sessions. A similar card table was used — in actual fact several tables were experimented with, all with a similar result. The floor was thickly carpeted, and in ordinary circumstances it was very difficult to move the table by pushing on this floor. Needless to say the raps could not be produced by someone's feet tapping the floor. The raps became louder and were clearly audible during quiet moments during the sessions. They moved about the table, often appearing to come from within or underneath the table. They were equally audible and prolific if the group were all standing up around the table, with all hands in view, finger-tips lightly resting on top of the table. Later it was found that it did not matter if everyone was not resting hands on the table, and various combinations of members of the group were able to produce the phenomena alone — the last occasion being when only four members of the group were able to be present, and another member of the Society who had not been aware of this work had come in, and the phenomena occurred with just the four group members and the complete stranger.

After some four weeks of sittings when raps were produced, one night, suddenly, the table started to move, and it moved around the room in random fashion. The sitters were forced to vacate their chairs and follow it. It would move right into corners, forcing most of the sitters to relinquish their contact, and then shoot across the room at great speed, so that at times it was difficult to keep up with it. When it came to rest, the sitters, standing round the table, would continue their questions, and the raps would come forcibly, and apparently intelligently as before, thus demonstrating again that no-one was tapping from underneath.

The table developed quite a personality, and the sitters were enjoying the whole thing immensely; at times the situation became quite hilarious. "Philip" was showing preferences, likes and dislikes, and also apparent preferences for members of the group, together with an aptitude for mischievous pranks — he was apt to chase a particular person; on one occasion a member had left the room, having said goodnight, and then had to come back for her jacket. "Philip" made a very definite and obvious attempt to prevent her getting the jacket, and finally whooshed across the room in chase! At times he showed a tendency to "sulk" at something he did not like, but became completely noisy and appreciative of songs or jokes he approved of. He particularly liked drinking songs, as befitted a Cavalier!

On one occasion, on a hot evening, the table had been particularly vigorous, and the group had been trying to persuade "Philip" to lift the table,

as in the Brookes-Smith experiments. This had been unsuccessful, and to date there has been no real and obvious levitation. One of the members said "Well, Philip, if you are not hot and tired we are; we would like a rest. Why don't you just flip right over, and then we'll all have a glass of lemonade and a rest". Whereupon the table immediately tilted, and with all hands on the top of the table, gave a curious little "flip" and landed completely upside down with all four legs in the air.

During this period of rest with the table still upside down, another member of the Society came into the room, a member who had not been associated with this experiment in any way, and who was quite sceptical of the whole phenomena. The group righted the table and introduced the visitor, R. The table responded with a slight tap. "That's not loud enough", said one of the group, "you can do better than that". Whereupon a very loud rap indeed was heard from the centre of the table. R. was allowed to join the group, and when he spoke to "Philip" very loud raps were heard immediately under his hand in reply. Later A.R.G.O. came into the room, and again the table produced raps in greeting, and in reply to his questions. The raps could be heard in the doorway of the room, and very many people not connected with the initial group in any way, and somewhat sceptical in their own approach, have heard the raps, and seen the table movements, and all are satisfied that these are produced paranormally and not by the group members themselves.

#### 4. Discussion

Details of the individual sittings and happenings are too long for this paper, and will be the subject of a somewhat lengthier manuscript at a later date. The phenomena are continuing, and the group is planning how to continue its approach to this experiment, and have not lost sight of their original objective, which was to try to create an actual manifestation of an apparition.

However to sum up this paper, some discussion is clearly relevant. First and foremost the group are tremendously indebted to the very detailed descriptions of the work done by Batcheldor, and later Brookes-Smith and Hunt. It is not only relevant that the method of working is productive of results, but the reasoning as to why it works is most important. Our Toronto group had not seriously looked at the English experiments until after they had had a whole year of meditation and group working, and this clearly paid off when the method of approach was changed — already the group were in complete rapport, and able to go straight from there, and it seems as if this is necessary.

Batcheldor and Brookes-Smith were concentrating on actual physical phenomena, the Toronto group on an invented entity, but again this fits in with the philosophy of reasoning that if everyone in the group believes that something will happen, then it does indeed happen.

Several basic points emerged. One does have to believe implicitly that the phenomena can happen, and will happen, and not be surprised when something unusual does happen. A. K. Talbot says (1965), “. . . . the psychological researcher, while carrying out his investigation, cannot afford the luxury of a neutral and unbiased attitude if he wishes to advance beyond the vicious circle of endless repetition of half-satisfactory experiments which are the usual reward of the half-convinced experimenter. He should identify himself and become at one with the psychical situation by adopting, *in the way of a working hypothesis, as it were*, a whole hearted acceptance of the phenomena at their face value, regardless of how much this deliberate act of acceptance may outrage his intellectual convictions”. Talbot, of course, qualifies this advice with the admonition: “While thus acting as a whole-hearted believer, keep a corner of your mind alert, watchful, and unemotional, avoiding all partisanship. A pretty little piece of mental acrobatics!”. The attitude which Talbot thinks appropriate is illustrated by the reaction of the Brookes-Smith and Hunt group (1970, p. 279) when a chair moved telekinetically. The watchers did not react with astonishment, but rather in speculation on how to use the force then manifested (which was gentler than they had with their table) in order to have better controlled experiments. Brookes-Smith says that the group exhibited psychological “poise”, and that such poise appears to be necessary for this type of experiment.

The Toronto group found that if they became too intense in their questioning, or too concentrated, the raps became feebler, and more erratic. Also it would seem that, speaking metaphorically, just as one can create a positive “thought-form” one can just as easily dispel it. (This is analogous to what is said by Zolar (1970), though he conceives of a thought form or pseudo-ghost as having an objective though transient reality, whereas we are using the term merely as a figure of speech.) Our group on one occasion demonstrated the unstable nature of Philip. Answers to questions were somewhat erratic, and the phenomena were slow in coming on this evening. Philip would not respond to commands, and one member of the group said “Well, Philip, if you won’t co-operate, we can send you away you know”; subsequently on that evening the phenomena almost disappeared completely, and it was necessary to reinforce the group’s belief in Philip and the phenomena for the raps and movements to return.

The Toronto group has not been working as long as the Brookes-Smith group and, as stated, it was specifically laid down that no member had claim to psychic power or ability, and so this group has not reproduced all the phenomena that the Brookes-Smith group has. However, many things that have happened in Toronto strikingly resemble those that the two English groups report, so that one is able to say with certainty that here is, in fact, a repeatable parapsychological experiment — unlikely as it may seem. In a later publication, points of similarity will be detailed at greater length. It is clear that in some way that we cannot yet understand a group of people

can create a thought-directed force which can be expressed in a physical way — i.e., produce noise, or move objects. I think we have proved this can be done by any random group of people, provided they can condition themselves psychologically to produce this effect.

The Toronto group has much more to do in the way of experimentation, and many of the English experiments should be repeated. Many variations of this experiment could also be done, and would prove very interesting.

We are indebted tremendously to Batcheldor and the Brookes-Smith and Hunt groups not only for their very clear exposition of their own experiments, but for giving us the faith and belief that we could repeat their work, and so produce the repeatable parapsychological experiment, with many implications both for psychology and psychical research, especially psychokinesis.

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# Intuitive Archaeology: A Psychic Approach

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*ABSTRACT: Extensive work with a psychic sensitive untrained in archaeology shows that with a high degree of reliability he can supply information concerning ancient North American Indian artifacts and locate archaeological sites. Telepathy from living persons seems inadequate as an explanation.*

“Intuition” can be usefully defined as the *immediate knowing or learning of something without the conscious use of reasoning.*

It is my conviction that I have received knowledge about archaeological artifacts and archaeological sites from a psychic informant who relates this information to me without any evidence of the conscious use of reasoning.

My psychic informant, who at the present time wishes to remain anonymous, is named George. I presented George with a fragment of an artifact excavated from the Black Creek site located in Metropolitan Toronto. He held the fragment in his hand, contemplated it, fondled it, and meditated upon it at length. He then correctly told me that it was a pipe stem; told me the age of the site, the location of the site; he described how the pipe was manufactured; described the maker and provided details about the community and living conditions. He then took pencil and paper in hand and drew a picture of the pipe bowl which he stated belonged to the broken pipe stem.

I was fascinated and impressed because I immediately recognized that he had clearly drawn a picture of a typical Iroquois Conical Ring Bowl pipe. This type of pipe was one of the popular types recovered from the Black Creek site; and is one of the predominant types to be found in Middle Iroquois times.

I next gave George a fragmented human effigy pipe bowl recovered from the shore of Bass Lake, near Orillia, Ontario. George again provided me with a wealth of information about this artifact related to its age, location, function, and details about its general setting and location. Once again he took pencil and paper and drew a picture of the modelled human effigy head which he stated had been broken off the edge of the pipe bowl.

Again, fascinated and impressed, I immediately recognized the drawing as that of a typical Huron Pinch-faced Human Effigy. This pipe is characteristic of late prehistoric and historic sites in the Simcoe County area.

It was experiences such as these which led me to pursue my studies with George, and as will become evident, of George. I have now been pursuing this research intermittently for some two years and am convinced that George is providing me with information upon Indian prehistory that is accurate about eighty per cent (80%) of the time and that this knowledge is the product of George's intuition.

To present this case, I have sought the answers to five complex questions:

1. Has George gained this knowledge by study?
2. If not, does George read my mind?
3. If not, does George receive information by mental telepathy?
4. Is George always correct in his statements?
5. Can his statements be verified?

To return to question 1: has George gained this knowledge by study? The answer is definitely, no.

George has a minimum of formal education. During the Great Depression, he left school to go to work. George is not an avid reader. He has done little reading about Indians and has been exposed to no in-depth reading about the Ontario Iroquois. He states that he only visited the Royal Ontario Museum once and was disturbed by "the mummies".

George would concur in my statement that in the field of Iroquois prehistory, he is both uneducated and uninformed. I would stress that it is the very truth of this fact that gives both strength and evidence to the conclusion that his statements are intuitive; that is, they are in essence the product of intuition, immediate knowing without the conscious use of reasoning.

Incidentally, by the use of the terms "uneducated" and "uninformed", I do not wish to convey the impression that George is an ignorant, tongue-tied, dull oaf. He is not. He is a warm, intelligent, and thoughtful human being. He is my friend. He is just not cluttered up and overlaid with pedantic and restrictive book learning. His knowledge is definitely not the result of scholarly study.

2. Does George read my mind?

The answer to this question is, I believe, no. I hasten to add, that if he were doing this, and no more, it would be a phenomenon worth of study and investigation.

George does tell me things that coincide with my own knowledge and thus could be simply reading my mind; but he also makes statements of new knowledge, and statements which disagree with my knowledge and expectations. These areas of new knowledge and of disagreement suggest to me that George is doing much more than just reading my mind.

I offer two examples: the first deals with new knowledge. In response to a newspaper article about George, a lady wrote to me that she had an

old coin that she would like to know about if possible. She mailed the coin to me from the town of Markstay. The location of this town was unknown to me, and I did not mention the name to George.

The coin was of the George III vintage and literally could have come from anywhere in the World. He clearly identified the finder and the loser of the coin. When I asked him where it was found, he immediately said, "Sudbury, North Bay, Callender". The next day I checked the atlas and Markstay was located twenty miles east of Sudbury, and sixty miles west of North Bay and Callender. To me this was an identification of great accuracy. George could not have learned this from me; and, of course, he did not mention Markstay, *per se*.

The next example involves an area of disagreement. George and I visited the prehistoric Iroquois Quackenbush village site, north of Peterborough, Ontario. Among other things, George told me that these people did not cultivate corn, beans, and squash. I found it hard to accept the idea that they did not have these traditional Iroquois crops. The investigating archaeologist assured me that they had recovered abundant evidence of corn, beans, squash, and sunflower seeds. At this point it appeared that George was wrong. The thought then came to mind, that, perhaps they had obtained their vegetables by trade from the south, rather than by local cultivation. George had stressed their trade in hides; and the investigating archaeologist felt that he could make a good case for trade in stone.

I then had soil samples taken and studied for pollen grains. This study revealed one problematical corn pollen grain. This did not seem to argue for local cultivation. This was especially suggested by the relative abundance of pollen evidence of various trees, plants, and grasses. At this point, it would seem that George was correct. However, I do not feel that the pollen studies have been extensive enough to be conclusive. They must be further expanded.

Thus, these examples, involving new knowledge and disagreement, will I hope serve to demonstrate that George is doing much more than just reading my mind.

3. Is George receiving his information by some form of mental telepathy?

Cases of mental telepathy are abundantly documented. George could be subconsciously receiving messages from the lady in Markstay, or from the Quackenbush investigating archaeologist. But in most cases of telepathy the sender is usually named, or otherwise identified or suspected. There was nothing of this kind in George's statements.

The strongest argument against mental telepathy of the more usual kind, is the fact that the bulk of George's statements relate to a very dim and distant *past*. They relate to a period of anywhere from five or six centuries, to five or six thousand years ago. It almost seems as if he is receiving telepathic information from people who were there at the time, and who had specific information about those times.



It is difficult to even begin to offer a comprehensive, or even a comprehensible explanation of the above phenomena. They certainly involve more than traditional mental telepathy.

I have explanatory thoughts of my own; but at this point in my studies, it would seem most prudent to reserve judgment for the future.

Much of the answer must ultimately lie in the understanding of George. Certain processes are clear to me; his statements are the crystalization of selected auditory and visual images available to him.

One further fact about George must be noted; that is, his extreme sensitivity to the artifacts that he handles. He describes them as hot or cold; alive or dead. This is apparently a temperature assessment. The older, the colder. The fact that his age assessments are quite accurate, stands as proof of this sensitivity.

The questions raised by the above statement are multitudinous, and the avenues of possible research, study, and documentation are legion.

#### 4. Is George always right?

The answer here is, again, definitely: no. George is not always right. I have suggested that his accuracy is about eighty per cent. This figure I hope to gradually refine and understand.

The real answer to the question must be seen in terms of George's humanity. Some days he is tired, disinterested, distracted, or perhaps even frightened. Such factors will decrease his accuracy or even delay or put off an interview. In the case of a barette studied, his report bore no relationship to the facts. It would appear that neither George, nor his sources of information are infallible.

As is the case with other psychics, George is a specialist. He is not really interested in student's barettes and old coins; he is interested in Indians, and it is in this area that his pronouncements prove out most accurately, and the area in which he exhibits the most interest and enthusiasm.

#### 5. Can his ability be tested and verified?

The answer to this is definitely, yes. I have already done a great deal of this and hope to see the results presented in book form for comment and study.

But the real crunch comes in endeavouring to cope with George's excavation advice. George not only deals with artifacts but he is sensitive to archaeological sites. Upon a site, he almost quivers and comes alive like a sensitive bird dog scenting the prey. He has given me enough advice on where to dig, and what I will find, to keep me busy for a decade.

At the same time, George's statements can be tested against published site reports, ethnohistoric, and ethnological knowledge.

This then is Intuitive Archaeology, A Psychic Approach. It is a new approach, and it offers a new source of knowledge about man's prehistory.

In this area of parapsychological research, I ponder my next steps. In my first encounters with George, I responded with what I choose to call an

open minded skepticism. Since that time my study and immersion in things parapsychological has been diverse, intensive, and ever broadening. My initial feelings of discovery, uniqueness, and I assure you, of aloneness, and a sense of mission that my role was to demonstrate, document, and reveal to the world the reality of George's intuitive ability and with it the verification of his knowledge, has now taken a continuing, but secondary priority.

I am now aware that scientists and scholars of all kinds, psychologists, doctors, biologists, botanists, physicists, chemists, authors, and churchmen of all creeds, in all parts of the world, are emerging with new and vital interpretations and data which have elevated the discipline and study of the parapsychological to the realm of the acceptable, the analysable, and the inferential. This was a considerable revelation to one so innocent.

Moreover it became vividly evident that their broad shared aim seemed to be to contribute to the understanding of man, his nature, his universe, and perhaps even to his ultimate purpose.

By means of the intuitive and parapsychological a whole new vista of man and his past stands ready to be grasped. As an anthropologist and as an archaeologist trained in these fields, it makes sense to me to seize the opportunity to pursue and study the data thus provided. This should take first priority.

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# The "Rim" Aura: an Optical Illusion; a Genuine but Non-psychic perception

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*ABSTRACT: Experiments show that under appropriate lighting conditions almost any person can, with a minimum of training, "see" a narrow "aura" around the head of any other person, or around his own head if viewed in a mirror.*

*It is argued that this is not a paranormal or psychic perception but an optical illusion. An explanation is offered.*

*Judgement is reserved as to the status of the large auras seen by some aura-viewers.*

## 1. Introduction

(Sections 1 through 4 are by A.R.G.O. Section 5 is by G.A.V.M.)

In a previous paper (Owen, 1972), I reported a preliminary study which listed the descriptions which various subjects gave of one person's "aura" (that of the "target person" whose code name is T41). It was difficult to reduce the observations to any kind of order and no conclusions were reached, the greater part of the paper mentioned being devoted to an account of a somewhat different series of observations relating to the manifestation of a kind of force-field about an angle-iron. However in the course of the experiments I noticed that a number of people when viewing target persons in a subdued light definitely saw a kind of narrow halo around the heads (and often around the necks, shoulders, and arms), of the targets. This halo was a kind of misty band, usually about an inch wide, basically grey or colourless, sometimes showing a mild degree of luminosity. Some of the subjects who saw this band or halo had attended lectures elsewhere on aura-viewing and they called the band a "rim" or "prana" aura.

The Sanskrit word *prana*, which means "breath" is interpreted by Theosophists and others as "life-energy". According to Theosophical doctrine a person's physical body is interpenetrated by a more subtle body called the "etheric double" which is supposed to be the vehicle for the prana-energy which sustains life. Judging by Powell's book (1925), theosophists appear to accept the existence of a system of human auras essentially the same as that claimed by Kilner (1911). Kilner believed that the etheric double was very slightly larger than the physical body so that it protruded a little and could be seen as a dark band between one sixteenth and one eighth of an inch wide, which follows the contour of the body. What Kilner called the "true aura" is seen outside the etheric double. According to Kilner

the true aura consists of two distinct regions. The "inner aura" is the one next to the etheric double and, said Kilner, is of a uniform width of about three inches. The "outer aura" commences at the edge of the inner aura and is several inches wide.

Although my subjects applied the term "prana-aura" to it, clearly the "rim-aura" which they saw cannot be the etheric double. Also the "rim-aura" seemed too narrow to be identified at all reliably with Kilner's "inner aura". I therefore decided to investigate the "rim-aura" as a phenomenon on its own without attempting to correlate it with any existing doctrines or theories.

## 2. "Seeing" the "rim-aura"

In the early series of experiments I had carefully abstained from attempting to "see" any auras so that, when an opportunity for a more narrowly defined piece of research suggested itself, I might be able to address myself to it with a fresh mind uncluttered with acquired prejudices or autosuggestions. I had noticed however, that my rim-aura-viewers "saw" the "rim-aura" most distinctly when the target person was a foot or two in front of a uniform background which could be of any colour so long as it was fairly uniformly lighted. I had also noted that my subjects saw the rim-aura most distinctly when the target person had a smooth-lying head of hair rather than exuberant waves or curls, or projecting wisps of hair which tend to produce a hazy appearance around the cranium. I therefore adopted the habit of looking at the heads of people who happened to be situated appropriately for the experiment and were endowed with the right sort of hair.

My method was to look at the apex of the head, then to look beyond it, towards the wall behind the target. I did not, however, retain the wall in focus; the outline of the target's cranium was seen sharply and well-defined. However, after a very short time I would, on each occasion, "see" a band about an inch wide adjacent to the target person's hair and following the outline of the head. Sometimes it would extend round the side of the head and down the neck. Here it might have a somewhat greater width, perhaps two inches, so that it tended to "fill in" the concavity between the temple and shoulder of the target person. The appearance was fairly stable. Once it had come into view it would usually only disappear momentarily and then return. The band which is "seen" is essentially colourless but has a kind of luminosity which is surprising and hard to describe to anyone who has not yet "seen" it. After being observed for a minute or so it can become very bright indeed. The experience is quite astonishing.

The circumstances in which I "saw" the "rim-aura" were such as to suggest to me rather strongly that I was experiencing something of the same nature as an optical or visual illusion. In that case I was not seeing an actual physical or non-physical object associated with my target person's head, i.e. I was not seeing something in the ordinary sense. I have therefore used

the words "seeing" and "saw" in quotes to distinguish the experience from that of seeing an ordinary object. However, I retain the everyday word *see* because in my opinion the experience is a genuine perception in the sense that the wellknown optical illusions listed by Luckiesh (1965) and Tolansky (1964) are genuine perceptions even though they are incorrect perceptions of the physical objects present. It would be convenient to have a better word than "perception" — a term which involves philosophers of science in many serious difficulties (see Mundle, 1971). However nothing seems to be available. I therefore use the term "genuine perception" to indicate a real visual experience as opposed to a pure hallucination — an experience inexplicable in terms of visual physiology. The reader can easily satisfy himself that there can be a genuine perception which is also an incorrect perception, by considering the example of a stick partly immersed in water. It is "seen" as bent; this is a perfectly genuine perception but an incorrect one, because the stick is not actually bent.

The "seeing" of a rim-aura does not, as far as I can ascertain, appear to be listed among optical illusions nor to be mentioned in books on visual physiology such as Pirenne (1967) or Gregory (1966). Possibly it is known to ophthalmologists and to visual physiologists. If so it does not seem to have been brought to the attention of their lay brothers. If my hypothesis is correct and the phenomenon has not been noticed previously, it would seem worthy of professional study. At this stage I did not attempt to discover the basis of the rim-aura illusion. It seemed to me however, that contrast was the most important factor. This conclusion was reinforced by the fact that when I looked at fairheaded persons against a darker background a thin dark band interposed itself between the contour of the cranium and the lighter rim-aura. This phenomenon may be the explanation of Kilner's observation of the etheric double, as he observed his patients naked against a dark background. To test the hypothesis of optical illusion I chose as a target a large toy panda bear with nylon fur. The forehead and cranium are a very pure white and the ears large and black. If contrast played a part in generating the rim-aura illusion this experiment was well adapted to show it, as in fact, it did. The "rim-aura" around the black ears was about an inch wide and particularly light and luminous. However next to the pure white cranium was a narrow band of colourlessness that looked dark and grey in comparison with the lighter "rim-aura". The "rim-aura" was luminous and again about an inch wide. The dark band between it and the cranium seemed about a third of an inch in width.

The fact that an inanimate object had a rim-aura as bright or brighter than that "seen" on a human tended to confirm that, irrespective of the nature of other kinds of auras that some observers may see, the rim-aura is a simple optical effect and in no way paranormal. However there are objections to this simple argument which are entitled to consideration. One objection is of no weight. It is said that inorganic objects have auras, though

small ones; vegetables have larger ones, and animals larger auras still. But if the rim-aura is an optical effect the seeing of an aura around the periphery of an inanimate object proves nothing, as it is exactly what we would expect to happen. Another objection would argue that the panda bear being of somewhat humanoid form and being (by psychological projection as a family favourite) already endowed with a "personality" the seeing of "his" aura resulted from autosuggestion. I disposed of this possibility by observing a variety of other objects such as black square picture frames looked at in the kind of lighting conditions already described. In each case a rim-aura appeared with the same properties as the rim-aura "seen" on target persons. The third objection is slightly more troublesome. It is said that handling of an object will cause it to be contaminated by the aura-producing energy of the person who handles it. On this hypothesis the aura round an inanimate object may be a "contamination-aura". My own answer to this objection is a simple one. The rim-aura seen on the bear and the picture frames were brighter and more distinct than those on people, and constant over many repetitions of the experiment, separated by intervals of time during which there was minimum handling of the objects. This finding is a strong argument against the effect being contamination-aura.

The rim-aura also agrees with the characteristics of optical illusions in that the latter are just as striking when the objects or diagrams are viewed in a mirror. I found that rim-auras, whether of myself or of another target, can be seen just as easily in a mirror as when viewed direct.

### 3. The auras of hands

Kilner believed that the aura was a real physical object — a kind of effluvia or radiation given out by the body. He thought also that it was seen by normal vision which at most differed from the sight of the average person only by a perceptivity extended slightly into the ultra-violet range. He recommended as initial training in seeing the aura that one should spread out one's hands with palms facing one and the fingers separated. The tips of corresponding fingers of the two hands were to be brought together, middle finger to middle finger, and ring finger to ring finger etc. Kilner said that if the hands are now drawn slowly apart greyish bands will be seen stretching between the tips of corresponding fingers. I verified this for myself and found the effect immediately visible and very striking. During relative motion of the two hands the bands very much resemble elastic bands made of colourless nothingness.

It seemed to me that this effect was also an optical illusion. I cannot find a precise parallel in the literature of optical illusions. However I found something relevant in a book by Taylor (1964) to which my attention was drawn by Mr. Lorne Henwood. In the section *Objective Wholeness* Taylor shows series of black circles on a white ground. I see the white areas between adjacent circles as greyer than the rest of the background. It would

seem to be a natural tendency for the eye to "fill-in". Interestingly enough I noticed, independently of Kilner, that sometimes one's attention shifts from the bands joining corresponding fingers to that one sees a cross formed by a band joining the middle finger of one hand to the ring finger of the other and *vice versa*. The two sets of bands form an unstable figure. Such figures supply a very wellknown group of optical illusions. However I found it easy to render the figure stable so that I could retain both the cross and the lateral bands in view simultaneously. I also verified two other observations of Kilner. These are: a greyish "colourlessness" surrounding the hand and filling in the angles between spread-out fingers: bands extending from the tips of the separated fingers of one hand when held in the same plane as the other hand, and pointing at the edge of the other hand at a separation of  $1\frac{1}{4}$  ins. or less.

As I believed that all of these effects were essentially optical, I tested the matter by making two fairly accurate pairs of cardboard profiles to imitate the outline of my hands. One pair was of white and the other of grey cardboard. All the above observations made with real hands were immediately verified with the cardboard hands, white and grey. Ellison (1962) gives a brief opinion on the origin of the bands seen between corresponding fingers. Like myself, he regards them as an optical effect. He says they are due to "random movements of the eyes, fatigue, and to persistence of vision". (Compare Dr. Morgan's comments in section 5). To verify that the bands between cardboard hands are not due to contamination-aura it is sufficient to imitate fingers with pencils or pens obtained in a box from a stationer and so relatively free from human handling.

#### 4. Tests with several subjects

##### 4.1. Hands: real and cardboard

On two occasions I invited groups of subjects to hold out their hands with palms facing them and tips of corresponding fingers touching. I asked them to draw the two hands apart slowly and look into the space between the hands and afterwards write down silently what, if anything, they had seen. My purpose was to direct their attention to the area between the two hands while minimizing suggestion as to what they should see. Fortunately the subjects were quite ignorant of what had been written on the topic by Kilner and by Bagnall (1970). To my surprise several of the subjects first noted the aura around the contour of the hands before "seeing" the bands. This tended to reassure me that I had not overly led them by suggestion. The experiment was repeated with cardboard hands. The table summarizes the results. A plus (+) indicates that the subject saw the aura or bands, a blank indicates that they made no report of seeing the object in question (aura or bands), while a minus (-) indicates that either spontaneously or when so asked at the end of the experiment the subject made a positive statement that he had not seen the object.

Number of subjects	Real hands		Cardboard hands	
	Aura	Bands	Aura	Bands
4	+	+	+	—
1	+	+	—	—
2		+	+	+
1		+	+	—
1		+		+
1		—		—

It will be seen that very few subjects saw bands between the fingers of the cardboard hands. I can only record my own conviction that they would have seen them if I had directed their attention more emphatically. If so, I do not think it would have been a response to suggestion only but a genuine perception. However, I abstained from so doing in order to avoid acquiring data which might be suspected of originating as the result of imposed suggestion. The fact that auras were seen spontaneously around the cardboard hands is, to my mind, convincing proof that the auras seen by the subjects around the real hands are a visual illusion.

#### 4.2. Comparison between panda bear and human targets

A total of 24 subjects participated in experiments designed to compare what they saw when looking at the panda bear and when looking at human targets. The subjects were present in groups at four different meetings. As it was important to avoid them influencing one another by suggestion they were instructed not to say aloud what they might see. Instead they were each given a sheet of paper on which was printed the outline of a human figure and asked to sketch the shape of any appearance they might see, and annotate it with any additional description they might wish to add. Of the 24 subjects, 21 were unacquainted with any "lore" or doctrines concerning auras, and 18 of them had never had the experience (spontaneously or after instruction) of "seeing" anything in the nature of an aura. Three of the 21 (the subject) where code names T19, T66, and T77) were equally innocent of knowledge of theories of the aura, but each of them had on rare occasions "seen" appearances around or over other people's heads. They did not claim that these appearances were auras; they merely enquired of me whether they could have been auras. I replied that this was one of the things we hoped to find out. Besides the 21 subjects already mentioned was a subject T35 who has a genuine claim to be a person with psi abilities. She also regards herself as an aura-viewer. Another subject U74 (a friend and to some extent a pupil of T35) also claimed regularly to see auras. The remaining subject U64 made no claim to psychic talent though it appeared that she has had several spontaneous experiences that she thought were psychic ones. She was however greatly interested in the fact that as a general rule she saw coloured surrounds to most objects, including both inanimate ones such as picture frames and animate ones such as animals, and humans.



So far as could be ascertained she did not seem to be acquainted with any of the various doctrines concerning auras.

At each of the four experimental sessions the subjects looked once at the bear and once at each of one or more target persons. The order of presentation of the targets including the bear was randomized. The targets were viewed as nearly as possible in the same position and lighting conditions. When the bear was used it was arranged so that the top of its head was at the average level occupied by the craniums of the target persons. I described my method for "seeing" auras and said that some observers seemed able to see auras around both animate and inanimate objects. I gave no indication of what the subjects might expect to see. Any attempt at rendering the methodology more formal still would have made the whole investigation extremely tedious and would, in my opinion, have yielded very little gain in experimental rigour.

In relation to what they "saw" the 24 subjects fall into seven fairly distinguishable groups as follows.

*Group 1:* One subject (U73) saw nothing on the bear or on target persons. This was the subject who previously had seen nothing on real or cardboard hands. The oldest of the subjects, he may be suspected of being too set in his habits of visual perception to adapt readily to a new situation.

*Group 2:* One subject (T73) saw a rim-aura on target persons but nothing on the bear. It seemed as if she failed to give the bear a fair chance. She said; "There's nothing on the bear; that's dead", and, so far as I could tell, did not really "look" at it.

*Group 3:* Four subjects saw a luminous aura (which appeared from their descriptions to be essentially the same as I saw) around the black ears of the bear, but nothing along its white cranium. On target persons they saw a rim-aura very similar to that seen by myself.

*Group 4:* Eleven subjects; exactly as Group 3 except that they also saw dark rim-auras along the bear's white cranium.

*Group 5:* Four subjects (U63, T19, T66, T77); Three of these saw a rim-aura on both the black and white parts of the bear, but one saw it only on the black ears. All four saw the rim-aura on target persons. These subjects differ from Groups 3 and 4 only in that each saw an aura, larger and more elaborate than the rim-aura and coloured, on at least one of the target persons. (A different person for each subject). These four subjects are all critical and unimpressionable persons.

*Group 6:* Two subjects (U64 and U74). On the bear these subjects saw only a rim-aura, but on all the target persons that they looked at they "saw" large auras with elaborate patterns of colour. As mentioned above U74 can be regarded as T35's pupil and for all we know to the contrary may have

come to the experiment thoroughly indoctrinated in "lore" concerning auras, so that what he "saw" might be the product of autosuggestion. The fact that he saw only a rim-aura on the bear could be ascribed to the cancelling of an auto-suggestive tendency by intelligence. It is interesting however that he described it in his written notes as an "energy-field".

U64 has been mentioned above and I have no positive evidence to support an assumption that her observations result from autosuggestion.

*Group 7:* One subject (T35 mentioned above) "saw" equally large auras, bigger than the rim aura, and in very variegated colour patterns, over and around the heads and torsos of all targets including the bear. This result, as it stands, cannot at this stage be exempted from the charge of autosuggestion though clearly it would be improper to assert that it derives entirely from autosuggestion.

### 4.3 The experimenter's conclusions

I think that my results admit of the following firm conclusion. The majority of people are capable of seeing the rim-aura in a form very similar to my own experience of it. In appropriate lighting this can be achieved without autosuggestion by following the very simple method described in Section 3 above. This "rim-aura" appertains equally to inanimate and animate objects. It is therefore, in my opinion, a normal human perception of the status of a visual illusion. It may be asked why the rim-aura is not common knowledge. This is because of the necessary lighting conditions and the slight amount of "drill" that has to be gone through to "see" it. Mrs. Adrienne Henwood performed a very simple experiment which is highly instructive. She told us to look at a lighted candle and see what we could "see". The whole group independently saw a magnificent "aura" of light of about two foot radius surrounding the flame. This is not usually "seen" unless we are looking for what can be "seen". The same holds for the "rim-auras".

If, as I believe, the "rim-aura" is a genuine perception, though technically speaking an incorrect one, it implies that when people tell us they can see auras, we are not at liberty to assume that what they see is the product of imagination or autosuggestion, because they may have been seeing the "rim-aura" and therefore having an objective experience.

The moral of this is that when people describe the experience of seeing auras larger than the rim aura and more colourful we are not at liberty to assume without other evidence or experiments that *their* experience is pure imagination or auto-suggestion. The subject of aura perception has therefore to be kept open as an important piece of research which is by no means trivial either in its implications or with regard to the methods for investigating it, which are indeed, likely to be very difficult. My results however indicate very clearly that this research should concern itself only with "sightings" of what we may call "mega-auras", appearances larger and more

colourful than the rim-aura which I have shown to be a normal human perception.

As a tentative finding I conclude from the present investigation that a proportion of people (a) as exemplified by my Group 5, (b) by my subject U64, *do*, either regularly or intermittently, "see" mega-auras, and (probably) do not see them purely in consequence of autosuggestion. Possible causes of mega-aura perception have been listed by Tart (1972). These are: (a) anomalies of the visual apparatus (i.e. eyes, optic nerves, brain, etc). (Incidentally I would like to differ from Dr. Tart's use of term *projection* in reference to these cases, as it is already used in psychology with a more circumscribed meaning); (b) a dramatization of intuitions which the aura-viewer receives concerning the personality of the target person. (I take the word *dramatization* from Professor Ellison's paper). In principle there are two possible sources for such intuitions — ordinary psychological perception and "psychic" impressions. Cases in which the latter is true would approximate to "clairvoyant" perception of the aura which is sometimes claimed to happen.

In my experiments I gained the impression that the wearing of spectacles was quite irrelevant to perception of the rim-aura. Among mega-aura-viewers particular interest attached to the case of the subject U64. She does not wear spectacles and as far as she is aware here eyes are perfectly normal. At my request Professor John A. Parker of the Department of Ophthalmology of the University of Toronto kindly gave her a very thorough ophthalmological examination. He reported that so far as he could ascertain her visual apparatus and its functioning were entirely free of any defect or abnormality. This intriguing result suggests that the problem of why some people see mega-auras is a subtle one whose definitive elucidation is likely to be a lengthy and difficult enterprise.

Perception of rim-auras, however, clearly lies within the domain of normal visual physiology. Only after completing the experiments did I show my account of them to Dr. Morgan. In the next section he offers an explanation in terms of recently discovered properties of the retina and the visual cortex of the brain.

Almost all of the experimental subjects saw the rim-aura on an inanimate object. We think this proves decisively that the rim-aura is an ordinary visual phenomenon with no implications for "psychic perception" or the existence of strange "energies". However, the fact that two subjects who were mega-aura-viewers saw no mega-aura on the panda bear is of itself insufficient to prove that in other conditions they (or other viewers) could not see mega-auras on inanimate targets. This is because a natural tendency to perceive a mega-aura around any contour *might* have been suppressed by a counter autosuggestion. It still lies therefore within the realm of conceivable possibilities that the mega-aura phenomenon has a purely physiological explanation (though I do not claim that this *is* so). In this connection we

might note that in addition to glaucoma (as mentioned by Dr. Morgan) there exist at least two conditions (both physiologically determined) in which coloured patterns are added to what is objectively visible. Pressure on the eyeball generates rings and other iridescent patterns. Coloured fringes are generated around the images of objects when the percipient ingests substances such as LSD, mescaline, or even marijuana products (Tart, 1972). Possibly therefore the mega-aura has a physiological cause.

##### 5. An explanation of the rim-aura (by G.A.V.M.)

There is no such thing as a simple sensation; the eye does not act as a camera merely transmitting a message to the brain. The retina of the eye and the visual cortex of the brain together form a complex system for interpreting visual stimuli.

It is now known (Pedler, 1970) that the retina is a complex arrangement of elements comprising the visually sensitive cells, the nerves or ganglia leading from them, as well as a whole network of nerve tissue. In fact there is not just one connection of a nerve cell with one light-sensitive element but a rich interconnection with nerves which (curiously enough) lie on the outside surface of the retina, rather than below the surface. This network acts as a switchboard connecting together a number of visual elements in such a way that if one light-sensitive cell is stimulated there will be an overflow to other elements sometimes after a brief time-lag. The network is so arranged as to safeguard against failure by any one element. If a light-sensitive cell should respond in the absence of stimulation the network compensates by, as it were, "taking a vote" of other elements and thus checks that there is, in fact, no stimulus. Similarly, if an element fails to respond to an actual stimulus a response will nonetheless occur by majority vote of the cells in the vicinity.

The important point is that the retina is not just something which passively receives a mosaic of sensation. It initiates the work of organizing and interpreting visual stimulation in terms of lines, contours and movement. The visual cortex of the brain continues this analysis: it does not passively receive a mosaic as a film in a camera does but relates stimuli to one another, classifies them, and begins to interpret visual experiences in terms of lines, movement, etc. The amount of duplication and "redundancy" in both cortex and retina ensures that the message of the visual stimulus is not lost or rendered confused but is kept stable. These facts help to explain how we have clear and apparently stationary perceptions even though the eye is in motion relative to the objects it is viewing.

Another important property of the eye is its habit of making tiny movements so as to "scan" whatever it is looking at. Because of this scanning the image of something seen is moving to and fro across a narrow band of sensitive elements. The elements at the edge or contour of the image thus receive stimulation of fluctuating intensity — oscillating between high and

low. This fluctuation seems to be important for effective vision; if the image is kept fixed on one area of the retina, the percipient will soon report that it fades or breaks into fragments. The more organized and meaningful the shape of the object (e.g. a square), the more likely it is, however, that the image will resist dissolution into meaningful fragments. It is clear, from this kind of evidence, that the eye has a dynamic approach to the image, and that it is quite wrong to think of the image of an edge or a contour as being a fixed, stationary, or simple kind of thing.

What is significant for us is the human eye's capacity to recognize and interpret *contour*, i.e. an edge, line, or enclosure by a boundary which is much darker (or lighter) than the surrounding areas. This is a quite primitive capacity and is found even in very young children. Electrical recordings from cells in the retina show sharp jumps in voltage in those cells which are on the boundary of the image, i.e. the edge crosses them. More precisely the edge will be continually moving over a band of cells which are however, connected with more distant cells which are being stimulated differently (e.g. from brighter areas of the perceived object). Probably connected with this are the "field effects" first noted by the Gestalt psychologists (Koffka, 1935; Kohler, 1947), but which do not seem to have received any physiological explanation. White areas inside a well-marked contour look darker than those outside the boundary. The total effect is one of *contrast* between two equally bright areas. This is a visual perception not under the percipient's control and it obviously does not reflect the physical reality; as Dr. Owen would say, it is a genuine but incorrect perception.

The greater the inequality in stimulation (i.e. light-dark contrast between the edge and the surrounding field), the sharper the contrast effect will be. The situation described by Dr. Owen in which a smooth-lying head of hair is viewed against a brighter background is propitious for the manifestation of this effect. On account of scanning motion by the eye the image of the contour is constantly shifting on the retina, so that elements are alternately being "switched on and off" creating high voltages in the conducting nerves and additionally getting overflow stimulation from those adjacent elements on which falls the image of the brighter background. The effect is to create a bright image in the form of a line or border persisting only momentarily but constantly renewed as the eye moves in scanning. One suspects that the perceived width of the rim-aura represents the retinal width of the band of elements triggered by the edge of the contour image and the additional width of the band brought in and out of the brighter part of the image by the eye's oscillations. Quantitatively this does not seem unreasonable. If the apparent width of the rim-aura is as much as one inch this only corresponds to at most one-hundredth part of the height of the retina if we estimate the vertical height of the total visual field as about eight feet. (If the quantitative agreement between the retinal widths of these bands and the apparent width of the rim-aura could be shown to hold with reasonable exactitude it would,

of course, be good evidence in favour of the explanation that I have offered.)

According to my present reasoning it is likely that the rim-aura as seen under the conditions described by Dr. Owen results from the normal functioning of the visual mechanism. It would be expected to take the form which is experienced, namely a bright band surrounding a dark well-defined object viewed against a distinctly brighter background. (The effect would not be so marked if the object were itself light in colour, but normally there would be enough contrast in actual light intensity between even a "white" object seen from the shadow side and a light background). The rim-aura will be fairly narrow and if the background is white it will be colourless. Optical diffraction around the edges of the object could, in principle, analyse white light into a spectrum of colour but in practice this will be confined to so narrow a band as to be imperceptible. Colour could enter when the eye is affected by certain diseases such as glaucoma in which coloured rings are seen around lights; otherwise the aura will only be coloured if the background light is itself not white. If therefore distinctly coloured auras are reported when the background is white one must postulate the operation of causes other than those which generate the rim-aura, which would seem empirically and theoretically to represent the normal or typical mode of perception. Similarly, the occurrence of a "mega-aura" whether coloured or colourless, is a phenomenon requiring explanation in terms of an atypical mechanism distinct from and additional to that which generates the rim-aura. Whether this mechanism is "psychic", psychological, or physiological and the same in all mega-aura-viewers, remains to be seen.

The "aura" seen by normal persons between the separated fingers of a hand, i.e. between shapes with a good contour but also enclosing a limited area, would seem to relate to the fact noted by the Gestalt psychologists that areas within good contours appear darker by contrast. Contrast doubtless plays an important part in the perception of the grey bands connecting the corresponding fingers of two hands, and the associated "rubber band" effect. Persistence of vision may contribute to the "streaming effect". Dr. Owen and I agree therefore with Professor Ellison's ascription of the bands to random eye movements and persistence of vision, but think that fatigue plays no part because the perception is immediate.

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# New Horizons

Journal of the New Horizons Research Foundation

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July 1974

Vol. 1, No. 4

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## EDITORIAL

The first paper in this Journal concerns itself with a problem which has intrigued several writers in recent years, namely: the origin of the western portion of the Piri Re's map. Mr. Henwood's solution will appeal to those readers who take pleasure in seeing commonsense and historical method applied to historical enigmas.

Dowsing, i.e. the alleged human ability to detect subterranean deposits, is clearly very important, if true. As a scientific problem it remains in a curiously unsatisfactory state. On the one hand there is abundant evidence that dowsing is widely used by practical men on practical tasks; however, very few scientific experiments have ever been done on the efficacy of dowsing, and fewer still have given positive results. The pilot experiments described by Professor Harrison are to be welcomed as perhaps heralding a new period of scientific interest in dowsing which may lead in time to some definite findings.

The article on sleep follows out a train of thought suggested by the "Philip" research, and illustrates the phrase "psychological skill" by reference to "normal" skills, such as the ability to fall asleep. It is only when this ability is diminished that we realize that it can be classified as a skill and subject to a learning process.

We have printed a report on a demonstration of metal phenomena by Mr. Uri Geller which we witnessed, because many of the factors involved on that occasion appear to us to favour the conclusion that the bending and dividing of metal that occurred were paranormal. It is worth remarking that the evidence is supported, not only by visual observation and memory (both of which faculties are notoriously unreliable), but by the videotape record. Subsequent viewing of the videotape confirms our recollection that the fork and the Cambridge key were under continuous observation throughout the relevant period. Hence no elementary magician's trick of substitution or sleight-of-hand depending on deception of the eye were involved on that occasion.

It should be recalled that, as a "psychic" ability, metal-bending is a very recent arrival on the scene, not having been heard of prior to Mr. Geller's work\*. Also, as sometimes it involves physical contact with the metal, it has necessarily to be treated with considerable reserve, and it is natural and proper that, even if it is sometimes a genuine and paranormal occurrence, metal-bending should spend some time "on probation" as it were, before its existence as a paranormal phenomena is accepted

\*However, see a spontaneous case reported in *Beyond Belief*, by Brian Branston (Weidenfeld and Nicolson, London, 1974).

as being scientifically validated. However, we think it right that any actual observations that are carried out should be published, irrespective of their tendency, so long as they are carefully made and honestly reported. We would like to stress the importance of video-recording. Many articles that have recently been published in this controversy are totally valueless because they rest on the unsupported word of a single person.

The work by Dr. D. H. Lloyd reported in *New Horizons*, (Vol. 1, No. 2, 1973), which concerned the electroencephalographic response of the brain to a thought in the mind of another person has, like the Philip research, excited a great deal of interest, and we have received enquiries about it from many parts of the world. A further series of experiments has, in fact, been conducted by Dr. Lloyd and his co-workers, and has confirmed the results of the pilot series. A full report will be published in the next Journal. Meanwhile any serious enquiries from those wishing to engage in this type of research will be answered on individual request.

Readers interested in the Lloyd research will however, also be interested in the paper by Dr. J. L. Whitton. This reports on some pilot experiments which suggest that when a reputedly "psychic" person is attempting a paranormal operation, (e.g. metal-bending; viewing an "aura", or going "out of the body"), then his EEG contains an exceptional amount both of Delta and Theta rhythms. Also, the relative amounts of Delta, Theta and Alpha frequencies are such as to confer a characteristic and very recognizable shape on the EEG frequency spectrum, i.e. it takes the form which Dr. Whitton has called a "ramp function". At this stage, of course, we do not attempt to interpret this result. The relationship between the paranormal occurrence (real or hoped for) and the "ramp function" type of EEG may, for all we know to the contrary, be a very direct one, on the other hand, it may merely refer to a particular state of consciousness. None the less the result promises to lead to a new field of research whose interest may well extend beyond the merely parapsychological into more general realms of neurophysiological psychology.

Two of the subjects in the "ramp function" experiment (Dr. Alex Tanous, and Mr. Matthew Manning) were participants in the conference on psychokinesis held at New Horizons in June and which was made possible through the kind sponsorship of Mr. William McQuestion. The proceedings of the Conference will be published in due course. A preliminary report on Matthew Manning's physical and metal-bending phenomena is included in this Journal.

# An Explanation of the Piri Re's Map

L. S. HENWOOD

**ABSTRACT:** *Features of the celebrated Piri Re's map are considered in relation to the entire history of European and Arab map-making. It is shown that the Piri Re's map contains nothing which is inexplicable in terms of geographic knowledge available in 1513, and that its peculiarities correspond well with the conventions and practices current among map-makers at that time. There seems to be no cogent evidence that Piri Re's used any very ancient map of high accuracy, or that his map depicts a part of the Antarctic coastline.*

In the last few years there has been much speculation and discussion regarding the map of Piri Re's. The following is an examination of the map and its background (figure 1).

The first point to notice is the style of the map. The system of radiating lines interconnecting the "wind roses" (corresponding to the modern "compass roses") is characteristic of the old sea-charts, known as "portolans" or "portolanos". These charts were usually based on a square grid projection with all degrees of latitude and longitude being equal. Sometimes a rectangular grid was used but the length of the respective degree remained constant. Figure 2 is an example of a modern portolan.

The earliest known portolan chart was made about 1280 A.D. This, the "Pisan chart" and the other early examples, appear to have been created by the captains and admirals of the Genoese Fleet during the second half of the 13th Century. It is relevant to note that the magnetic compass had reached Europe by 1200 A.D. It is first mentioned by Alexander Neckham (*De Utensilibus*) in 1187, at which time it is described as a needle stuck through a reed floating in a bowl. The lubber line, graduated circle, and adjustable sights are mentioned by Petrus Peregrinus de Maricourt (*Epistola de Magnete*) in 1269. The lubber line is a line on the face of the compass housing, which remains in line with the keel at all times, for an accurate reading of the vessel's heading. The graduated circle at that time was marked off in 32 divisions, corresponding to the radiating lines on the portolan chart. These are the familiar "North North-east", "South Half West" style of division.

Since seamen are in more danger from the topography than are land travellers, sea-charts must be as accurate as possible. Changes in delineation are only introduced if you have more accurate information (or think you have). The Pisan chart is not very good by today's standards. A

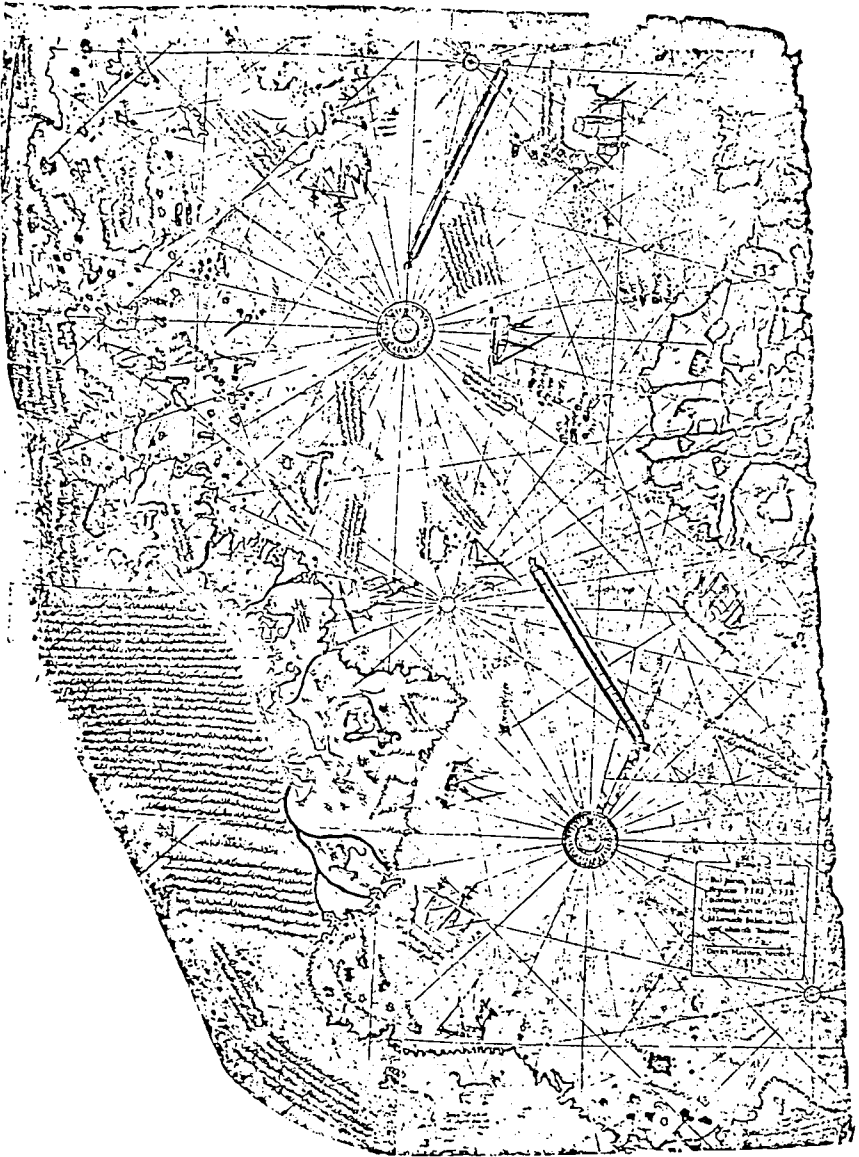


Figure 1. The Piri Re'is map of 1513.

reasonably accurate chart was not achieved until about 1300 A.D. This is generally known as the "normal portolan".

From then until as late as 1620 there was little modification in the outlines, but it must be realized that real accuracy was only obtained for the Mediterranean area. The Atlantic coasts were fairly crude and the Black and Red seas were not very much better. It must also be realized

that this accuracy referred to is only relative, the scholars' maps in use at this time can best be described as "primitive" (e.g. figure 3), whereas our maps of today are much superior to the portolanos.

Piri Re'is was a high-ranking officer in the Turkish Navy, (Re'is is a title, not a surname), and the map was made for presentation to Sultan Selim (the Grim). Bear in mind that by 1518 the Turks were masters

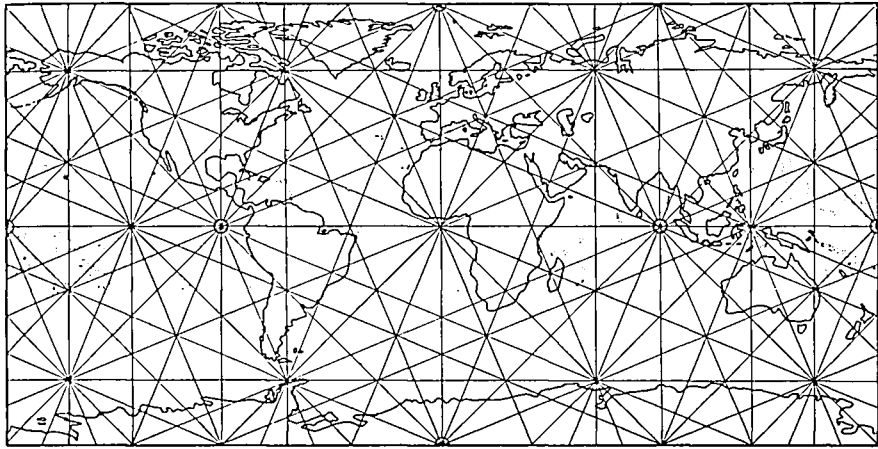


Figure 2. The Somerville-Henwood portolano.

of the Mediterranean and had very nearly destroyed the Spanish fleets. The map is dated 1513 and would have been composed at a time when the Turkish power was rising.

Erastosthenes had used the meridian of Alexandria as his "prime" or zero meridian and considered Constantinople to be on the same line. Consequently we should not be surprised if Piri Re'is did the same, and Cairo is quite close to this line. However we cannot compare the Piri Re'is fragment with a polar projection based on Cairo, since Piri has not drawn all of South America. A close look at the map shows that, although the "Andes" have been shown, there is virtually no western coastline given. The main notation of the map is placed on the body of South America. Evidently he believed the continent to stretch far to the westward or he would have made some attempt to show a coastline.

There was a conventional method of depicting an unexplored coastline when one did not care to guess at it, although guessing seems to have been the preferred method. The Ptolemy maps are a good example of this (figure 4) and I would draw your attention particularly to the coastline shown along the south of the Indian Ocean. If Piri had any idea of the western coast, he would undoubtedly have "faked" it in. These were the newly discovered regions of the world and the Sultan would most certainly want to be fully informed about them.



One feature of the map cannot be ignored. The principal notation of the map (referred to above) states that the map was constructed from about twenty charts and world maps, and from maps drawn by four Portuguese, and that the western portion (i.e. figure 1, which is the only



Figure 3. From the world map of Leardo (Venice, 1453).

existing piece, and is only one corner of the original map) was drawn from a map drawn by Columbus. "The coasts and islands on this map are taken from Colombo's map".

If the coastline shown at the bottom of the map is Antarctica, as some writers have claimed, then roughly 3,000 miles of South American coastline have been omitted, and the coast of Antarctica moved about 45° too far north. Does it match Antarctica? Compare with figure 2. I am suggesting that this southern coastline has been placed here as a result of the one shown in Ptolemy. My thought is that, as knowledge of the true extent of the ocean was discovered, this line was simply pushed further and further south. The actual contours of the coast may actually have come from a map in Piri's possession. The contours are a bad match

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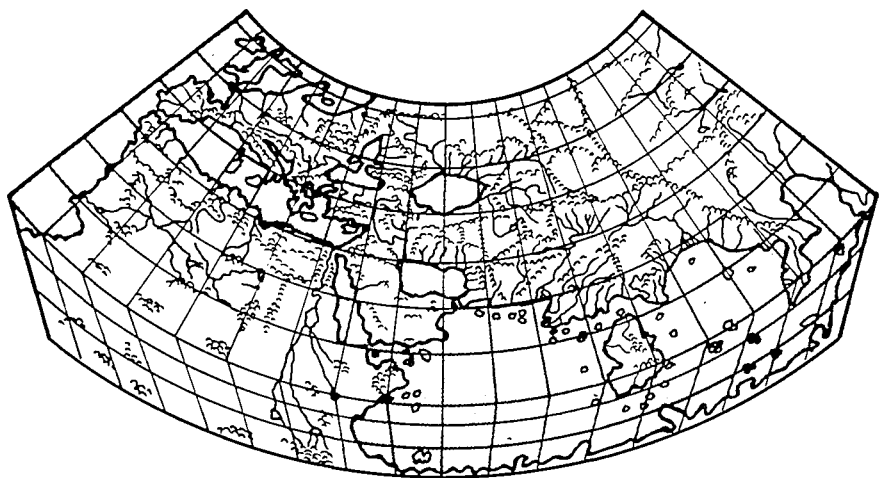


Figure 4. The world map of Ptolemy (ca. 160 A.D.).

for Antarctica, but reasonably close to those of southern S. America. Owing to the radial nature of the lines on portolan charts and the patchwork nature of Piri Re'is map it is quite possible that, in composing the map, he has confused one line with another, and so mis-aligned the coast. If we turn that portion of the coast through exactly  $5/16$ ths of a circle,

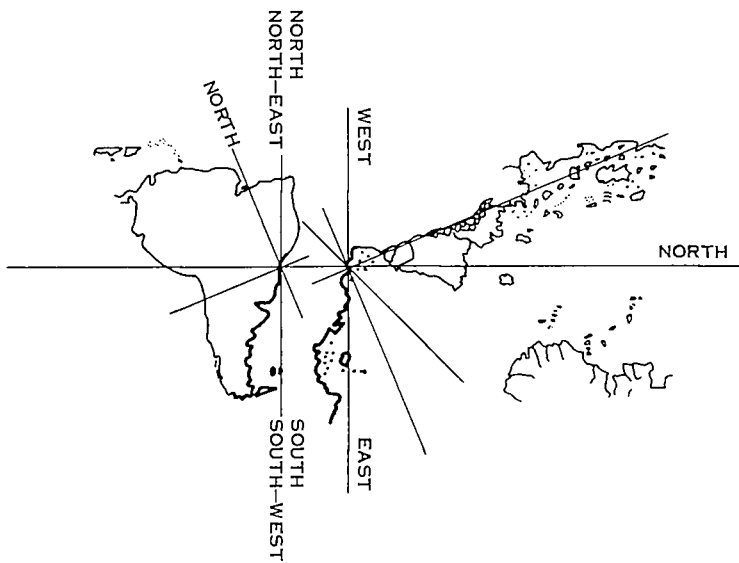


Figure 5. Southern S. America and the "Antarctica" portion of the Piri Re'is map.

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and compare it with the real outline, on the same scale, they are remarkably close (figure 5). The Falkland Islands have a counterpart on the Piri Re's map; one large island and a number of smaller ones.

The idea of a spherical earth makes its first appearance in about the 4th century B.C. Pythagoras held that the earth must be a sphere because the sphere is the most perfect geometrical shape. Aristotle based his reasoning on the curved shadow thrown by the earth during a lunar eclipse, and the fact that different stars were overhead at different north-south locations.

Eratosthenes (276-196 B.C.) knowing that a certain gnomon in Assuan cast no shadow on midsummer's day, measured the sun's elevation at Alexandria on that day and found it to be  $7^{\circ}12'$  or  $1/50$ th of a circle. Considering that Assuan was  $1/50$ th of the earth's circumference from Alexandria, he multiplied that measure by 50 and arrived at a figure which was only about 14% small. This is quite remarkable, in that Assuan is not directly south of Alexandria, the distance was measured inaccurately, Assuan is not exactly on the tropic of cancer, and he seems to have measured the angle incorrectly. However the errors largely compensated one another. Fortunately, Poseidonius recalculated the circumference about 100 years later, and it is the latter figure which Ptolemy used. It was small by about 25%. If Ptolemy had used Eratosthenes' figure, Christopher Columbus would never have attempted to cross such a large ocean. Being unaware of the existence of the Americas, he would have known that his supplies of food and water would be exhausted before he could reach the (East) Indies. He was lucky.

The globe is first known to have been used for a world map in the 1st century B.C., and on this spherical world map the land areas were shown divided into four roughly equal areas, separated by water. The influence of the astronauts again? Hardly! The maker of the map would have had no hesitation in ascribing his map to the gods, but he did not do so. He gives a philosophical discourse on how he *reasons* that the world must be formed in this manner. We know today that the continents are not equally distributed, and that (because of continental drift) they are more equally distributed today than they ever were in the past. Our Greek philosopher had a great theory going there, and his map may some day be close to being right. The point, however, is that "the antipodes", as he called one of his masses, kept reappearing on various maps and charts through the centuries.

Claudius Ptolemy of Alexandria wrote his *Geographica* in about 160 A.D. The first volume discussed theoretical considerations, including globe construction and map projection, and the eighth volume discusses principles of cartography, the mathematics of cartography, projections

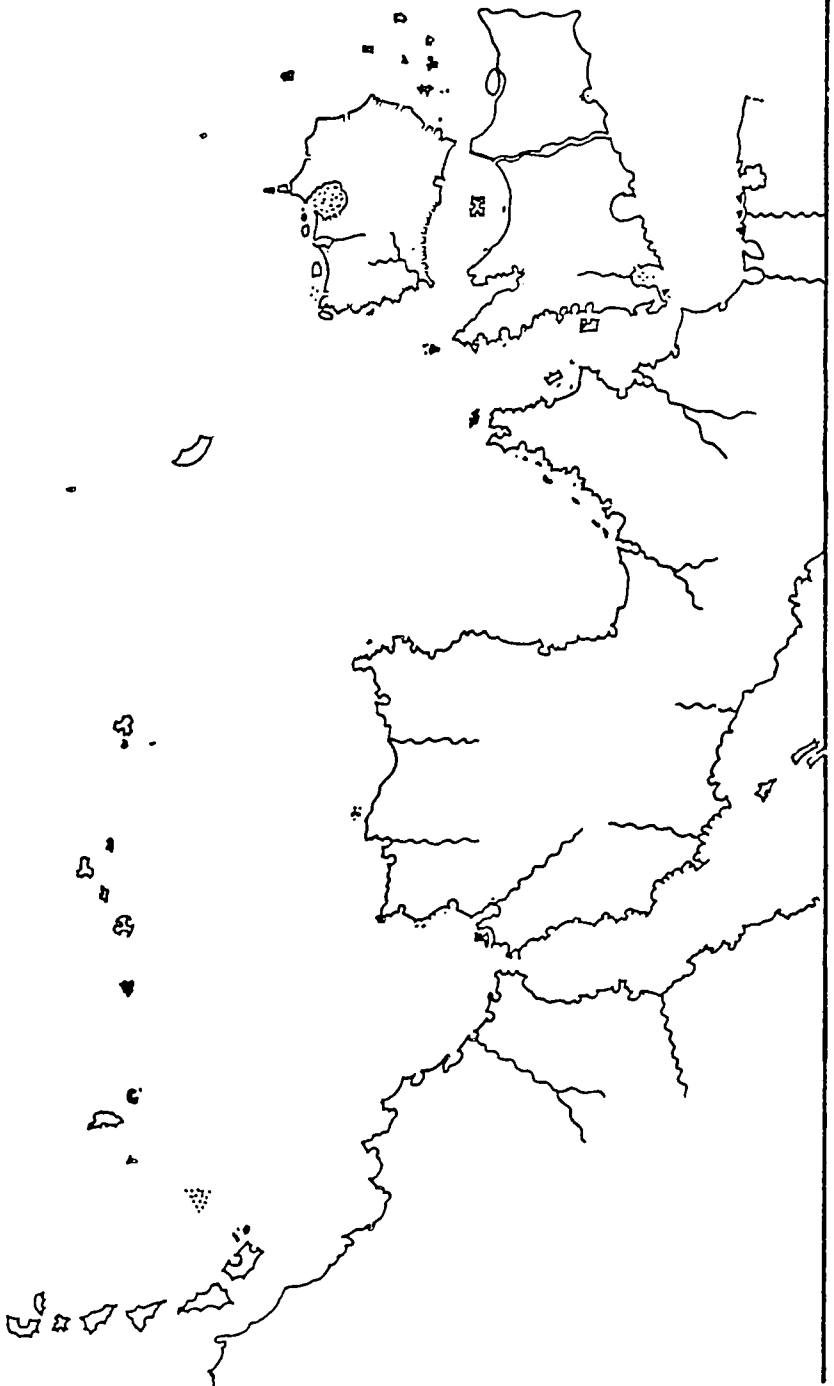


Figure 6. From the Benicasa portolan of 1468.

and methods of astronomical observations. During the Dark Ages this work was preserved by the Muslims and re-discovered by Europe during the Crusades. Around 1400 a Byzantine manuscript of Ptolemy was discovered in a library in Constantinople, brought to Florence by Palla Strozzi, translated into Latin, and published. The accompanying maps show a spherical earth in maps which are conical projections. In 1492, the same year in which Columbus set sail, Martin Behaim completed a globe map of the world, which had been commissioned by the city fathers of Nuremburg. This globe, still on display in Nuremburg, shows the geography of Ptolemy, with additions and corrections based on the discoveries of the Portuguese, chiefly around Africa. Behaim had worked and sailed with these explorers based at the Academy established by Prince Henry the Navigator. One of the standard texts of the Portuguese navigators during this period was *Tractatus de Sphaera* by Sacrobosco (John Halifax of Holywood), published about 1300. Derived entirely from earlier writers, it deals with matters of geography, astronomy, etc. treating the earth as a sphere.

The assertion that high-altitude photography would be necessary for accurate maps is, of course, ridiculous. Accurate maps were being produced in the 19th century before photography of any kind had been developed sufficiently to be of any practical use. High-altitude photography has generally confirmed the shapes and dimensions established by traditional methods of surveying, which are principally exercises in applied trigonometry. One can see from the Benincasa chart of 1468 (figure 6) how well these methods had worked in producing a reasonable picture of the coasts of Spain, North Africa, and France. The South coast of Britain is not so good, but still recognizable. The rest of the British Isles is mostly imaginary (note the separation of England and Scotland into two islands). However there is room for improvement in all areas of the chart, which would not be the case of Messer Benincasa had been working from high altitude photographs. The Piri Re'is map is no better in this region, the only area which appears on both. Therefore I feel that there is no reason to attribute the origin of Piri Re'is map to either space-men (as in the case of von Daniken) or to "Ancient Sea Kings" (as Hapgood, 1966).

Of course, having been schooled in a culture which teaches history from a strictly W. European and Christian bias, we have been given the impression that "we" at all times have been the custodians of all knowledge while the rest of the world lived in ignorance. This is nonsense, and is probably at the root of von Daniken's assumptions that if somebody seems to know something that "we" didn't tell them, then they must have gotten it from outer space, since "they" could not possibly know anything independently of us. At times he seems to go even further and suggest

that *all of our knowledge* came from outer space, and that *Homo sapiens* has really produced nothing of his own. What he is, in effect, saying is that man is too stupid to think over and develop, for example, the techniques of moving a stone from point A to point B. Most of us are so overawed by the wonder of modern technology that we have come to believe that the stone-age savage is backward mentally as well as culturally. In fact, however, he is quite likely to be very intelligent, as his environment is much more demanding. Not having welfare to fall back on, and an elaborate legal system to protect him from his more unscrupulous neighbours, he must keep his wits about him in order to survive at all.

One of the principal reasons for our technological advances is not superior intelligence but inter-group communications. Rome made great strides by establishing regular communications with all of the communities around the Mediterranean sea, most of those about the Black sea, and some of those in the Atlantic, and less regular but definite communications with places as far away as China. Roman vessels put in at Indian ports with some regularity. When Rome fell, these contacts were largely lost; we went into a decline which only really started to reverse when we established communications with the Muslim world. In the interval the Muslims had preserved the writings of the Greeks, picked up the numerical system of the Hindus (which we call Arabic numerals because we got them from the Arabs), and the art and architecture of Greece and Persia. In the late Middle Ages Arabic was considered the key to knowledge, and scholars flocked to the Muslim universities of Spain and Sicily.

Dialogue between the Universities and the seafaring community was limited, at best. It is conceivable that the Grand Banks have been visited by fishermen from Europe for centuries before the voyages of Columbus. The fishermen would have no occasion to speak to the scholars about this (or any other subject), and the scholars would certainly not have any occasion to ask ignorant, unlettered fishermen about anything except, perhaps, the way to the next village.

Chartmakers did not do the bulk of their work for the University people but for the seafaring segment of the community. Their principal customers were the sea captains, whose lives very often depended upon the accuracy of the charts. In turn, the captains were the principal source of information for the chartmakers, whereas the principal source of geographical knowledge for the scholars was the library. When a captain arrived home after a voyage into lesser known waters, he was wined and dined by the first chartmaker who could grab him. He was pumped for information and, if possible, persuaded to part with his logbooks for study. In this way, the charts would be expanded and made more accurate. It was charts of this kind which Piri Re'is incorporated in the composite map which bears his name and of which he was so proud.

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New Horizons Research Foundation.

8 May, 1974

# Detection of Graves and Underground Objects by Dowsing

W. HARRISON, S.B., S.M., Ph.D.

1974  
*ABSTRACT: Some people are able to detect graves, buried water mains, sewers, and underground electrical cables by walking over them while holding L-shaped rods of metal, plastic, or even wood. Experiments indicate that involuntary muscular activity is responsible for the rod movements but suggest that ideomotor action is not the probable explanation. Rod motions are probably not due to clairvoyant forces but to as yet undocumented effects of weak magnetic gradients on human cells. A series of careful experiments is indicated.*

On the evening of September 5, 1973, four faculty members of the University of Toronto drove with one of their students to a cemetery near Tiverton, Ontario. The student, Mr. S. Feist, had worked in Streetsville as a gravedigger the previous summer. He claimed that he had learned to detect unmarked burial sites from an elderly gravedigger. The detection technique was a form of dowsing. Two pieces of coat-hanger wire were bent into identical L-shaped rods. Each rod had a short part about 13 cm and a long part about 56 cm long. The short parts were inserted into the holes of wooden spools that were long enough to serve as handles. When the wooden handles were held vertically, the long parts of the rods were free to swing in the horizontal plane. Mr. Feist claimed that if a person were to hold the rods so they pointed directly in front of him, and if he were to walk over a grave perpendicular to its long axis, the rods would swing inward and cross. Upon returning to undisturbed ground, the rods would quickly uncross and return to their straight-forward position.

Mr. Feist demonstrated his ability to locate both marked and unmarked graves that evening. The four academics, none of whom was *a priori* a "believer", then tried their hands at grave detection. One of the operators exhibited a very high ability, one a quite low ability, and two displayed high but "modified" abilities. Rod motions associated with these last-mentioned operators displayed a curious property. While crossing a grave perpendicular to its long axis, only one rod would swing inward to the expected position (nearly perpendicular to the outstretched arms). The operator with "high" ability said that the rods would swing inward even when a conscious although weak effort was made to prevent the motion.



He judged the strength of the motion to be the same regardless of whether traversing fresh or old graves. It was noted also that the strongest response occurred when his *body*, not the apparatus, was directly over a grave.

The grave dowsing was carried out in a casual way on a spur-of-the-moment basis. Operators were all academics with a considerable degree of objectivity toward natural and human phenomena. The fact that three of the operators, and also Mr. Feist, displayed consistent results is in accord with data (1) on successful dowzers. Such verification suggests that a physical agent exists which caused the swinging of the rods above the graves.

Rocard's work (1) on the "dowser reflex" at first seems applicable. Rocard found that a dowser walking with uniform speed at his normal rate and with his rod in position has his "reflex" started when he moves through a region where the earth's magnetic field is not entirely uniform and an anomaly is present. By characterizing the anomaly as a "gradient" (the variation of the field with respect to distance) and by experimenting with dowzers walking through known magnetic fields, Rocard arrived at the following conclusions:

- (a) a gradient of 0.3 to 0.5 mOe/m can be detected, but with a time lag of the order of 1 sec,
- (b) if the gradient falls below 0.1 mOe/m the detection is wholly inaccurate.

Rocard's studies indicated that a dowser cannot detect still water in a pond or running water in a river but that a dowser can detect water filtering through porous media and water in permeable layers adjacent to beds of clay "since in these two cases water produces electric currents through electrofiltration potential and concentration batteries. If the medium is sufficiently conducting, and the current in the soil sufficiently high, then there exists at the surface of the soil a small magnetic anomaly" (1, p. 281).

Rocard (1, p. 282) also noted that a dowser can be made to err in cases where the magnetism in the ground is not due to water. Among these, objects encased in iron may give spurious "water" signals. Of most relevance to detection of graves, however, is the following:

"ordinary humus contains a non-magnetic iron oxide. But if it has been reduced in certain spots by organic decomposition or fire, then we have a magnetic variation . . . one can often detect tombs, either because of this mechanism or because of the deformation of a system of electric currents" (1, p. 283).

If it is granted that it is possible to deform a "system of electrical currents" and to thus develop a magnetic gradient by digging a grave, it then becomes important to explain the inward and outward swinging of

the rods as the operator moves through the gradient above the grave. In the case of dowsing, it is assumed that some sort of involuntary reflex action is responsible (1, p. 286) for the sudden twisting of the forked stick. In conclusion to his important study, Rocard the physicist says, "Whatever it is, the curious phenomena of the dowser's reflex, inasmuch as it is caused by a small magnetic variation, obliges us to consider wholly new possibilities for magnetic action on living matter."

As a further "test" of this supposed magnetic influence I had eight additional rods made up. They ranged in composition from metals (aluminum, copper, brass, mild steel, stainless steel) to plastic and wood. The rods were fitted with handles appropriate to their varying diameters (1.5 to 9.0 mm). Then, equipped with a set of drawings that showed the buried utilities on our college grounds, I took Mr. Feist and the rods to a course which I had laid out. The course was such that when Mr. Feist walked it, his path would make right-angled intersections with:

- 1) a 10-inch diameter water main buried by 6 ft. of soil,
- 2) two closely-spaced pipes buried in a trench 8 to 11 feet deep and consisting of a 12-inch diameter water main and a storm sewer,
- 3) a plastic-covered electrical wire, buried about 2½ feet, containing 6-conductor #8 wire and a #8 ground wire, and
- 4) a small-diameter, sanitary-sewer pipe.

Mr. Feist was unaware of the location of any of these buried objects. On the first pass, using the original coat-hanger rods, Mr. Feist obtained strong responses at targets 1, 3, and 4. Only a weak response was recorded for target 2, perhaps because the pipes were spaced about 8 feet apart, giving a weak "magnetic gradient." In repeating the course with the other rods Mr. Feist had, of course, a growing awareness of just where on his path to expect responses. Whenever possible, therefore, I requested that he walk with his eyes closed. All rods seemed to work equally well, although the wooden rods tended to show slightly less of a response and to cross *earlier* than the metal or plastic rods. I repeated the experiment myself and got the same responses as Mr. Feist except that the copper rods worked best for me and the wooden rods tended to cross *later* than the others.

Shortly after the conclusion of this experiment I contacted Dr. Owen to see what he might know about the subject. He told me of Hopkins' article (2) which reveals that certain employees of Ontario Hydro often use "angle-irons" to locate buried cables or even the precise position of faults in buried wires. According to Dr. Owen he has been told by dowsers that with about 10% of dowsers the rods swing inwards so as to cross one another, and that any metal will do. (See also 3, the 1973 *Farm & Home Almanac*). Since experimenting with the rods of the present study,

I have found many people who obtain the inward-crossing response but only a very few who get the outward one. What role does expectation play here? Indeed, what is the psychophysics behind the swinging rods; that is, what roles do subconscious cues and ideomotor action (4) play? (But, how could ideomotor action have played a role at the first, when Mr. Feist knew nothing of the underground targets?).

In a final experiment with Mr. Feist, the wooden handles were incorporated into a frame 30 cm wide by cementing the tops and bottoms of the spools to thin strips of wood. This rigid frame permitted the short ends of the rods to turn on parallel axes 30 cm apart but prevented involuntary twisting of the handles and, therefore, involuntary crossing of the rods. Mr. Feist then repeated the previous course, which crossed the several buried targets. No rod crossings occurred. Copper rods were tried also but without success. This was in contrast to the results of a similar experiment reported by Berry (5). A return to the initial, unbound handles resulted in inward rod crossings above all targets. Did the wooden frame "shortcircuit" the "force field", preventing the force from being exerted at the ends of the rods? Or did the frame simply prevent ideomotor action? Or did the frame prevent involuntary muscular response, due to the effect of weak magnetic gradients, from causing the rods to swing inward? The last possibility seems the most probable one, although Tromp (6) whose experiments have gone beyond those of Rocard, believes that "the dowsing reaction is a normal physiological, albeit super-sensory, process in the human brain."

It has often been suggested that dowsing is most probably a psychic ability related to clairvoyance. According to this supposition, the rods are but "crutches" which amplify and "make visible" the otherwise imperceptible psychical manifestations of an operator. If an operator's muscles (and therefore the rods) are *not* responding involuntarily to weak magnetic gradients (1), then what is the nature of the force which causes the rods to move? And why is it that some individuals "modulate the force" in ways different than others? Why do some get no response at all?

In groping for answers to these questions one is reminded of the words of Bacon . . . "To know truly is to know by causes." What experiments can we design to determine the causality that lies behind the phenomenon of the swinging rods? The logical starting point seems to be Tromp's excellent review (6) of the dowsing reaction and its possible causes. He maintains that neither telepathy nor clairvoyance can be involved because in all of his experiments "the dowser cannot predict the location of a dowsing zone even if he is [only] a few meters from it." Perhaps more telling is Tromp's claim (7, p. 385) that his experiments on serious dowsers, who claimed to be able to do map dowsing and locate water

wells after dowsing a map hundreds of miles away, "showed clearly that . . . none of them could locate dowsing zones in areas far away." Tromp concludes his article with this statement, ". . . we are convinced that dowsing is a purely physiological phenomenon due to a still unknown supersensory mechanism in the body."

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University of Toronto.

1 November 1973

# Signposts to Sleep: Learning a Psychological Skill

IRIS M. OWEN

*ABSTRACT: The "Philip" research on production of physical phenomena has validated the Batcheldor thesis that this ability is dependent on acquiring a special psychological skill. Attention is drawn to a fact of ordinary normal psychology which seems to have passed unnoticed: that the ability to fall asleep is itself a psychological skill. The fact that it has to be learned is evident from the behaviour of many infants.*

The thoughts expressed in this article have been prompted by the experiences encountered in the experimental "Philip" group, which was designed to endeavour to create an imaginary ghost, and during which experiment we succeeded in creating physical phenomena, i.e. raps and table movements, tilting and rocking. It was found that in order to create these phenomena one had to acquire a certain psychological skill; one had to learn how to produce in one's own mind the right psychological environment. This in itself was an interesting experience. There are, of course, many people, and many organizations, that claim to teach one how to "control" one's own mind, how to develop one's own powers of ESP, or to do healing, etc, and most of these use some form of hypnosis, or suggestion, or teach one methods of self-hypnosis, during which one concentrates on the problem in hand, and so is alleged to acquire the designated ability.

There are also many instruments and methods alleged to test the particular state of one's mind at any given moment, to allow one to discover whether one is in a state of alpha rhythm, or beta rhythm, or whether one's emotional state is such as to cause anxiety, apprehension or such. All of these methods and instruments have a somewhat hit and miss quality, and most of them seem to involve the expenditure of varying sums of money.

When we were involved in the "Philip" experiment we found the key to producing the physical phenomena in the work of K. Batcheldor, England. Mr. Batcheldor described very fully the type of psychological state that was necessary for the experimenter to be in in order to produce physical phenomena, and he coupled this with equally detailed instructions on how to teach oneself, or the group members as a whole, to produce that state of mind, or form of brain activity.

It is difficult to describe a state of mind. Individuals differ in their descriptions of what it feels like. In this particular experiment it is especially difficult, because the essence of it is that one should *not* concentrate. Unlike the people who practice varying forms of hypnosis, the core of learning this skill is in the ability to relax, and put the assigned task to one side, so to speak, and then when the proper state of relaxation is acquired, the desired happening occurs. The nearest analogy that I can draw is the experience one often has of needing to remember a piece of information, say a name of someone, and realizing that the more you concentrate, the less likely you are to remember it; but if you say to yourself, "I will put that at the back of my mind and it will come to me", then, perhaps an hour or so later, the name flashes right into your mind. You have *momentarily* concentrated, and then put the matter aside and relaxed your mind in regard to the desired information.

This type of theory led me to speculate about one's ability to learn psychological skills, and to wondering about the psychological skills we have acquired and use naturally in our day-to-day life. The psychological skill we all use continually and most frequently, of course, is the ability to go to sleep. Sleep is a psychological state of mind, and the ability to go to sleep is the expression of a psychological skill. I started to speculate about how we learn to go to sleep. One's immediate reaction to such a statement is likely to be that we do not learn, that it is a natural state, which is innate, and which we all have as soon as we are born. But I would dispute this. It may be that this is so with some people, but I think there are a great many more, especially those who have reared families who would say, quite definitely, that at least some of us have had to learn to go to sleep. I am not talking about acquiring habits of regular hours of sleep, the ability to sleep at certain designated and convenient times, but I am talking about the actual ability of putting one's mind in such a psychological state that in fact one can sleep. While it is true that if one is mentally or physically exhausted one can fall asleep much more readily, it is equally true that most of us, having acquired the psychological skill, can fall asleep when we are neither physically or mentally exhausted, if the conditions are right. And this is the crux of the learning process. We all know people who cannot sleep unless the room is dark, or light, if there is noise, or unless they can hear traffic; they need a hot drink at bedtime, their bed must face north, or south, the windows must be open or closed, the room warm, or cold. In other words a certain pre-determined state of mind must exist before the sleep process can begin. The state of mind is induced by the physical state of the person and his or her degree of relaxation.

This psychological conditioning, or learning process, starts shortly after birth. The baby is fed before being laid down to sleep; he is made comfortable; warm, dry, soothing quiet conditions are created around him.

Many babies find it impossible to condition themselves to sleep without holding a favourite object, a toy or piece of blanket, and this need may continue for several years until the child learns to produce the right state of mind for sleep. Many children need to have a set routine to induce this state of mind — what I would call signposts to sleep. We all know of the toddler who has to have a bath, a hot drink, a story read, a song, a teddy bear to cuddle, the blinds drawn, a ceremonial goodnight kiss from mother and father, and if any one of these “signposts” are omitted the child finds it impossible to produce the necessary relaxation. Perhaps we have not in the past sufficiently understood the fact that a child is acquiring just as much of a psychological skill in learning to go to sleep, as he is the physical skill needed to learn to feed himself, and if this were more understood there would be less inclination to label the child who insists on his ‘ritual’ as naughty. He needs his signposts, and it may be that the adult who retains the need for all these nightly rituals never learnt them properly in childhood. I have known children who have, even with a number of offered signposts been completely unable to induce the right psychological state to produce sleep and have raced around their cot at bedtime until they have fallen down utterly exhausted, and slept where they fell! This I have noticed has been often the case with the particularly active child, and it may be that it is these children who find it more difficult than others to learn to go to sleep. These children also, seem to need the most “signposts” to follow on the way to sleep.

These speculations on acquiring the skill necessary to produce sleep led me to understand more fully the process of learning psychological skill in order to produce the physical phenomena. The methods are much the same. The state of relaxation necessary for the physical phenomena is very similar to the pre-sleep state of mind, and it seems not insignificant that many poltergeist happenings, particularly noises, are reported as happening during the period of time that the subject around whom such events are centred is in a state of either ready to go to sleep, or just waking up. It is also significant that very few poltergeist happenings are reported as occurring while the subject is soundly asleep. Occasionally such people being woken up by a loud bang, but it may be that in fact, they are just in process of waking up, and that the bang occurs during the waking up period, and is then credited with having woken them up. This is lent credence to by the fact that often people report a dream, which has been related to an actual event, a phone ringing, a fire engine bell in the street etc, the brain has obviously registered this noise, but during the split second or so that consciousness is returning there is time for a brief dream! So, it seems that the subconscious part of the brain may awaken a split second before the conscious part. During that moment the poltergeist type event may occur, but the person emerging into consciousness may believe they have been awakened by an outside noise.

One or two more random thoughts occur in regard to this acquisition of a psychological skill. One only realizes one has acquired it by the results produced. When one has acquired the right state of mind to produce sleep, then one falls asleep. Many people who have become skilful at this claim they can shut their eyes and sleep instantaneously — Winston Churchill always had this ability. Similarly, when attempting to produce physical phenomena one is not aware that one is in a special state of mind, but when the right state has been reached, the phenomena occur. Nevertheless, with continual practice, just as one can realize that one's mind is not ready for sleep, so one can learn to realize the moment when one's mind is in the right state for production of psychic phenomena. Many people with psychic abilities other than physical phenomena have described this to us, and indicated that with continual practice they can recognize when they have acquired the particular "mind-feeling" that will produce the desired results.

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New Horizons Research Foundation.

1 May, 1974



# Uri Geller's Metal Phenomena: an Eye-witness Account

A. R. G. OWEN, M.A., Ph.D.

*ABSTRACT: A demonstration by Mr. Uri Geller is described. Metal objects belonging to the author and his wife were bent or divided in circumstances such as to prove conclusively to the author that the phenomena were genuine and paranormal.*

## 1. Introduction

The purpose of this paper is to report observations of Mr. Uri Geller's metal bending and breaking phenomena made by myself and others on the afternoon of Friday, March 8th, 1974. The conditions in which these phenomena occurred were such as to convince the audience that these phenomena were paranormal and totally genuine. This, by itself, is well worth putting on record. However, there are certain additional circumstances which, so far as I and my wife (Iris Owen) were concerned, had the effect of making Uri's presentation not merely a convincing demonstration, but also an experiment with a considerable degree of control. To put the matter simply, in the event, out of the large number of metal objects present in the room, it so happened that the objects — a fork and two keys — which were bent or divided were ones that my wife and I had brought to the studio. As will be explained, we knew their condition right up to the moment when Uri's presentation commenced. The nature of the objects was also so highly individual that there was no possibility of anyone having substituted like, but prepared, objects for them without the substitution having been subsequently detected. Thus from the viewpoint of my wife and myself the presentation constituted an experiment in which beyond reasonable doubt Mr. Geller's metal phenomena were genuine and paranormal. Having reached this conclusion we feel it to be our duty to say so, both in fairness to Mr. Geller and because what we have to say may be of value to those serious students of paranormal phenomena who will place some reliance on our opinion. The progress of parapsychology has, I believe, often been retarded by the failure of responsible investigators sometimes to report what they have found.

## 2. The background to the presentation

Mr. Geller arrived in Toronto about Tuesday, 5th March. It has been previously agreed with Miss Joan Schafer, producer of several programmes for

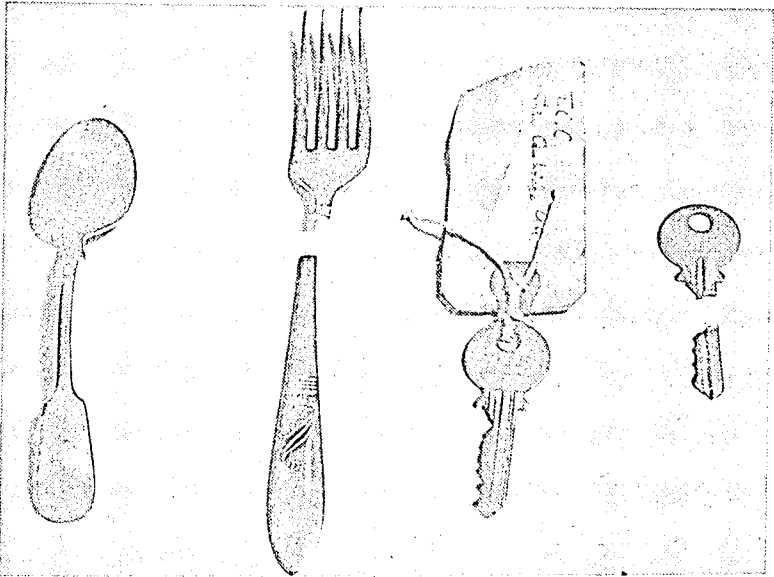
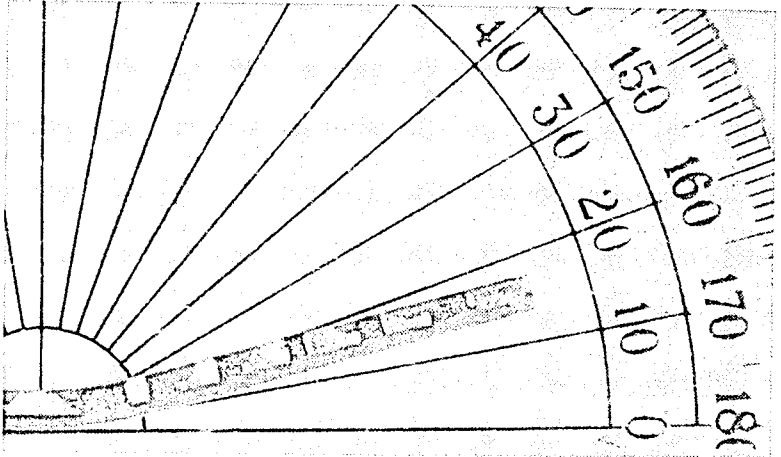
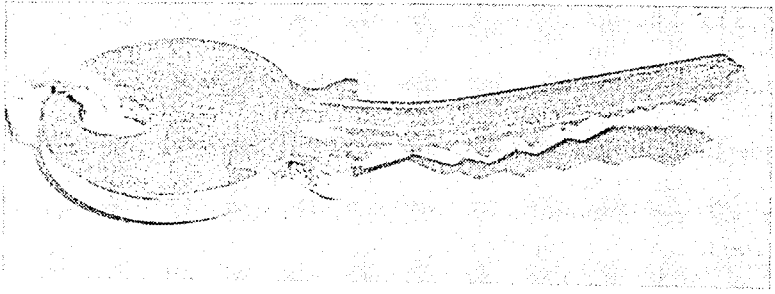
CITY-TV (Channel 79) that, if possible, he would record an interview which would be broadcast in due course. In the event Uri's schedule in Toronto proved to be a heavy one. Finally, however, he agreed to the interview, provided that there was only a small audience which should include the 'Philip' group of whose work in producing physical phenomena (see Owen and Sparrow, 1974) he had learned, and in which he expressed great interest. It had further been agreed by Joan Schafer that the Toronto Society for Psychical Research should advise on how the interview and any experiment or demonstration should be set up.

I should explain that prior to this I had seen no demonstrations of metal-bending phenomena by Uri either alive or recorded except the bending of a spoon shown in a film made at the Stanford Research Institute. However, I had formed an estimate of Uri based on informative articles such as those of Alan Vaughan (1974), the direct testimony of investigators who had experienced his phenomena at very close quarters, and finally from a television interview by Pat Murray of Toronto CTV, broadcast live on the morning of 7th March. Though I had not yet met him in person, I gained the impression that Uri is an honest and sincere person, and that his phenomena were quite likely to be paranormal and genuine. Indeed the oddities and vagaries of some of the phenomena and the way in which they manifest were in themselves exceptionally convincing, as these peculiarities entirely fitted the general picture of paranormal phenomena which I had built up over the years.

In a discussion with Joan Schafer and Miss Pat Murphy (who was to conduct the interview) I therefore impressed on them my conviction that Uri's phenomena might well be totally genuine. It was agreed therefore that the presentation should be conducted entirely as a sympathetic interview, without overtly expressed hostility (and, so far as could be managed without suppressed hostility, because, as I pointed out, Uri could possibly sense our thoughts!). The aim would be primarily to let Uri talk about his phenomena and how they seemed to him both in their mode of occurrence and in their possible significance. This alone would be thoroughly worth-while. However, we also thought it likely that in a genuinely friendly atmosphere Uri might well successfully demonstrate some of his phenomena. It was agreed that members of the audience should bring their *own* metal objects and that during the interview these should lie on a low table in front of Uri and Pat Murphy, in full view of the audience.

### 3. The experimental material

About 3 p.m. on Friday 8th March, my wife and I and five members of the 'Philip' group, with two other members of the Toronto S.P.R., convened at CITY-TV studio. The audience was otherwise made up of



Cambridge key, spoon, Koba fork, Cambridge key and Reilly key.

some friends of Uri and some friends of Joan Schafer. On arrival I met Uri in the corridor and introduced myself briefly to him. He asked me to collect together plenty of "stuff" for him to work on, and to ask the audience to be actively "willing" for things to happen so that good phenomena would result. I looked through my own pockets and found some extra keys, while Uri went down to the make-up room. He passed through the basement café where the audience was congregated, and briefly said "Hallo" to them, and again asked them to actively "will" him to succeed.

The objects I had collected previously had been handed to Miss Valerie Elia of CITY-TV who had put them with the other material brought by the audience on a bronze tray which was resting on a low glass topped table on the dais in front of the two chairs in which Uri and Pat Murphy would be seated during the interview. I deposited the extra keys on it; there were already about 20 metal articles and a few watches. The metal objects comprised some nails and large screws, spoons and knives, forks, car keys and door keys. I verified that all the objects I had brought (which will be specified later) were there. Also I spent a few moments handling every object and verified that, so far as could be disclosed by visual inspection and application of moderate manual pressure, each object was a normal one of its type, not made of especially soft metal. It seemed clear to me that none of them had been prepared by cutting and rejoining with soft metal, glue, or pliable material.

Though I was not continuously in the studio thereafter I did in fact visit it several times while the studio was being got ready and the lights and cameras positioned. (Needless to say during this period technical crews were all the time in the studio, and the focus of attention was the dais — so it would have been impossible for anyone to do anything to the objects on the tray without being observed.) Each time I came in I went to the tray and verified by a *coeur d'oeuil* that the objects were the same as when I had last seen them. Finally, about two minutes before Uri and Pat Murphy took their place on the dais, I made a last inspection confirming the objects were the same ones I had looked at originally. Meanwhile Mrs. Andrienne Henwood had talked to Uri, who asked her to get still more material. She went to the basement and commandeered a further batch of house and car keys from the 'Philip' group. Returning to the studio she dropped this material on the tray and took her place in the studio audience only a matter of seconds before recording started. Uri and Pat had taken their places on the platform only a short time before. The tray on its table was at all times in the full view of the audience (and also of the TV cameras when they were on wide angle). After my final inspection I had kept the tray under continuous observation and saw that none of the objects had subsequently been handled by Uri or Pat or anyone else.

#### 4. The phenomena

Until the first commercial break the interview concerned itself with mental phenomena (telepathy, clairvoyance, etc). It included an illustration of Uri's ESP ability which Uri stressed was only an illustration, not a rigorous experiment.

During the first commercial, matters began to take a different turn. My wife, who was sitting with Mrs. Sparrow and Bernice Mandryk, on the top row of the set of wooden terraces provided for the accommodation of the audience, opened her purse and inspected her bunch of six keys of various kinds. Previously they had all been inspected by herself, Mrs. Henwood, Mrs. Sparrow and Bernice Mandryk, and declared normal; this was in the basement after Uri had gone up to the studio. Though my wife and Uri might have passed one another in the studio while he and the audience were getting to their respective stations, there was certainly no further conversation or physical contact between them. She did not open her purse until the first break. To her surprise one of the six keys was noticeably bent at a point about a quarter inch from the haft. This key was of yale type and stamped *Reilly's Lock Corp. Ltd. Toronto*. The angle of bending appeared to me to be about 25 degrees of arc. The key (which was not removed from the bunch) was inspected by myself, Iris, Mrs. Sparrow, and Bernice. We called out to Uri, who asked that it be brought down to him. He looked at it, held it in front of the cameras, then tossed the whole bunch of keys to a point on the carpeted floor about four feet away from him, and said, "Let's look at it again later". It should be reiterated that this was the only occasion that he had touched or even seen this key.

When the interview was resumed Uri discussed his ability to rehabilitate broken watches. He picked out two "fob" or "turnip" watches (which Pat confirmed were not working), placed them on the table top and made about two passes of his hands over them. Pat testified to the fact that they immediately started ticking. I mention this for interest only as the matter was not investigated in depth.

Uri next talked about his metal-bending ability. He casually picked up and replaced several of the spoons and forks on the tray. Finally he selected a fork about seven inches in length. He asked Pat to hold it in such a way that the whole of the stem would be visible to the audience and cameras. This was achieved by Pat holding the blade part of the fork between her thumb and forefinger, these digits being in contact with the outermost prongs of the fork. The blade was thus broadside to these fingers. The fork was oriented broadside to the audience. Uri then, using the tips of the thumb and forefinger of his right hand, gently 'massaged' a section of the stem of the fork, the traverse of his fingertips being about threequarters of an inch. The portion of the stem which he stroked was

situated just below the blade. It was the part narrowest in width. However, (as we ascertained later) the *thickness* was the same as that of the rest of the stem, which in this respect was uniform throughout its length. Uri first said that he thought nothing was going to happen. Then he smiled and nodded and said, "It's going" (or words to that effect). With the thumb and finger of his right hand he held the bottom of the stem and gently waggled it. The stem moved relative to the blade (which Pat kept immobile), thus showing the audience that the section he was stroking had lost its rigidity. So that this could be seen more clearly Uri asked Pat to present the profile of the fork to the audience. Then, holding the narrow portion of the stem in the thumb and finger of his right hand and the end of the stem with his left thumb and finger, with what appeared to be minimal effort he waggled the stem to and fro, the blade being kept immobile. The total angle traversed between extreme positions appeared to me to exceed 40 degrees. After five or six waggles he released the bottom of the stem and pushed it lightly with his finger tip. The stem suddenly parted at a point in the portion that Uri had stroked, and fell to the floor of the dais. Uri picked it up and handed the two parts to Pat Murphy. When the applause had subsided she read the inscription on the stem which said *Koba, Stainless, Japan*. It was at this stage that I realized the fork was one that I had myself brought from home.

The day previous to the interview I had taken this fork, together with two others ( of dull grey metal not matching the first one and stamped *1847 Rogers Bros., I.S.*) from the kitchen cutlery, also two old spoons. I supplemented this collection of expendable material with a couple of long steel screws and some derelict watches. Oddly enough I did not notice that among the forks of various vintages we had a second *Koba* fork — the exact mate of the one that Uri had divided. I only discovered this on returning home with my material which I had recovered from the tray the moment that the recording ceased. I was pleased that the divided fork had a mate because it affords a good comparison of the "before and after" states of the object. I need hardly point out that the *Koba* forks are somewhat out of date and so are relatively individual objects. Even if, for the sake of argument, it were supposed that despite the considerable evidence to the contrary Uri had substituted a prepared *Koba* fork for the one on the tray, the odds against him selecting one by chance for this purpose are astronomically large. A severe critic might argue that conceivably Uri knew by extrasensory perception that a *Koba* fork would be there and obtained one by teleportation; but this would be a rather self-defeating criticism.

After his success with the fork Uri noticed two keys on the tray. These I immediately recognized because they were not on a key ring but tied by string to a buff coloured cardboard label. These keys were in fact unique. They were both of the long variety stamped *YALE, The Yale and Towne*

*Mfg. Co., Made in England.* One of them was stamped *RKC 25A 13*. It was in fact a Fellow's key of Trinity College, Cambridge, issued to me many years before. The number 13 was its own individual number and is registered as issued to me personally. The other key is also an uniquely identified object. It formerly opened a door in the Department of Genetics, Cambridge, and bore the individual number 6 as well as a type number 8150. The label bore an annotation in my handwriting done in (now rather faded) blue ink, *T.C.C. Gen. Cambridge U.K.* Remarking that these seemed an interesting pair of keys, Uri picked them up by the label without touching the keys themselves. It was then noticed that the Genetics Department key was in process of bending. This was actually seen by the audience and by the TV cameras in close-up. Uri supported this key with a finger of his other hand. It continued to bend and finally stopped at about 15 degrees of arc (See Plate).

By now we had reached the second commercial break. Uri suggested that the bunch of keys, including the bent Reilly key be put, together with other material that the audience still had in their pockets, in a pile at the back of the audience. This was done; the pile was made on the back seat between myself and Mrs. Sparrow. Uri then answered three questions put by members of the audience. He then suggested that the pile be looked at. It was discovered that only the top half of the Reilly key was still attached to the bunch. The blade had separated from it, the metal being divided at a point close to the original bend, an operation that normally would require either a hacksaw or a cold chisel and mallet. The blade was found among the other keys in the pile.

## 5. Remarks

When the fork and the Reilly key were examined it was noted that they were divided at their narrowest points, which suggests that the paranormal forces responsible tend to be applied in conformity with a principle of least effort.

The selection of our own fork can doubtless be put down to chance. The pair of Cambridge keys were eye-catching and it may well be that Uri picked them out just because they looked interesting. It is just conceivable that Uri chose these objects intuitively. I was certainly concerned that the interview should constitute what, for me, would be a good experiment.

After the recording Uri talked to various members of the audience. He said to Iris that it was she who had (paranormally) bent and broken the Reilly key. This is indeed possible, though mysterious, because similar events have been reported from England, which suggest that Uri can temporarily endow other people with the metal-bending ability. Among the material on the tray was an old fashioned tea-spoon contributed by Mrs. Sparrow. It was of a very standard design and previously had nested

in perfect congruity with a spoon of similar vintage. When Mrs. Sparrow retrieved it it appeared normal, but back at home, after a period of an hour or so, it was visibly bent. When inspected later it was still more curved. When the process terminated there was a gap of half an inch between the middle of this spoon and its mate when they were in juxtaposition.

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# A Preliminary Report on Matthew Manning's Physical Phenomena:

A. R. G. OWEN, M.A., Ph.D.

*ABSTRACT: Physical phenomena of Matthew Manning are briefly described.*

Matthew Manning visited the New Horizons Research Foundation from 18th June-5th July 1974, to participate in both formal and informal sessions of the First Canadian Conference on Psychokinesis.

On 18th and 19th of June he gave informal demonstrations of an ability to move a compass needle by passing his hand to and fro at a distance of 9-12 inches above it. These demonstrations were recorded on film and videotape, and though not sufficiently formal to prove the point with full scientific rigour were striking enough to suggest to the witnesses that Matthew has this unusual power.

On the same days Matthew bent several keys and forks in full view of witnesses. In one case a stainless steel knife being held by someone else at about 10 foot distance from Matthew was seen to be in process of bending, and did in fact become permanently bent.

During the days of plenary conference sessions (20th through 24th June) Matthew bent about 30 keys in the presence of several witnesses. Sometimes the key was held in his closed hand but without any sign that he was applying appreciable muscular effort. On several occasions also Matthew only held the haft of the key, the shaft being visible, so that it could be seen in process of bending. Sometimes the key was held by a witness, and it bent merely while being touched lightly by Matthew.

On 28th June a professional film was made taking the form of an extended interview with Matthew in the presence of Dr. Owen, Dr. Tanous, Dr. Whitton, Professor Josephson, Allen Spraggett, and William McQuestion. In particular a complete film record was made of the bending of a key by Matthew. The record shows an uninterrupted view of Matthew's hands. The key is seen at the outset to be perfectly straight. After being held for about a minute in Matthew's lightly closed hand it is seen to be in the process of bending. It continues visibly to bend in full view of the camera, with the haft only being held by Matthew.

Dr. Douglas Dean, of the Newark College of Engineering, Newark, New Jersey, took a number of Kirlian photographs of Matthew's finger tips under two conditions, (a) mental relaxation, (b) in the same state

of concentration as Matthew usually is when trying to bend a key, i.e. he tries consciously to direct energy into his fingertips. In state (a) the Kirlian photographs of the fingertips were normal. However, when Matthew was in state (b) the "aureoles" or "coronas" around the fingertips were much brighter. "In addition", writes Dr. Dean, "Matthew made the white part fill up right into the centre, giving a cloud of brilliant white". I have never seen that before".

Matthew participated in an experiment which compared his electroencephalogram under conditions (a) and (b). It was found that, when in state (b), whether actually bending a key or attempting to do so, his encephalogram contained a remarkable amount of low frequencies. This result has not yet been interpreted. We do not know if this is a concomitant of Matthew's psychic ability or whether instead it relates to some peculiarity of his emotional or physiological state when carrying out the operation of metal bending by mind power. (See this Journal).

New Horizons Research Foundation.  
Toronto Society for Psychical Research.

6 July 1974

# "Ramp functions" in EEG Power Spectra during actual or attempted Paranormal Events

JOEL L. WHITTON, M.D.

*ABSTRACT: A work-in-progress report of electroencephalogram (EEG) findings in individuals with alleged "psi" ability is presented. During a "paranormal" event, the EEG power spectrum has a characteristic form describable as a "ramp function" in which most of the energy is in the lower EEG frequencies.*

## 1. Introduction

One of the questions that the Toronto Society for Psychical Research has been directing effort towards is:— what is happening in the central nervous system of an individual with "psi" ability during "paranormal" behaviour? Recently at the First Canadian Conference on Psychokinesis, we had the opportunity to study physiologically two individuals with an exceptional history of putatively psychic abilities — Mr. Matthew Manning and Dr. Alex Tanous. Part of the investigation included an analysis of their EEGs, and is reported in this paper.

Motoyama (1965) has reported EEG data from subjects while they were demonstrating telepathic abilities (ESP). During the act of telepathy subjects who scored high were found to have a significantly increased percentage of energy in the lower EEG frequencies. This increase in low frequency energy was not found in subjects who were mentally concentrating nor was it found in subjects attempting to do telepathy but who scored poorly.

## 2. Method

For the purposes of this experiment, paranormal behaviour has been operationally defined as follows.

*Psychokinesis* (PK) is a phenomena wherein a material object is structurally altered without the application of any known physical force or energy. An example specific of this investigation is the bending of a metal key as a consequence of concentration or "mental energy" alone. Two persons with psychokinetic ability are known to us to be able to

bend or break a metal key without the application of any of the known physical forces; these are Mr. Uri Geller (see this Journal) and Mr. Matthew Manning, here identified as MM.

*Out-of-the-body experiences (OOB)* are phenomena wherein a person is able apparently to transcend the dimensions and restrictions of the three dimensional space. An example is a subject sitting in an enclosed room and "projecting" his consciousness to a distant location and being aware of events at that location as they are occurring at the time of the experiment. The subject in this experiment who apparently demonstrated this ability was Dr. Alex Tanous who, while sitting in a sealed test chamber, "projected" to a location 2 miles distant and reported the events happening at that location concurrent with the time of the experiment. Dr. Tanous and the OOB phenomena are currently being investigated by the American Society for Psychical Research under Dr. Karlis Osis. Dr. Tanous is identified as AT.

*Aura Viewing (AV)* is the ability to become aware of the coloured halo or light apparently surrounding animate objects. The subject in this experiment who reported "seeing" the aura of the author during the test is identified by code SE2.

One subject (Miss S. P.), identified by code SE1, professed not to have any psychic ("psi") ability and was tested as a member of the control group in another experiment to duplicate this pilot study.

The four subjects (MM, AT, SE1, SE2) were all identified as right handed in that they used their right hand, eye or foot for all of the following: writing, needle threading, hammering a nail, holding a toothbrush, kicking or throwing a ball, and looking through a microscope. All were non-epileptic and had apparently normal central and peripheral nervous systems. All were currently physically well, and none had a history of treated mental illness. The scalp electroencephalogram (EEG) was recorded from the vertex (Cz) referenced to the left mastoid, with left front forehead as ground using Beckmann 1 cm surface electrodes and EKG jelly (silver-silverchloride).

The EEG amplifier was AC coupled and filtered so as to reject frequencies above the nyquist frequency of the Fourier transform parameters. Low frequency cutoff was (-3)dB at 3 Hz. The analog EEG data was digitized to 14 bits accuracy and stored on a computer disk for subsequent

analysis. An EEG sample is defined as 2048 data points sampled at rate of 200 Hz, i.e., 200 points per second, with a sample duration thus of 10.240 seconds. Using a Hanning window 100 points on each end of this data vector were tapered, and means and trends were removed from the original time series. The power density estimates were then calculated from the squared modulus of the Fourier coefficients obtained from a Fast Fourier Transform. The power spectrum of 2048 points was smoothed to give 31 degrees of freedom per spectrum estimate. The nyquist frequency was 100 Hz, and the resolution is 0.05 Hz. The above spectrum calculation techniques have been discussed by Jenkins and Watts (1968), Tukey (1967), Harris (1967), and Blackman and Tukey (1959). During a test the EEG is sampled continuously for several minutes, but the analysis of data is in the above mentioned 10.240 second contiguous blocks, giving serial power spectra as follows.

Test	Subject	No. of serial power spectra	Test Duration
1	MM1	83	14.2
2	MM2	21	3.6
3	AT	125	21.4
4	SE1	39	6.6
5	SE2	30	5.1

The EEG power spectrum was displayed graphically, and the percentage of energy in each EEG band was calculated. The EEG bands were defined as follows: delta, 0-2 Hz; theta, 3-7 Hz; alpha, 8-13 Hz; beta, 14-25 Hz; gamma, 26-100 Hz. During the test the subjects were requested to sit as still as possible and avoid head, neck, eye and tongue movements, and talking, except during the times when the effects of those behaviours on the EEG were being investigated. A typical intra-test sequence is as follows: resting eyes open, resting eyes closed, talking, the paranormal event, resting eyes open, resting eyes closed, the paranormal event repeated, and so on. If the paranormal event was to be repeated, then control periods consisting of resting eyes open, resting eyes closed, deliberate muscle and tongue movements, and talking would be interspersed. The EEG spectra of these intra-test events are summarized below. (Each spectrum quoted is typical of a single sequence and *not* an average over replications).

Subject	Resting eyes open	Resting eyes closed	Head, neck, eye movements	Talking	Para-normal event	
MM2	6.5	8.5	noise*	9.9	2.8	Peak Hz
	1.7	0.9	1.5	2.2	3.4	Delta %
	36.4	20.0	14.3	11.3	49.5	Theta
	19.0	39.8	14.6	28.8	18.3	Alpha
	24.7	21.3	30.3	27.8	15.0	Beta
	18.2	18.0	39.3	29.9	13.8	26-100 Hz
	(Fig. 1)				(Fig. 5)	
SE1	7.0	10.2	noise*	7.3	7.5	Peak Hz
	1.3	4.7	5.1	1.2	0.8	Delta %
	26.0	24.9	25.8	30.4	25.3	Theta
	23.9	44.3	24.8	36.6	31.5	Alpha
	34.8	19.0	25.9	20.7	26.2	Beta
	14.0	7.1	18.4	11.0	16.2	26-100 Hz
	(Fig. 2)	(Fig. 3)				
AT3	3.7	10.3	1.7	9.5	3.8	Peak Hz
	7.6	7.4	19.0	5.0	6.7	Delta %
	32.9	22.1	34.1	28.0	36.3	Theta
	33.4	44.3	23.5	37.8	22.0	Alpha
	20.9	20.6	15.6	19.5	23.2	Beta
	5.3	5.6	7.8	9.7	11.8	26-100 Hz
				(Fig. 4)	(Fig. 6)	
SE2	15.2	7.7	15.8	2.0	3.6	Peak Hz
	4.7	3.0	4.5	5.5	11.5	Delta %
	12.0	17.5	16.1	16.6	31.1	Theta
	18.3	29.9	18.0	15.8	16.6	Alpha
	44.8	39.0	39.9	29.5	22.0	Beta
	20.3	10.6	21.5	32.6	18.0	26-100Hz
					(Fig. 7)	

\*Broad band noise

Figure 1: MM2.  
Resting, eyes open.

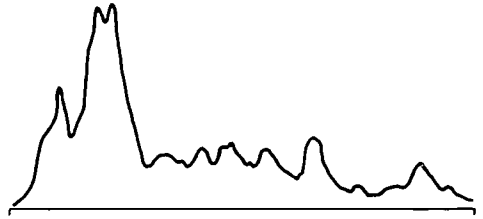


Figure 2: SE1.  
Resting, eyes closed.

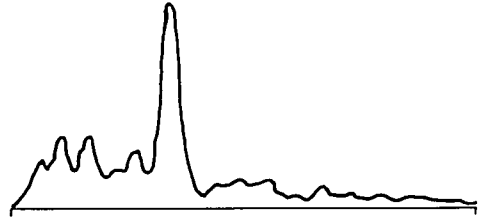


Figure 3: SE1.  
Head, neck, eye  
movements.

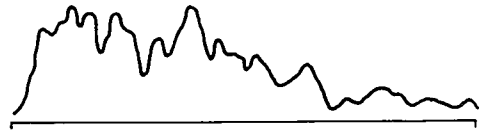
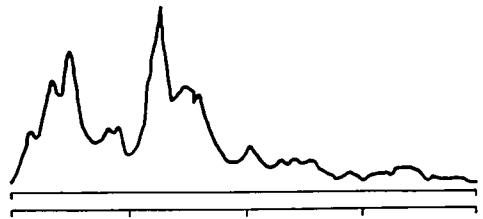


Figure 4: AT3.  
Talking.



0 7.5 15 22.5 30  
Hz

Frequency in cycles per second.

Figure 5: MM2.  
Paranormal attempt.

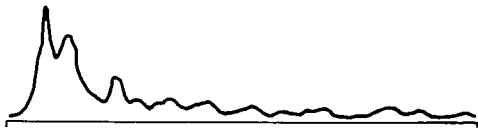


Figure 6: AT3.  
Paranormal attempt.

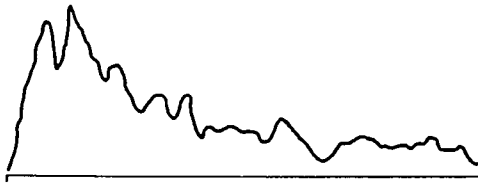


Figure 7: SE2.  
Paranormal attempt.

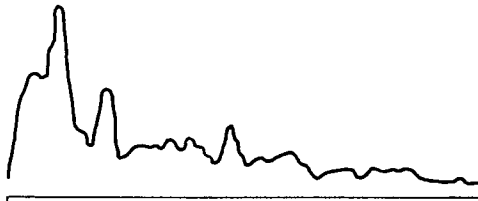


Figure 8: SE2.  
Spectrum immediately  
after Figure 7.

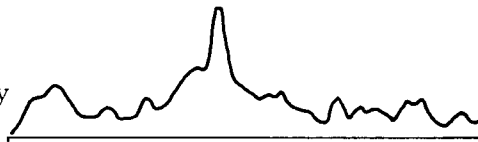


Figure 9: SE2.  
Intense concentration.



0      7.5      15      22.5      30  
Hz

Frequency in cycles per second.



### 3. Results

#### 3.1 Non-paranormal events

Power spectrum estimates from EEG during the four physiological states of resting eyes open, resting eyes closed, obvious head, neck or eye movements, and talking (vocalization) are summarized in the table and in figures 1 to 4. The graphs in figures 1 to 4 were selected as being typical of what was seen in each of the four states during this investigation. The resting state is defined as when the subject is not looking at something or reading, not concentrating, not performing mental calculations, and not moving head or neck muscles.

When eyes are closed there is in contrast to when open, a decrease in percentage of energy in the theta, beta, and gamma bands and an increase in alpha. As the low cutoff frequency of the EEG amplification was (-3)dB at 3 Hz, the delta band cannot be expected to account for much of the variance as presented. The results for the eyes open and closed resting states are the same as reported by Dolce and Waldeier (1974). To demonstrate that the spectrum graphs during the putatively paranormal event are different than is seen during movements, talking or concentration, examples of the later three states are included. Figure 3 is typical of what is evidenced during deliberate head, neck and eye movements; that is—an energy spread across all frequencies with no single peak or frequency group predominating. Gross or violent movements will produce potentials that will overload the recording equipment, and thus the movements performed during these spectrum were not gross or violent though easily evident to the observers. Subvocalization and talking produce curves as in Figure 4. Mental concentration on a geometric figure with eyes closed produces curves as in Figure 9. Figure 9 peaks at 15 Hz and has a delta to gamma percent energy of 4.5, 12.9, 12.4, 40.4, and 29.8 respectively. Figure 8 is a typical spectrum immediately after a “paranormal” event and is similar in form to figure 9. Each subject stated that during the paranormal event they were concentrating. For example MM stated that he was “concentrating or directing ‘energy’ to the key so that it would bend”.

#### 3.2 Paranormal events

If a spectrum similar to figures 5, 6, or 7 (and designated as a ramp function) was produced during the attempts at paranormal behaviour, it always occurred during at least the first 10.240 seconds of the behaviour. The spectrum immediately prior to the onset of this behaviour was similar to figure 2, as the subjects were requested to perform their particular “psi” phenomena with eyes closed. The exception was subject SE2, who had eyes open while “viewing” the experimenter’s “aura”. Accordingly

the spectrum immediately prior to the ramp function in subject SE2 was similar to figure 1. In all cases, however, the typical spectrum following the ramp function was similar to figure 9, suggesting that all subjects were also concentrating during the "paranormal" behaviour.

The "ramp function" has not been reported previously; however, the large increase in theta energy and the usual decrease in beta energy which characterizes the ramp function compared to other states has been found by Motoyama (1965) to distinguish "paranormal" behaviour.

In test number 2 (MM2) there were two attempts at paranormal behaviour, i.e., MM attempted to bend two keys without using any obvious physical force. The second key did not bend and no ramp function was evidenced during the attempt with this key. A ramp function did appear, however, during the attempt with the first key during the first 10.24 seconds of the attempt. However, the first key did not bend until later in the experiment. It mysteriously bent while lying on a table in adjoining room, but before the end of the experiment while MM was still "hooked up" to the EEG amplifier. MM claims this delayed effect occurs occasionally with metal objects he is "psychically" bending.

In test 4, SE1 attempted to "psychically" bend 3 different keys, but no ramp functions were evidenced and none of the keys bent. Also, SE1 attempted "projection" to the same location AT had "projected" to. SE1 was able to mentally visualize being in the location but did not believe consciousness or awareness actually left the isolation room, as is believed by those who claim "projection" has been successful. No ramp function was found during this attempt by SE1. The energy percentages during the first 10.240 seconds of the attempt at a paranormal behaviour by SE1 are in the table and resemble what could be expected during a resting eyes closed behaviour. The spectrum is similar to Figure 2 except the alpha peak is lower in frequency and there is more higher frequency energy.

In test 3, AT believed his "projection" was successful. There were several ramp functions, the first of which occurred in the 10.24 second interval prior to AT stating "I am out", referring to AT being out-of-body. This first ramp power spectrum is Figure 6.

The ramp in Figure 7 was from test 5 and occurred as SE2 had begun to observe the investigator's "aura". Figure 8 is the power spectrum immediately following Figure 7 and is typical of what is seen following a ramp function power spectrum.

#### 4. Discussion

The "ramp function" as found in this experiment in subjects MM, AT, and SE2 appears to be a unique form of power spectrum distinguished

from the other 5 behaviour states presented. The ramp does not appear to belong to a family of curves or a continuum, in the sense that the form is either similar to figures 5, 6 or 7 or else the power spectra during attempts at paranormal behaviour are similar to figures 1, 2 or 9. In other words the ramp form is either present or it is not; and if not, the spectrum is what would be found in a resting eyes open, eyes closed or concentration behaviour. The above statement however, is based on observations from rather unique and gifted "psychic" individuals, and what will be found in individuals with "average" psychic abilities is not known. The average ramp function is characterized by the peak being in the 1-4 Hz range and by the following percentage composition:

Delta	8	Beta	20
Theta	39	26-100 Hz	14
Alpha	19		

The major peak is in the delta or low theta bands, and there is twice as much percentage energy in the theta band compared to beta band. The ramp is similar to what is found in a power spectrum of an individual who is asleep in stage III or IV sleep.

## 5. Summary

1. During the first 10 seconds of an attempt at paranormal behaviour by subjects with reportedly "psi" ability, the EEG power spectrum at the vertex demonstrates a form characterized as a ramp function.
2. The ramp is distinguished by a peak in the delta or low theta band, with most of the energy in the lower EEG frequencies with percentage theta twice that of beta.
3. Motoyama's (1965) finding of an increased theta energy in high scoring ESP subjects during paranormal behaviour is confirmed.
4. The ramp function does not appear to be related to the following behaviours:  
resting eyes open, resting eyes closed, movements of muscles, talking, or intense concentration.  
The ramp function appears to be a unique physiological correlate of paranormal behaviour in the 3 psychics tested.
5. The ramp function was found in all three of the types of paranormal behaviour attempted: "psychokinesis", "projection", and "aura-viewing".

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Toronto Society for Psychical Research

30 June 1974

# New Horizons Research Foundation: a Report on the First Four Years

SUMMARY OF ACTIVITIES, JULY 1970-JULY 1974.

In the four years of its effective existence as an established and going concern New Horizons has achieved the following:

**Publications** 27 papers in "New Horizons"  
4 editorial articles

In addition, the Director has elsewhere published 10 articles on the psychology of anomalous experience and on parapsychology (and 3 books).

2 books by members of staff have been accepted for publication (Canada and U.S.A.):

*Psychic Discoveries in Canada*

*Philip: The Imaginary Ghost*

A film "Philip: The Imaginary Ghost" has been made and is being commercially distributed.

## Publications in preparation

Book: *History of the Buddhist Sages* (with K. Thinley).

Books: on the theme, *The Mysterious Americas*, to be extracted from the already collated material.

Book: *A handbook of Dreams*.

## Research

Results sufficiently definitive for publication (papers already published or in preparation), have been obtained in the following fields:

1. Meteorology (atmospheric electric discharge),
2. Secular effects on plant growth,
3. Alleged biological or molecular effects of pyramidal and other containers,
4. Biorhythm in humans,
5. Normal visual perception,
6. Experimental dowsing,

7. Techniques for age-regression hypnosis, and pseudomemories thereunder,
8. An evaluation of the Piri Re's map,
9. Velikovsky's chronology;

in parapsychology proper

10. Statistical treatment of verbal ESP responses,
  11. Lack of dependence of ESP on distance,
  12. Forms of ESP channel (handwriting, psychometry of objects etc),
  13. Evoked response of the brain to telepathic messages,
  14. Spontaneous ESP and P.K.,
  15. Thoughtography,
  16. Validation of Voluntary P.K.,
  17. Group technique for P.K. (Philip),
  18. Validation of Geller's phenomena,
  19. "Ramp functions" in the EEG power spectra of "psychics";
- also 20. Ideas relevant to psychology and medical psychology; acquisition of psychological skills, ESP erroneously taken for neurotic or psychotic symptoms, P.K. as a symptom or defence mechanism in neuroses or psychoses.

### Research still in progress

Plant sensitivities, rhythmical spontaneous electrical activity of plants, secular variation in plant growth, alleged UFO landing rings, dowsing, group meditational exercises, age-regression, personality profiles of normal and "psychic" persons, correlation of handwriting with personality, group ESP and P.K., limits of normal perception, "blind-fold sight".

### Collation of information

We have put together an extensive and reasonably comprehensive library on subjects representative of frontier research; history and philosophy of science; psychology, psychedelics, parapsychology, archaeology, anthropology, ethnopharmacology, primitive medicine, earth sciences, strange phenomena, U.F.O.s, fringe archaeology, radiesthesia, dowsing, systems of unorthodox healing, acupuncture, etc.

A survey of pre-Columban antiquities of the American continents. In addition to use of library sources, on-site visitation of many relics has provided a unique collection of original photographs. Publication of some or all of this material in various forms is under review.

Some reconnaissances of potentially interesting archaeological relics in South America have been financed and scientifically evaluated.

## Contacts

New Horizons maintains fruitful dialogue with various other institutions and Societies, individual researchers in various parts of the world, and with Faculty members of several Universities in Ontario and elsewhere.

## Conferences

Seminars and Conferences on parapsychology have been organized from time to time.

The proceedings of the Conference on Psychokinesis held in June, 1974, will be published within the next few months.

## An Invitation

*New Horizons* is the first Canadian Journal for frontier research. It has been privileged to publish reports of outstanding significance concerning entirely new breakthroughs into previously unknown realms of human potentiality, but aims always at maintaining the highest level of factual accuracy and scientific objectivity.

You are invited to support the work of the New Horizons Research Foundation by giving an annual donation of \$10 or more which will make you an Associate and entitle you to all its journals, newsletters, etc.

## Books of Significance

A. R. G. Owen: *Can We Explain the Poltergeist?*

A. R. G. Owen: *Hysteria, Hypnosis and Healing.*

*George Owen and Victor Sims: Science and the Spook.*

The above are obtainable from booksellers and are distributed by Taping Publishing Co., 200 Park Avenue South, New York, N.Y. 10003).

*Allen Spraggett: Arthur Ford, the Man who Talked with the Dead.* (New American Library, New York).

*J. Allen Hynek: The UFO Experience* (Regnery, Chicago).

**"PHILIP THE IMAGINARY GHOST:** A film, professionally made, showing how a group of ordinary people developed a revolutionary new technique for generating genuinely paranormal physical phenomena (sounds and movements of objects) during their efforts to make their own ghost.

To rent or purchase this film contact: *George Ritter Films Limited, 38 Yorkville Ave., Toronto 5, Ontario, Canada* or *Toronto Society for Psychological Research, Box 427, Station F, Toronto, Ontario, Canada.*



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# New Horizons

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PROCEEDINGS OF THE FIRST  
**CANADIAN CONFERENCE  
ON PSYCHOKINESIS**

AND RELATED PHENOMENA

**JUNE 1974**

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NEW HORIZONS RESEARCH FOUNDATION

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Professor Brian D. Josephson, F.R.S. *Cavendish Laboratory. Fellow of Trinity College, Cambridge. Nobel Laureate (Physics) 1973.*

Matthew Manning, *Author and literary editor.*

Dr. Karlis Osis, *Director of Research, American Society for Psychical Research.*

Dr. A. R. G. Owen, *Former Fellow of Trinity College, Cambridge. Director New Horizons Research Foundation.*

Professor Michael A. Persinger, *Psychophysiology Laboratory, Laurentian University.*

Professor Roger Smook, *Department of Philosophy, University of Guelph.*

Dr. Alex Tanous, *Psychologist, Mental health worker.*

Dr. J. L. Whitton, *Physician, Vice-Chairman Toronto Society for Psychical Research.*

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Professor J. Norman Emerson, *Department of Anthropology, University of Toronto. President of the Canadian Archaeological Association.*

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\*Apologies were received from the following invited participants who were unable to be in Toronto at the time of the Conference, Professor Arthur Abrahamson, Chairman of Toronto Society for Psychical Research, Professor John Beloff, Department of Psychology, University of Edinburgh, President S.P.R. (U.K.), Mr. Uri Geller, Professor Wyman Harrison, Department of Geography, University of Toronto.

## EDITORIAL NOTE

The Conference took place 18th June, through 28th June. Plenary sessions for reading of papers were held on 20th, 22nd and 23rd June together with discussions, showings of films and videotapes and demonstrations of psychokinesis by Matthew Manning and by the "Philip" group. All other proceedings were informal and consisted of discussions and experiments with Dr. Tanous, Matthew Manning, and the "Philip" and "Energy Concentration" groups of the T.S.P.R. The Conference Chairmen have given a concise account of the experiments and demonstrations, and it has been inserted prior to the report of the plenary sessions (1 through 7 below). The latter report was prepared by the Editor from the audiotape record made by the Recording Secretary and the texts have been approved by the speakers. To simplify presentation and minimise printing costs answers to questions have been incorporated in the texts. The report though essentially accurate does not pretend to be completely verbatim.

# Report on Demonstrations and Experiments performed during the Conference

DR. A. R. G. OWEN and DR. J. L. WHITTON

The following report has already been published in part (Owen, 1974; Whitton 1974).

## (a) *Experiments with Matthew Manning.*

On 18 June Professor Josephson and Robin Owen tested Matthew Manning's ability to deflect a compass needle. When the experimenters verified that the subject was not bearing a watch or other metal object, Matthew passed his hand over the compass at a distance of about six inches above it. The report says:

The needle started at rest. When M.M. moved his hands, the needle moved about. The needle stopped immediately afterwards, in spite of the fact that it was very weakly damped so that it would have been expected to continue swinging for some time (*Brian Josephson, Robin Owen.*)

A similar experiment was recorded next day, 19 June, on videotape.

That evening Michelle Whitton and Robin Owen testified in writing that while Matthew was holding the stem of an *Oneida Stainless* fork so that the fork was fully in view the head of the fork bent back slowly nearly  $180^\circ$ . Dr. Owen, Robin Owen and Dr. Whitton recorded their testimony as to two other forks that had slowly deformed themselves while under observation in Matthew's hand. Together with Michelle Whitton they deposed that at about 8.15 p.m. a knife of somewhat robust steel construction — *Ashberry Stainless, England*, which had not been touched by Matthew, was in Iris Owen's hand about twelve feet from where Matthew was sitting. The witnesses noticed that it was in process of bending. It continued to deform until the blade was about  $10^\circ$  away from its original plane.

The following entries are taken from the logbook for 20 June:

At 2.03 p.m. Matthew bent an aluminium key (*Weisser, E41165*) to an angle of  $5^\circ$  about  $\frac{1}{4}$  in. from the points (*J. Whitton, W. McQuestion*).

Two of the keys from my keyring (Volvo car key, *Taylor Lock Co. V79D*; housekey, *Cole National U.S.A. CO7*) taken off sepa-



rately — about one hour apart — were bent while Matthew held them in his hand. He did not leave the room nor did he exert any muscular effort on them that I could note (*J. Allen Hynek*).

At approximately 6.10 p.m. Matthew asked me for a key to attempt to bend. I removed my house key (*Dexter 28469T*) from my chain and handed it to him. Matthew clasped the key in one hand. Without leaving the room and with no visible muscular effort Matthew succeeded in bending the key. After it was handed back to me, the key continued to bend. (*Allen Spraggett*).

About 4.15 p.m., Professor Emerson gave Matthew a key which Matthew held in his hand. It bent through about 15° at a point about ½ in. from the tip. (*A. R. G. Owen, J. N. Emerson*).

About 4.00 p.m. while being watched by twenty or so people whose questions he was answering Matthew successively received two of Bruce Raymond's keys and held each in turn in his hands without applying any muscular effort. The keys were successively bent each in the space of about five minutes. One was the key of Bruce Raymond's apartment and had to be placed in a vice and subjected to ten minutes vigorous hammering by the building superintendant before it was straight enough to insert into the lock. Later that evening while driving with Bruce Raymond Matthew held in his hand a key (*F9, Fleur de Lys*, previously flat), supplied to him by Robin Owen. After about 40 minutes it was curved through 90° at about ¾ in. from the tip. During the night it continued to bend. On 21 June it was photographed but bent further and had to be photographed again. In its final state it had bent about 150° and was split through one-third of its width. (*A. R. G. Owen, Robin Owen, Bruce Raymond*).

About 6.45 p.m. Matthew held Margaret Sparrow's key (*Dominion Lock Co. Montreal — 145*) in his hand for a few minutes. It divided into two pieces the cleavage being at least ½ in. from the tip. (*M. H. Sparrow, A. R. G. Owen*).

The following items were recorded under 21 June:

At 5.22 p.m. I was sitting in the office next to Matthew who was telephoning Peter Bander in England. He was holding the receiver with one hand. Into the other I put a key (*Dominion Lock Co. Montreal DL6*). He held it quietly in the palm of the one hand. After five minutes he finished speaking and opened his hand to look at the key which had divided through at a place about ½ in. from the tip. (*A. R. G. Owen*).

About 9 p.m. Mr. D. C. Webster held one of his own keys (attached to his keyring) by the haft. Matthew briefly put his fingers round the blade which immediately bent. Matthew then did exactly the same with a key belonging to and held by a visitor — a very senior member of the University of Toronto (*D. C. Webster, A. R. G. Owen*).

At 11.15 p.m. Matthew bent a key (*Russwin 7-N, BA-1*), belonging to the front door of Laurentian University, without using any apparent physical force. (*M. A. Persinger, J. L. Whitton*).

All the keys mentioned above were ones that had been in use. However on 2 July 12 new identical uncut brass key blanks and 4 steel ones were bought at Reilly's Lock Shop, 16 Isabella St., Toronto, at 4.15 p.m. Between 5.30 and 6.30 p.m. Matthew bent one steel key, and five brass keys and bent and divided a sixth brass key. About 6 p.m. the next day Matthew was holding a brass key blank; it bent through about 30°. It was then noticed (by A. R. G. O. and R. E. O.) also to be divided half-through. While Matthew was still holding the haft the division in the shaft visibly increased as if there was a steady loss of metal. After about 10 minutes it had divided completely.

On 19 June Professor Douglas Dean took a number of Kirlian photographs of Matthew's fingers, using a portable Kirlian apparatus whose Tesla coil generator gave about 25,000 volts A.C. in the range 0.1 to 1 megahertz in pulses at the rate of about 50 per second. Polaroid Color-packs type 108 were used in the sawn-off back of a Polaroid camera which was sealed to a double black camera bag (devised by Robin Owen).

Matthew put his right hand into the bag with the middle three fingers in contact with the (back of the) polaroid film. He attempted so far as possible to maintain a normal resting physiological and mental state during a two second exposure as determined by a timer. Matthew then moved the same fingers to another location on the film and switched from his normal state into the state he is in when bending metal, that is, he turned the "power" on. A two second exposure was given, and repeated with Matthew's fingers in a third location but Matthew again in a normal relaxed state. In the resulting photograph the aureoles or coronas were much brighter for the "powered" state than for the normal state. In addition, whiteness filled up the "finger-prints" right into their centres giving a cloud of brilliant white. I have never seen that before.\*

In further experiments Matthew was able to "concentrate the power" into a narrow area and also to direct it into the middle finger only. In an experiment with two Kirlian devices, one for the right and the other for the left hand, which, by trial, were calibrated for approximate equality, he was able to make the power go into the right but not the left hand and *vice versa*. (Douglas Dean).

#### (b) *Frequency analysis of electroencephalograms.*

On 22 June and several subsequent occasions one of us (J.L.W.) in the presence of various of the Conference participants (including Professors Hynek, Josephson and Persinger and Drs. Highman and Kurtz) using repeated sampling determined the power spectrum of Matthew's EEG in each of five states, (i) resting with eyes open, (ii) resting with eyes closed, (iii) making head, neck, and eye movements, (iv) talking,

\*See the jacket of Manning (1974).

and (v) attempting to bend a key paranormally. As described in Whitton (1974) the distribution of power in Matthew's EEG spectrum when he was in state (v) was quite different from that in any of the other states. It was characterized by a large concentration of energy in the Theta waveband (i.e. frequencies between 3 and 7 Hz.) and also by a linear relationship between the peaks in the Theta, Alpha (8-13 Hz.) and Beta ranges conferring a peculiar appearance on the graph of the power spectrum so that it was dubbed a "ramp" function.

The striking and unexpected nature of this result is best conveyed by noting that spectra of this kind with a major concentration of energy in the Theta band are only very rarely encountered in the waking state; instead, they are characteristic of sleep in stage III or stage IV.

The experiment was repeated with Dr. Tanous as subject in states (i) to (iv). In the fifth state (v) he did not attempt paranormally to bend metal, but entered his OOB state. The experiment was repeated again with a third subject whose state (v) related to an attempt to view the experimenter's aura. Interestingly enough both subjects exhibited a large amount of Theta in their (v) state. It is possible therefore that production of Theta may be common during paranormal operations.

*(c) Demonstrations by the "Philip" group.*

On several occasions the "Philip" group demonstrated the "Philip" phenomena — both table movement and raps in "answer" to questions — in the presence of Conference speakers and other participants. In fact many of the visitors were incorporated in the group and sat or stood at the table, put questions to "Philip" and received answers often by raps under their own hands. Often the raps were audible several feet away from the table.

# CONFERENCE PROCEEDINGS

## 1. Opening of the formal sessions.

*Opening the plenary session of 20th June, Dr. Owen said:*

Some of the distinguished participants have already spent some time in discussion and experiment at the informal sessions of this Conference. It is now the pleasure of myself and my Co-Chairman, Dr. Whitton, to welcome also those Conference speakers and participants whose duties prevented them from arriving earlier.

I would like to introduce our two Conference Presidents, William McQuestion and Donald Webster, who are the people who have made this Conference possible. Mr. McQuestion helps our work at New Horizons in various ways. At the moment we are feeling especially grateful to him because he very generously undertook to pay the costs of arranging this Conference. I have been told by several of our Toronto associates that, in their opinion, the mixture of personalities and talents represented at the Conference will be a memorable one and is likely to bring about a turning point in our understanding of psychokinesis. I would therefore very much like to express our appreciation to Bill McQuestion.

Our other Conference President, Donald Webster, is the original source of the inspiration and impetus which our institute, New Horizons, is contributing to the study of psychokinesis and related problems, because he is the founder and President of New Horizons and its long-term benefactor. I trust that before too long his effort and foresight will prove to have been worthwhile and to have led to important additions to human knowledge. While science is, and should be, truly international (as exemplified by today's gathering) I am sure that no one present will resent my expressing the additional hope that these initiatives will also contribute to Canada's scientific standing and reputation for introducing new things into the world.

## 2. The Empirical Evidence for Psychokinesis.

*Dr. A. R. G. Owen: The evidence for psychokinesis.*

Occasionally in everyday life a "kinetic" event takes place, e.g. the unexplained flight of a spoon described in *New Horizons* Vol. 1. No. 1. Events which are in some degree willed or intended, can properly be called "psychokinetic". The classical work in this field was done in Professor J. B. Rhine's laboratory where subjects demonstrated minute effects on the fall of dice.

More recently films have been made showing Mde. Mikhailova in Russia moving a compass needle, or the whole compass, or other objects weighing about an ounce, across the surface of a glass table.

Three years ago we ourselves made many observations of Jan Merta's phenomena. He was able to control the motion of a mobile consisting of two chicken feathers suspended by a thread inside an airtight jar. To develop this ability he put himself on a diet of European sausage and ryebread. When carrying out psychokinesis (P.K.), he controlled his breathing somewhat on Yoga principles and put himself into a relaxed state of mind "intending" the motion of the feather without strongly willing it to happen. (Compare with *Zen in the Art of Archery* by Mr. Herigell).

The force involved in moving the feather is about one twentieth of an ounce, which is about the same as that exerted voluntarily on a balance by Uri Geller at the Stanford Research Institute.

Yesterday our guest Mr. Matthew Manning on several occasions deflected a compass needle.

A number of historic cases of P.K. can be described as sub-voluntary. Thus on innumerable occasions the famous medium, D. D. Home would go into a light trance, and quite substantial objects would move in his presence, such as the accordion evidenced by Sir William Crookes.

My own interest in the subject of P.K. was aroused about 15 years ago by cases that seemed to be involuntary; i.e. the events do not seem to be the result of conscious volition by the people concerned. At the time even the parapsychological profession was luke-warm to poltergeist phenomena (or "spontaneous recurrent P.K.") as these happenings are called. Partly as a result of my own efforts, poltergeistery is now accepted as a valid paranormal phenomenon. What is interesting is that in their early phases these P.K. effects are quite involuntary at the conscious level. However they may be under the control of the unconscious mind. For example in the Karen case in Sweden in 1905 the phenomena were modified by hypnotising the lady on whom they were focussed (Owen, 1964).

People in a poltergeist situation frequently ascribe the strange P.K. events to the operation of disembodied "spirits". Careful examination of actual cases suggests however that the psychokinesis is a function of the

human beings present, and of them alone. This leads logically to a re-examination of the physical phenomena of spiritualism. For a century or more people have been sitting in the dark around tables in the hope of communicating with deceased relatives. It is often supposed therefore that the P.K. phenomena which are sometimes alleged to occur — production of rapping sounds — movements of the table or other objects — are fraudulent. However the same phenomena can be produced in settings which are more amenable to scientific evaluation. Thus the phenomena obtained in a circle with Stella Cranshaw by Harry Price in the presence of such fine investigators as Everard Feilding seem to have been genuine P.K. Moreover there was no positive indication that the P.K. events were the work of spirits or of any other being than the persons present — perhaps Miss Cranshaw herself.

During the last ten years Dr. Batcheldor, and then Mr. Brookes-Smith in England, each worked with a small circle of people who were not chosen because they were supposed to have psychic or mediumistic ability. They followed a theory first put forward by Dr. Batcheldor that if any group got together in a sufficiently cheerful and animated way, addressing themselves to an imaginary entity, or to the table that they sat around, then P.K. phenomena would result. This proved to be the case. Each group produced knocks and bangs in the table and elsewhere, and quite violent movements of their table and other objects. These results have been reproduced by the so-called “Philip group” of the Toronto Society for Psychical Research.

Originally this group embarked on an experiment in pure psychology in which in the course of weekly meditations they sought to experience a collective hallucination. The figure they wished to hallucinate was “Philip”, a completely fictitious 17th century nobleman whose imaginary biography had been written to ensure that if “he” manifested “he” could not be confused with a real spirit. In the event, as described in *New Horizons*, Vol. 1, No. 3, and in the film (and forthcoming book) *Philip: the Imaginary Ghost*, the group obtained not the spectre of Philip, but physical phenomena which appear very conclusively to be the product of group intention — voluntary collective P.K. or “P.K. by Committee”.

Recently a new form of P.K. has come into prominence, this is bending and dividing of metal, first made famous by Uri Geller. In March of this year we were fortunate enough to do what was in fact a proper experiment with Mr. Geller. It was done in the studio of CITY-TV in Toronto. So far from apologizing for this fact we regard it as conferring a great scientific advantage because the metal objects and his handling of them from first to last were kept under continuous view by the TV cameras. This resulting continuous record is a remarkable scientific document — it leaves no doubt that the objects — which were our own and recovered

after the experiment — were bent or divided by some unknown process and not by common trickery. (*New Horizons*, Vol. 1, No. 4).

Just as interesting as the fact that we have been able to validate Mr. Geller's phenomena for ourselves, is the finding that our guest Mr. Manning can also produce the Geller effect and has done so many times already since his arrival at New Horizons.

So-called "psychic", "spiritual", or "faith" healing when it is effective usually functions by purely psychological means. This is so even when the illness is physiological, because a boost in the patient's morale may heighten his own physiological powers of recuperation. However some healers seem to function by laying on of hands. In the case of eight such healers Dr. Justa Smith of Rosary Hill College, Buffalo, showed that when they held test-tubes containing various enzymes in solution, the chemical activity of these enzymes was increased. This would seem to be a psychochemical effect. It may be legitimate to regard it as a subtle form of P.K. "Thoughtography" — the apparent ability of the mind to affect photographic emulsion as demonstrated by Ted Serios or by Fukuri's subjects would also seem to be a psychochemical effect.

It is tempting to speak of P.K. effects as being produced by a 'force' but this may be misleading. The production of a P.K. effect by a living subject at a distant point bears little resemblance to the radiation of any actual physical forcefield from its source.

It is also tempting to think of P.K. and ESP as variant forms of the same force or field. However we should take warning from the situation in physics where attempts to unify the four basic forces have failed, only now are there some indications that the electromagnetic field and the weak nuclear interaction can be regarded as different manifestations of the same thing (Cline et al., 1974).

The purpose of this Conference is theoretical discussion of the manifold problems presented by psychokinesis, but discussion in the light of actual experience of P.K. as seen with one's own eyes. There is no complete substitute for such experience. We are therefore very grateful to have Matthew Manning with us.

*Dr. Owen then introduced Mr. Matthew Manning, as follows:*

It is a great pleasure to introduce our guest Matthew Manning from Cambridgeshire, England, because he is one of those rare persons endowed with a high degree of psychokinetic power. Furthermore we happen to be particularly well acquainted with the way in which his powers have developed. This is because my wife and I were in on Matthew's phenomena from the beginning when in 1967 at the age of eleven there was for some weeks mild poltergeist activity in the Manning household. In addition, Matthew himself has recorded the stages of his development

in his own book *The Link* (Manning, 1974) which is therefore a valuable scientific document. By the summer of 1967 it seemed that, like the majority of poltergeist people, Matthew had lost or suppressed his psychokinetic power, perhaps for ever. However, four years later, in 1971, poltergeist phenomena revived in abundance and with great vigour both at home and at boarding school where they were rather amply witnessed. It must have been at this time that I said that he might be the most powerful P.K. person in the world.

Interestingly enough, instead of being episodic, the newly revived P.K. ability proved to be chronic and lasting. I am quoted in Matthew's book (page 62) as having written that *if* he did retain the power it might take the additional form of mental phenomena (telepathy, clairvoyance, etc.), also that he might retain the power and achieve a high degree of voluntary control. It is pleasant to have a prediction verified. As will be discussed in a later section, Matthew succeeded in substituting other activities for the poltergeistery, but throughout has retained the capacity for P.K.

In January last Matthew found that this P.K. ability could be channelled into what, for him, was a new phenomena. After watching Uri Geller's television broadcast Matthew tried gently rubbing a spoon while mentally urging it to bend which, after ten minutes it did, suddenly becoming pliable and then drooping under gravity until it resembled a hairpin. He then bent a six-inch nail. As reported elsewhere, in this Conference during the last three days Matthew has bent 20 or 30 objects, keys and cutlery, often under close observation and testified to by witnesses in signed depositions. Some of these objects are exhibited. With them also are objects which he bent manually into fantastic shapes after they had become pliable. I should stress that metal-bending *per se* is not an activity in which Matthew sees significance. He has practised the ability lately merely for this Conference because we are interested in P.K.

#### *Matthew Manning: My Metal Phenomena*

I should begin by saying that I think that the power I use in metal-bending is some energy generated in the mind or in the brain and is identical with that which I use for automatic writing. It's just an energy and I can divert it, within certain limits, according to choice. I believe that everyone has this energy in a latent form; for some unknown reason it is manifest in a few people. So far as I can see the ability is not inherited in the ordinary sense (though, of course, it may have a biological, congenital or genetic basis), because there is no real history of psychic phenomena in my family. My mother claims only to have her fair share of feminine intuition, though I think she has a high degree of ESP; when I tested her with ESP cards she consistently averaged 9 hits out of 25 calls.



The availability of the energy doesn't seem generally to be affected by external circumstances such as time of day, season, moon phases or whether I am on the ground or in an aircraft. However, I do tend to produce an exceptional amount of phenomena just before a thunderstorm.

In the metal-bending I do not feel that any "spirits" or external entities are involved; I merely use crude energy to disturb the molecular structure of the metal. I use no preparatory techniques of meditation. I just concentrate on the metal object say, a key. For two or three seconds I direct all my thoughts into the object. Once I've done that, it will usually start bending and it continues to bend in the hand of myself or someone else. While I am concentrating I can feel something, perhaps energy, going out of my fingers. I do not feel this in my mind but actually in my fingers. I should make it clear that I do not concentrate on my fingers but on the key itself. The energy carries through my hands — it's like holding a lens up to the sun — the sun's rays become concentrated so as to burn a piece of paper. I just think about the key and then I feel the energy going out of my hand after I've thought about the key. The key will get warm but it may merely be warmth from my hands.

On occasion I can affect an object at a distance. This usually happens in an involuntary way. For instance on Wednesday we were all at supper in this room. Mrs. Owen was about twelve feet away from me and had just picked up her stainless knife. She noticed that it was starting to bend. Dr. Owen, Dr. and Mrs. Whitton and myself all watched it continue to bend. On Tuesday we all went to a place about 600 yards away for lunch; Dr. Owen had laid a spoon on his desk. When we came in we saw that it had bent. When I had poltergeist activity at school, events would often occur at distances of as much as 400 yards. On two occasions objects were moved at my home which was about 70 miles away.

### 3. The Psychology of Psychokinesis

The papers in this session were preceded by a viewing of three films

- (i) *Can We Explain the Poltergeist?*
- (ii) *A Mild Case of Haunting*; and
- (iii) *Philip: The Imaginary Ghost*; as well as
- (iv) the video tape record of Uri Geller's demonstration at CITY-TV.

*Dr. Owen then introduced the session as follows:*

Over the years it has become apparent that P.K. involves psychology as well as physics. The work of the English groups and the Philip group of the Toronto Society for Psychical Research have shown that voluntary P.K. results if a group, as a group, trains itself in a particular psychological skill. Mr. Jan Merta's work illustrates the same fact; he obtained

his voluntary P.K. phenomena only after learning how to put himself into the required state of mind. It is not yet possible to write a comprehensive textbook prescribing the psychological prerequisites for P.K. However, Dr. Whitton and myself both believe that some progress has been made and we offer our papers as a point of departure for future discussion.

*Dr. A. R. G. Owen: The aetiology of poltergeistery*

An extensive survey of poltergeist cases which I published in 1964 disclosed the following statistical facts about those individuals capable of spontaneous recurrent psychokinesis (i.e. poltergeistery):

- (a) their frequency in the general population is low. This unambiguously indicates that the faculty is idiosyncratic, implying a genetic or constitutional basis.
- (b) their ages occupy a bell-shaped distribution curve falling mainly between the ages of 10 and 20. Outriders occur beyond these limits but with rather low frequency.
- (c) poltergeistery is only partially sex limited, occurring perhaps somewhat (though not very much) more frequently in females than in males.
- (d) in a high proportion of cases nervous tension is detectable either in the poltergeist individual or in the family situation. In an above-chance proportion of cases there are overt signs of psychoneurosis (particularly hysteria) as indicated either by behavioural signs — delirium or somnambulism, or conversion symptoms — paralyses, blindness, hysterical fits, or comas.

In the past writers have argued from a rather vague perception of (b), (c) and (d) that poltergeistery is a function of the adolescent state and ascribed it to physiological exuberance and/or psychological stress. It is desirable however, to probe a little deeper. On the basis of (d) we may conclude that psychological stress is an aetiological factor. Also the sex-ratio (c) is curiously similar to some recent estimates of the sex-incidence of hysteria. But psychoneurosis (and hysteria in particular) have higher incidences in older age groups and a purely psychological explanation cannot apply to the age cutoff which has to be regarded as somewhat mysterious. It is equally unsafe to ascribe the cutoff to bioenergetic factors because the physical work in footpounds done in poltergeist P.K. is usually negligible in physiological terms, and well within the capacity of small infants.

The association with hysteria offers, however, a limited degree of enlightenment. There is a parallel with religious stigmatics, a notable proportion of whom show overt hysteria. But with stigmatization as with poltergeistery a large proportion of subjects (indeed the majority of

them) cannot be described as hysterical. Religious stigmatics, moreover, are predominantly female though male cases are known. Hence (by a legitimate inference from the statistics) hysteria *per se* cannot be the cause. However, it is easy to recognize those factors of personality which are common to the generation of hysteria and the adoption of stigmata. These are a kind of auto-suggestion, and a capacity for unconscious control of bodily processes manifested in skin lesions and blood flow in the stigmatic and in conversion symptoms in the hysteric.

To identify the personality factors common to the hysteric and the poltergeist subject, it is useful to go back to Breuer and Freud's *Studies on Hysteria* (1895). They said that human beings normally release nervous tension (or "excitation" as they called it) by (i) actual biological response (such as making love or by physically assaulting their enemies), or by (ii) a conscious psychological process of attrition (e.g. "simmering down"), or by (iii) surrogate physical activities (such as tensing the muscles, biting the carpet like Hitler, or smashing Dresden vases like Prince Bismark). If routes (i) and (iii) are blocked by circumstances and route (ii) is blocked by psychological repression forcing the excitation out of consciousness then neurotic symptoms may result: — phobic, obsessional, dissociative or conversional.

On this line of reasoning the factors comon to the aetiologies of hysteria and poltergeistery would be the initial charge of excitation and the tendency to repression. It would be incorrect however to regard the P.K. phenomena as essentially conversion symptoms. It is however plausible to regard them (at least in their early stages) as a fourth route, open to a few specially endowed people, of working off the repressed excitation; or, more precisely, it is route (iii) in the form of surrogate "paraphysical" activity. This explanation has the advantage of explaining one feature common to the vast majority of poltergeist cases, the fact that they are of limited duration — days, weeks or at most a few months. Sometimes this is explicable in terms of an alteration of the family situation in a direction which tends to reduce the causes of tension. However, one does get the impression that usually poltergeistery is self-extinguishing, as on the present theory it ought to be, for the simple reason that the phenomena (like the symptoms of fever) represent not the disease but its cure.

The above reasoning is a slight elaboration of what I said in 1971(a) and 1972(a).

*Dr. Joel Whitton: The psychodynamics of poltergeist activity and group P.K.*

In this paper on the psychology of the poltergeist phenomena (or spontaneous P.K.), I assume that the phenomena, whether table tappings

or object movements, are not hallucinations or sense deceptions but really took place and can be mechanically recorded. I assume also that these phenomena are produced by human thought directly without resort to fraud. I think that these assumptions are valid and adequately based on the observations of sincere and scientific investigators and various audio-visual records made in recent years. Although the existence of these phenomena has been established little progress has been made in understanding how the psyche produces physical effects. However, various attempts have been made at discovering the psychological meaning of poltergeistery — why it occurs.

In 1948 a psychoanalyst, Nandor Fodor, asked what is happening in the unconscious of a poltergeist person. On the basis of psychological observations of a poltergeist subject, Fodor believed that poltergeist manifestations resulted from a profound cleavage of personality — an explosive loosening of an infantile part of the psyche in which severe conflicts are kept repressed. Fodor acknowledged his theory to be an elaboration of the concept of “psychorrhagic diathesis” put forward by Myers in 1903. Fodor believed that this split-off part of the personality, because of the severe conflicts it contained, had enough energy or power to affect and modify space and objects. Fodor’s belief that the poltergeist phenomena was a result of a major personality disintegration was based on observation of a single poltergeist subject who was suffering from a particularly acute ‘emotional disturbance’. He did not report poltergeist happenings in individuals whose personality structure was intact. His observations were therefore somewhat biased as poltergeistery does happen in association with persons who do not have defects in ego structure.

Other analysts and psychologists have since reported observations and presented schemes to account for various parapsychological phenomena. A Jungian analyst, Dr. Mary Williams (1964), believed, as did Fodor, that the poltergeist represented a split-off part of the personality. Although she uses Jungian concepts to describe her study of a particular patient, “Roger”, who had poltergeist activity in his home and in her office, she believed that conflicts, if they became separated from the self — from the ego — tend to manifest through various body sensations and to be perceived in the behaviour of external objects. Two other psychiatrists, Dr. Jan Ehrenwald and Dr. S. R. Dean state that there is an area of personality resident within us wherein extrasensory perception and other paranormal phenomena interface with conscious awareness. Ehrenwald refers to it as the “psi-level of functioning” and Dean calls it the “ultra-conscious”. Both authors have pleaded for more open reporting of parapsychological phenomena and have raised the possibility of such phenomena occurring in dreams, psychotic reactions, delusional material and out-of-the-body experiences.

Ehrenwald (1954) also studied those factors in the patient-therapist relationship which can lead to paranormal phenomena. Usually the patient is emotionally dependent on the therapist and there is a close personal bond or rapport between them. As well both have an open and positive attitude towards the possibility of paranormal occurrences. The psychological significance of the particular paranormal "behaviour" (for so, in this context, it has to be called) to both patient and therapist is also important. By psychological significance Ehrenwald meant that the behaviour could be dynamically interpreted in the context of the transferences neurosis. Later (1955) another therapist, Balint, restated paranormal behaviour in the context of an ambivalent relationship between the patient and the therapist. He believed that when the therapist is temporarily preoccupied with his own personal problems, the patient may behave in a paranormal manner so as to redirect the therapist's attention back to the patient.

Let me give an example of a poltergeist phenomena occurring within the context of a therapeutic relationship with one of my patients.

Her name is fictitious as well as most of the details concerning her life. The events in the office are true. Margaret was a 42 year old married lady who had been in therapy with me for 8 months at the time of the following incident. In my office at that time was a coat tree of about 5 feet in height of standard structure with the usual prongs going up and with two pieces of wood with an X at the base. During the winter months, my overcoat and usually the patient's would be hanging on the coat tree. It was about 20 minutes into the therapy hour during the period when the patient's transference towards me was particularly hostile but was being repressed and avoided by the patient. Suddenly the coat tree toppled over and struck me on the right leg. In examining the coat tree with the particular arrangements of the two coats that were on it, I found that it would have had to tilt about 40 degrees from the vertical in order to topple over and had it been left at such an angle following the placement of coats upon it, it would have impeded my entrance-way and not allowed me to pass to my usual chair. As it had not so projected into the room, I was assured that it had been left in an upright stable manner and that its falling over onto me was due to an expression of anger from the patient towards me using a poltergeist force. This case was a dramatic example and not typical but it does illustrate what can happen. Margaret was a known and verified poltergeist subject prior to commencing therapy with me, and occasionally performed unconsciously such feats as I have described. One would actually have to see the circumstances of the coat tree to be assured that it was a valid poltergeist experience and I am reminded of Dr. Treviranus' statement to Coleridge. "I have seen what I would not have believed on your testimony and what I cannot therefore expect you to believe on mine."

Now, poltergeistery is not like automatic writing which requires direct muscular activity to produce it. Poltergeist behaviour is somehow produced by the brain. Recent experiments published in *New Horizons* (Lloyd, 1973) indicated that the brain does respond to other person's thoughts when deliberate efforts are made to telepathically transmit those thoughts. These experiments suggest that there is some "force" emanating from the brain that contemporary physiology has yet to discover. Reported and verified poltergeist phenomena can be divided into two groups on the basis of whether the phenomena can be voluntarily controlled or not. In the involuntary type there is spontaneous and induced poltergeistery. Induced poltergeistery is involuntarily produced by the subject in response to some conditioned stimulus. The voluntary type of poltergeist activity can be autonomously controlled by the psychic subject. Now these two types of poltergeist phenomena can be conceptualized a little more clearly within the context of the structural model of the mind in psychoanalytic theory. This model of the structural viewpoint groups mental events into three categories: namely, the Id, Ego and Super Ego. Now, the definitions of these I'm going to deal with except Ego, which is essentially defined in terms of what its functions are. There are two groups of functions of the Ego. I realize that some of these concepts are new so I'll just divert for a moment. There are what's called maturational functions and these are some of the synthetic functions: creativity, perception, cognition, mobility. And there are what are referred to as the developmental functions of the Ego — our defence mechanisms that we use and our object relations. In this model the developmental functions of the Ego, our defences, and the way we relate to other people are usually associated with conflict. They are a learned process, whereas the maturational functions, our synthetic functions and our ability to think and perceive and move around, are what I refer to as autonomous functions; that is, they are free from conflict. In this model poltergeistery could be considered as a symptom defence pattern against some conflict and as long as the conflict is unconscious and unresolved, the defence or symptom (i.e. poltergeist behaviour) is involuntary in its action. The defence or the symptom will be evident whenever there is an internal or environmental event that re-enacts the conflict.

A familiar example of this kind of symptom is a tic. A tic is an involuntary motor behaviour pattern that is used by the ego unconsciously as a method of coping with some conflict. For example, the conflict of wanting to grow up and be strong and self-assertive but by doing so losing the maternal protectiveness and the family caring environment. If the tic symptom is conflict associated, then each time the threat of growing up is encountered, the tic is produced involuntarily. To an outside observer, this happens spontaneously or can be induced if you create the conflict situation for the person, they'll start "ticing;" or sometimes it'll happen

spontaneously and that's because certain things are going on inside their own minds. If the conflict is resolved, the tic symptom may still persist, but it is no longer driven by conflict or anxiety, and we say it is now an autonomous symptom that can now be voluntarily produced without approaching the conflict situation.

In developing a psychological theory of poltergeist phenomena, there are three items to consider. First, is there an infantile experience or model of the poltergeist which the adolescent or the adult regresses to or re-enacts during period of poltergeist activity. In other words, the first item is, is there a model from infancy which an adult could mimic? The second item is, what is the nature of the defence mechanisms employed by the ego in an individual poltergeist? Thirdly, is there something common amongst individuals who have poltergeistery? In other words, is there a typical personality that experiences poltergeistery? In the first few years of life before the capacity for abstract and rational thought was developed, many experiences present themselves as if having an unexplained or magical quality. Noises or sounds may be heard, and objects may be seen to move or disappear or magically reappear. Sensory experiences of touch or smell which happen to us before we develop the ability to think about them, may be strange, unexplained and possibly frightening. For example, a baby may hear the footsteps of someone walking on a bare floor above his. Looking towards the sound, nothing is to be seen. Not able to conceptualize the fact that the sound is simply due to someone's footsteps on the floor above the ceiling or to someone moving furniture around, the memory remains in the baby as a strange unexplained experience. Fear could be associated with this experience. For example, if the noises were particularly loud or startling or if the baby was alone and anxious about something else already — for example, the absence of its mother. In the above example, if anxiety or fear is associated with this memory — this memory of a strange unexplained sound that the baby hears — the whole entire conflict complex, the strange noise and the concomitant anxious experience of separation from its mother; the whole thing may be forgotten and repressed and lie dormant in the unconscious for years. Years later, the adolescent or the adult may experience an anxious separation which may re-enact the early memory of the associated strange noises. The hypothesis that I'm presenting is that in those individuals who have the psychic ability to produce poltergeist activity, the re-experiencing of early sensory memories, because they are associated with a certain fear, leads to those memories being relived or acted out or externalized in the physical world.

Thus, to continue the above example, the current experience of an anxious separation or other situation causing stress does not in itself cause poltergeist activity. It is because a similar conflict or fear experience has been associated with unexplained memories in the past. It is the remem-

bering of the previous similar conflict and its associated memories that directly leads to poltergeist in those individuals who have that particular psychic ability. Every time there is a threatened or an actual separation from a loved person or object, footsteps or scraping noises are heard in the room overhead. The original experiences of strange and unexplained and frightening noises may even have occurred before birth. Mothers are aware that sudden noises or jerking movements of the abdominal wall will cause the fetus to react. Spelt, a physiologist, demonstrated in 1948 that the human fetus can be conditioned using classical paradigms of association. Soft vibrations on the abdominal wall do not apparently cause the fetus to react but if these are paired with loud noises — if the soft vibrations occur at the same time as loud noises — the fetus soon reacts to soft vibrations in a similar manner to loud noises by kicking and moving about. Recently, another analyst, Ployé, (1973) has also explored the possibility of intra-uterine memories affecting behaviour in later life. Now commonly, in the individual for whom poltergeist phenomenon are happening, there are certain obvious emotional conflicts and stresses. In Professor Owen's book *Can We Explain the Poltergeist?* there are plenty of examples for this. The above theory or hypothesis assumes that at some time in an individual's past, a model for poltergeist activity was associated with a conflict.

The next item to consider is what kind of defence mechanisms the individual who uses poltergeist has. We can define an ego defence mechanism in the following way. It is an automatically and unconsciously employed mental mechanism to secure resolution of an emotional conflict or to achieve relief from an emotional tension or to avert or allay anxiety. Of the fifty or so defence mechanisms, the following five may be typically seen in various degrees in some of the reported poltergeist cases; they are conversion, displacement, dissociation, symbolization and regression. These defences are not the only ones that are prominent in poltergeist cases nor are they always present but they do seem to be evident. Conversion is a technical word and it simply means the transmutation of aggressive or other impulses such as rage, love, sadness, that are consciously disowned and unacceptable to the individual, into some disguised symbolic external physical expression. Typically, for example, abdominal pains that are unexplained can often be shown to be the result of conversion defence mechanism. Displacement is a mechanism whereby internal emotional feelings are transferred and redirected to some substituted object or person. There is an internal feeling that gets ascribed to some external object. Dissociation is a process of separating or splitting off the feeling that one has about an idea or situation and relationship from that situation itself — splitting off of the feeling from the object. In symbolization, something outside of us, any particular object, becomes an outward representation of some internal idea. Regression is an interes-



ting defence and it has two forms. One is what we refer to as regression in the service of the ego. This, for example, occurs in hypnosis where the individual voluntarily regresses to a more primitive level of functioning. Another example is temporarily retreating from a successful situation in order to regroup one's defences and to reorganize them in order to go forward again. We temporarily shut ourselves off, regroup ourselves and then move forward. Another type of regression — a second type — is more pathological and it involves an escape from an overwhelmingly stressful situation.

I realize these descriptions are technical but the following case will illustrate these mechanisms. Again the name is fictitious but the events are real. Annette is a 22 year old single white Canadian female living with her 20 year old sister Joan and her parents. Annette is 22, her sister is 20 and they live in Toronto. There was a history of sporadic poltergeist activity in Annette and her sister that they could remember going back to at least when Annette was 8 years of age. This was sporadic and isolated and at the time did not have much significance for them. Recently when Professor Owen and myself were asked to investigate this case, the poltergeist phenomenon had increased in activity and had reached a peak during the week when both parents were on holidays. Mom and Dad had gone on holidays and had left the two girls for a week by themselves. In addition, Mother — to whom Annette was very close — was scheduled for a serious operation following their holidays. During the week her parents were away the two girls were not entirely alone as Joan's boyfriend was visiting more than usual and in fact was present almost all of the time. During this week, footsteps would be heard. Annette would hear breathing sounds in her bedroom and one evening, when Annette, Joan and Joan's boyfriend were sitting in the living room, Annette's bedroom door was seen to close and slam and could not be opened. Then suddenly one night Joan's hair as she was walking across the room was suddenly pulled back by some mysterious force.

It became evident to us that Annette, the oldest of the girls and the one without the boyfriend, was experiencing several conflicts. There was an actual and a threatened separation from her mother with whom she was very close. Her mother was away on holidays and when Mom was to come back, she was to have a serious operation. In addition, there was envy and quite evident indignation directed towards her younger and more attractive sister with her handsome boyfriend. Annette's own conflicts are symbolized by the poltergeist or heavy breathing noises in her own bedroom and by her bedroom closing and refusing to open. The jealousy towards her sister could have been displaced in some manner when Joan's hair was pulled. The poltergeist, as a concomitant of the re-experiencing of early conflicts, is utilized fortuitously by the mechanisms that the individual is using to defend against these conflicts. Thus, it

appears as though the poltergeist is a symptom of certain defences. The psychic ability to close the bedroom door and the actual closing of it is an event that can be used by the ego to symbolize and externalize a sexual conflict. The theory predicts that sometime in the past, the closing of a door or some related event became associated with this conflict. When the conflict is re-experienced or renewed as it was during that week, the memory of the closing is also renewed and that causes the individual unconsciously to actually close the door if the individual has P.K. ability. Hence-forward the individual's Ego can recognize the event of the door closing as a symbol it can utilize to represent the conflict. Thus, the poltergeist activity is not a defence mechanism but it may be symptomatic of certain defences. The entire process, this sequence of events, I've labelled the poltergeist reaction. If it becomes verified, it may even acquire the status of the "Owen reaction." The poltergeist reaction is a unique reaction and I believe should be grouped with other symptom neuroses such as conversion reactions. The poltergeist reaction has as its basis infantile experiences including strange unexplained noises and objects moving for which there was considerable anxiety and no cognitive explanation. The renewing of these memories does involve regression. In most of the reported cases of poltergeist activity, the regression is an escape mechanism that has been temporarily invoked because of overwhelming anxiety. When the stress is over, the need for regression passes and then the remembering of early memories stops and then the poltergeist stops.

Now the incidence of the poltergeist reaction is rare and probably reflects the rarity of psychokinetic ability. As also the incidence of some of the borderline personalities is small, the finding of the poltergeist reaction within a borderline personality is an exceedingly rare event. Mary Williams, whom I mentioned earlier, has reported such a case and I myself am currently treating one. Fodor's belief that the poltergeist is a symptom of schizophrenia is incorrect. His description of the violence and disintegration represented by poltergeisty is applicable only to the exceedingly rare cases of the poltergeist reaction within a rather unstable personality. Poltergeisty is almost always seen in the context of neurosis or character reaction if the phenomena is conflict associated. But if the poltergeist activity is autonomous, like a tic where the conflict has been resolved, then it can manifest in any individual who has the necessary psychokinetic ability.

In the Philip experiment regression was attained by consciously attempting to be child-like, by singing children's songs and deliberately behaving like children. This is shown in the film *Philip: The Imaginary Ghost*. In this regressed condition, thinking takes on a magical quality. As opposed to the adult who states that moving or levitating tables by thought is against the law of physics and therefore impossible, the child

simply states, "If I want it to happen, it will." However, even in the regressed condition, what is called the observing ego, that part of you that's still looking around is still functioning and usually this part of the main ego cannot accept the fact that poltergeist may be based on an emotional conflict, and perhaps also cannot accept the fact that the self really has this extraordinary power to control objects from a distance. This, I believe, accounts for the curious way that poltergeist subjects explain their poltergeist activity on the basis of external agents or guides, extra-terrestrial beings or energy from spirits. Thus, Uri Geller, in a projective defence manner must have his UFOs; the Philip group must have Philip and George Southwell must have the hanged airman (cf. Branston, 1974). Balint summarizes this defence concisely when he says, "Projection states that the uncanny powers which produce parapsychological phenomenon dwell not in us, everyday people, but in mediums, in healers, in waters, woods and caves or in God's unfathomable grace."

The theory that I have presented would predict that the members of the Philip experiment are re-experiencing a common conflict. The story of Philip, unhistorical and invented for the sake of the experiment, may offer us clues as to what this conflict is. Philip, the imaginary Philip, was an English gentleman who took a mistress, Margo. His wife Dorothea became jealous and accused Margo of being a witch. When Margo was burned at the stake, Philip did not intercede. Subsequently, overcome by guilt and depression, he committed suicide. It's possible to interpret that Dorothea had an unresolved electra complex. Philip is the replacement of her own deceased father and when any other woman threatened to attract the love and affection of Philip Dorothea re-experienced her initial conflict with her father. Now in the original story to which the group worked in forming their image of Philip it was said merely that Dorothea accused Margo of witchcraft. However, in retelling Philip's story some months after the physical phenomena obtained by the group had commenced, the original author of the story — Mrs. M. H. Sparrow — added a nice touch to the effect that every time that Philip, who was a rather dashing and debonair English gentleman, approached another woman all kinds of poltergeist activity happened which seemed to be associated with Dorothea. This is the same as saying that Dorothea re-experienced her early conflicts and this rekindled memories of earlier events and then she produced the poltergeist activity.

Dr. Owen who initiated the Philip project, nursed it through its early stages, and closely supervised the group, may have become the replacement symbolic father for the group; and as the group renews its oedipal and electra complexes, poltergeist activity happens. Note that the poltergeist in this particular experiment is involved with symbolization; where the poltergeist becomes an emotional source for comfort and security. Poltergeist is the object of the experiment, and is what "father" wants to

happen, so in a sense then the group regresses during its sessions to an early stage of childhood to re-experience a conflict and achieve a further resolution of it. As such, there is quite a considerable potential for group therapy in such a situation. In the Philip experiment, the symbolization of the poltergeist is in direct opposition to what we call a phobic reaction — one of fear. What in infancy used to be a fearful unexplained phenomenon, strange noises and movements, now by inversion and symbolization has become a protective loved phenomenon that is approved by father. As well, the actual poltergeist object in this context of a loved phenomenon, may be what we call a transitional object; something that gives us security, that we bring over from the past — like a teddy bear. However, in the pathologic poltergeist reaction, such as the one which occurred in my office, its original affect is maintained and the memories are experienced and externalized as fearful and unwanted. In studying the Philip group, one is impressed by the very close sharing of emotional feelings within the group. It is possible that one individual first discovered how to regress and experience a poltergeist phenomenon and then, by symptom identification, other group members developed it. In summary therefore: for an individual to have a poltergeist reaction, the following characteristics should be present. First, an innate psychic ability and potential to influence external objects at a distance. This has been labelled psychokinetic ability and is quite rare. Second, a temporal association between an unexplained phenomenon that could serve as a poltergeist model and a conflict and this could conceivably be common. Given these two conditions, the individual or group then has to re-experience the conflict in a context that allows the externalization and symbolization of the poltergeist model to happen. Once this occurs, if the conflict can be resolved, then the poltergeist continues but now it's autonomous and thus it becomes voluntary and that's what I think has happened in the Philip group. Their poltergeistery has come under voluntary control.

*Dr. Owen, preparatory to re-introducing Mr. Manning said:*

In the majority of cases a poltergeist outbreak remains involuntary and is of short duration. Those rather rare persons who continue to exhibit either the P.K. ability or some other unusual skill are consequently of great interest. Mme. Mikhailova as a young woman was the centre of poltergeist activity. She came to the attention of the physiologist, Professor Vassiliev, who, it is said, persuaded her to train herself in controlling the P.K. so that nowadays she can produce it, almost to order. Uri Geller as a child found that involuntarily he affected watches, keys, and other metal objects. Some years later he found he could produce the phenomena almost on command, but that from time to time P.K. events occur

spontaneously in his presence. The case of "George", recorded in the movie *A Mild Case of Haunting*, is interesting as an example of what one might call "symptom substitution". A phase of poltergeist activity was followed by one of trances, which then gave way to spontaneous ESP in the waking state (Branston, 1974).

Matthew Manning's experience is however even more interesting, not least because he has given a very lucid account of it in his book. I am going to ask him to speak briefly on this aspect.

### *Matthew Manning: The evolution of paranormal abilities*

In 1967 I was the centre of poltergeist activity that terminated after a few weeks. In 1970 both at home in Cambridgeshire and at school new and more dramatic phenomena developed and persisted into the following summer of 1971. One day I was trying to write a school essay but was not finding it easy, and I had to keep stopping to think what next I was going to say. As I sat with my pen poised above the paper ready to start writing as soon as I should think of something, my hand went down onto the paper in a completely involuntary way and began to write. My mind, meanwhile, had wandered completely from the subject on to nothing in particular. I watched, startled, as I wrote words in a handwriting different from my own. Then, slightly frightened, I pulled my hand away. The words were incomprehensible and sprawled over the page. It was only later that I realized that I must have written "automatically". I wondered if this was repeatable and in the succeeding days tried several experiments. Interesting enough several quite distinct handwritings eventuated. Equally interesting was the fact that subsequent to each session of automatic writing poltergeist activity ceased completely for several days. Since then I have regularly engaged not only in automatic writing (which has come in various hands, the styles of various periods and even in foreign scripts, such as Arabic) but in automatic pen and ink drawing in the styles of various known artists such as Picasso, Dürer, Beardsley and some styles which though quite distinctive have not yet been assigned to a known artist.

So long as I continue to do automatic writing or drawing then I get no poltergeist phenomena. But if I stop doing it then after a short while the energy builds up and poltergeist events occur. The last few weeks constitute an apparent exception because I have neglected my automatic writing and drawing in order to practise metal-bending for the sake of this conference so that you might have some psychokinetic phenomena to study. This seems to have the same effect as the writing; as long as I practise it I am free from poltergeistery but if I stop the energy builds up as before.

(In the subsequent discussion Matthew described some of his automatic writing and its presumptive sources. An exhibition of his work was made available to participants.)

#### 4. Fields and Molecules

*Dr. Owen introducing the speakers said:*

I think you will find the following two papers of exceptional interest, not least because they converge on almost the same conclusion although they set out from quite different starting points. This is especially noteworthy because each speaker was totally unacquainted with the other's field of research and line of thought.

*Professor Brian Josephson: possible relations between psychic fields and conventional physics.*

The question I would like to put is whether "psychic fields" can exist, and whether psychic fields would contradict physics as we know it? I myself think there is no contradiction. Physicists study such fields as the *gravitational*, the *electromagnetic*, and also the *strong interaction*, which holds atomic nuclei together, and the *weak interaction*, which causes some kinds of radioactive decay. There may also be psychic fields and the question is; why are they seen by people doing psychic research and not by physicists? The answer simply may be: these are two sets of phenomena which are only weakly linked; only under special circumstances are they linked together. One example is a radio set which links electromagnetic waves with sound waves. Usually the electrons, protons, and neutrons in a piece of matter don't couple electromagnetic waves and sound waves very strongly, but if they are put together in a special way as in a radio set we get strong coupling and radio waves get converted into sound waves.

In high energy physics there is a very suggestive piece of evidence relating to the  $K_0$  meson, whose behaviour can be interpreted as a response to certain very weak fields. There are two particles called the  $K_0$  meson and the anti- $K_0$  meson which are very closely related. In fact, given time, the  $K_0$  particle will convert itself into an anti- $K_0$  particle; the one particle will convert into the other, and they will keep changing back and forth. The  $K_0$  mesons also can be thought of mathematically as rather like spinning tops or arrows or any elongated objects which can be regarded as "pointing" in particular directions. Now whenever a  $K_0$  particle is produced it is pointing in a certain definite direction with reference to the field and particles which generate it. An analogy is a pendulum or plumb-line; in a gravitational field the plumb-line points in a particular direction — "downwards". In the same way, when a  $K_0$  meson is produced

by collisions from ordinary matter as opposed to antimatter, it is produced, pointing, as it were, in a specified direction. Once it has been produced, the meson slowly spins round and changes its orientation, rather like the precession of a spinning top, which is a response to the earth's gravitational field. The behaviour of the  $K_0$  meson in this respect involves a response to both the weak interaction and the "superweak interaction" which violates CP invariance. The latter response is especially significant, since this very weak "field" shows its existence only in this one system, by virtue of certain symmetry properties which it possesses.

Now let me switch to another possibility. Let's assume that there are mysterious fields about, which interact only very weakly with matter. Can there be circumstances in which we could observe them? Well; let's suppose that the effect of such a field would be to exert an extremely small force on an atom, or an atomic nucleus. This force might be so small that we couldn't measure it in matter in bulk, nor in elementary particle interactions because of the high momentum of the particles. However there is one situation in which these weak fields would have a noticeable effect. In biological systems there are objects of just the right form, which can act as detectors for these extremely weak fields. These objects are the enzyme molecules. Enzymes could be very sensitive to influences of various kinds, because in fact they consist of molecules which can change their shape very readily; thus if we had a force which acted slightly differently on atoms of different chemical elements, e.g. carbon, nitrogen, phosphorous, etc. then it could bend the enzymes. Furthermore, we know that enzymes catalyze reactions in living cells in a way which is extremely sensitive to their shape. Thus enzymes have just the properties that would be needed for detectors of unsuspected types of fields.

With regard to the existence of these weak forces that I have postulated, there seems to be no valid reason why many forces of this kind shouldn't exist. It may be that what one is able to discover depends on one's method of observation. Another possibility is that new kinds of forces can be generated in unexpected ways. This might be analogous to the way in which matter in bulk exhibits new properties distinct from those of its separate components. Matter can become organized in such a way as to show special properties, and in fact have particles and interactions of its own. In solid-state physics we talk of elementary excitations, e.g. the "spin wave" which can be transmitted through a magnetic substance. Now it may be that empty space has these properties, or alternatively it may be the brain which is organized in such a way as to develop an ability to transmit information within itself.

This leads me to another theme — the interconversion of various kinds of energy. This is happening all the time, as for instance, in a loudspeaker where the energy of electric currents is converted by a coil into magnetic

energy, then by the permanent magnet into the kinetic energy of motion of the coil, and finally by the speaker diaphragm into acoustic energy.

In other cases a process called "symmetry breaking" causes energy to be converted from one form into another. For example, when a piezo-electric crystal such as is used in crystal pickups is compressed, the elastic energy is converted partially into the energy of an electric field. In an ordinary crystal this does not happen for symmetry reasons — there is no preferred direction for the field to point in. But in piezo-electric crystals the crystallization process produces a coordinated assymetry which allows the two forms of energy to be coupled together. It is possible that certain types of psychic phenomena may involve coupling together of different types of energy which are normally uncoupled, by a similar process.

Finally I should like to mention the topic of zero-point energy. According to quantum mechanics, all objects are subject to continual vibration, even at absolute zero, and the most elementary calculation indicates that even empty space contains an infinite amount of energy as a result. A naive interpretation of this result (and therefore not the one commonly accepted by physicists) is that empty space, like coal, nitroglycerine or plutonium, contains a very large amount of energy if we know how to use it. While this is a tempting prospect, there is the obvious possibility of danger, and we ought to pay heed to the warnings of those whose interests lie on the spiritual side — not to encourage people who do not know what they are doing to experiment with psychic phenomena, and not to try to persuade gifted psychics to do anything they may have any doubts about.

*Dr. Owen.* According to the *Globe and Mail* the world energy crisis should mature in 25 years. Perhaps therefore our P.K. researches are not entirely of academic interest, but of practical import. If we work hard enough we may learn how to tap these ultimate energy resources in a manner consistent with safety.

I also ought to say that when he formulated his thoughts on enzymes as possible detectors of work fields, Professor Josephson was quite unaware of the research concerning the effect of healers on the activity of enzymes. We cannot help being impressed when totally different lines of thought converge in this way.

*Professor Douglas Dean: Molecular effects of "healers".*

I am going to describe some of the better research that has been done in that field of "psychic healing" which appears to be a kind of P.K. I would like to start with the work done by Dr. Bernard Grad at McGill University in Montreal. (Grad, 1961). He is a gerontologist and endocrinologist interested in the science of ageing, and I think we owe him a debt of gratitude that on a day in 1957 or so when a healer came into



his laboratory and told a fantastic story Dr. Grad did not send him packing as a lot of people would have done. This supposed healer was Colonel Oscar Estebany, who had come from Hungary in the uprising of 1956 and made his way to Montreal, and this was his story. He was a Colonel of the Hungarian army in a cavalry unit. He would get military orders that would require him to ride very long distances, much more than one horse could go; so he would arrange for a second fresh horse to carry on after the first horse was too tired to continue. As you might expect, one day the second horse was not there. Yet the first horse was worn out and he had his military orders to carry out. Intuitively he got down off his horse and knelt in front of it and stroked the forepaws, gentling we would call it, and it seemed evident that the horse liked this, seemed to be revived, and after 15 minutes he got back up in the saddle and rode on and completed his military orders. Being an officer in the army he had platoons of men on horseback, and one day when their horses were all worn out he ordered all his men to get off their horses and stroke the forepaws and then get back up in the saddle and ride on, but *they* couldn't.

He found out in this way that he had something in his hands which his men did not seem to have. He discovered also that when laying hands on members of his family their pains seemed to go away. He found out that if he put his hands round a bottle of water the power passed into the water and the member of the family could drink the water and the pain would go away, or also he could pass his hands around a wad of cotton wool and the power would go into the cotton wool; he could package this up and send it through the mail to distant relatives. They would strap it to their backs, go to bed, and if they had a backache the backache was supposed to have gone in 10 minutes. Well, he could understand if Dr. Grad had said, "Don't waste my time, get out of here"; but Dr. Grad is not like that and I'm so thankful. One of the experiments Dr. Grad had been doing was with mice growing goiters, which is a disease of an enlarged thyroid, and he wondered if Mr. Estebany put his hands around the goiter could he slow up its growth, thereby indicating healing. When you try laying hands on mice you get into an immediate problem because the mouse runs away, so they had to make a little box and put the mouse in each cell and cover it over with some wires and Mr. Estebany would hold his hands over for about 15 minutes.

In a typical experiment after three weeks the mean increase in thyroid weight was 6.7 mg. for treated mice as opposed to 9.8 mg. in untreated ones. Next, Dr. Grad wondered if it would be sufficient for Mr. Estebany merely to handle the cuttings that were put into the mouse's cage. These experiments in fact gave a similar result, e.g. 5.5 mg. increase for treated mice as compared with 7.1 for the untreated controls. Another experiment of Dr. Grad's involved cutting a little piece of skin off the back of a

mouse. The size of the wound was measured by tracing its outline on paper, cutting it out and weighing the paper. In a typical experiment 16 control mice were untreated, 16 given heat treatment, and 16 treated by Mr. Estebany. The table shows the numbers almost fully healed at various stages.

Days from Wounding.	Control	Heat	Estebany
1	0	0	0
14	0	0	14

This single experiment is already statistically highly significant.

When Dr. Grad brought these results in 1960 to Dr. Osis and myself at the Parapsychology Foundation in New York we didn't believe him; that was the mood of the time. We suggested that the healing agent was sweat from Mr. Estebany's hands. But Dr. Grad, and also Dr. Cadoret at the University of Manitoba, successfully repeated the experiment with paper bags around the cages.

Dr. Grad then tested Mr. Estebany with barley seeds which were watered with salt solution — the one per cent normal saline as used in hospitals. The seeds were separated into two groups, those watered with untreated and treated saline. The latter was "treated" in the sense that before it was used Mr. Estebany held the bottle containing it in his hands for a specified period of time. The experiment was first done informally and then using a strict double blind procedure. Strangely enough each experiment showed that the plants watered with treated saline were, to a statistically significant degree, the more rapidly growing ones. Dr. Grad then decided he must compare the physical characteristics of the treated and untreated saline, so by means of a Beckman DK-2 spectrophotometer he determined their transmission spectra. No differences in transmission and absorption were found for the range 400 to 2800 millimicrons, but in a particular portion 2800 to 3000 millimicrons of the infra-red, the treated solution showed lower transmission than did the untreated. Dr. Grad (1964) reported this result rather cautiously as he was uncertain of the reliability of the spectrophotometer in this range.

However, I brooded on this incredible result for nearly four years; then I telephoned Dr. Grad and asked him for three bottles of treated water and three of untreated, which I took to a woman chemist in a famous pharmaceutical company in New Jersey. She had just won an award for work on atomic spectra, and was kind enough to test the water with her own spectrophotometer. I should stress that I did not know which of the coded labels, A to F, referred to treated water, so that the experiment was genuinely double blind. Well: she got the same divergence as Dr. Grad did in the range 2800 to 3000 millimicrons. Then the transmission curves coincided from 3000 to 3600 where some divergence was

found. Thereafter they coincided up to 16,000 millimicrons except for a divergence in the neighbourhood of 4400. Another laboratory in New Jersey obtained a very similar result.

The chemists know what these divergences mean. Water is  $H_2O$ , two hydrogen atoms and one oxygen. The three atoms are not in a straight line. Instead the two hydrogens subtend an angle of about  $105^\circ$  at the oxygen atom. The chemists know this angle to remarkable accuracy, and also have a very precise value for the internuclear distance between the oxygen and a water atom. Now the deviation from the normal transmission curve for water means that the internuclear distance has been altered — probably increased. Also possibly the molecule has been further ionized so that it acquires a larger charge at one end. If so, the elongation of the internuclear distance will also alter the dipole moment of the molecule. Thus it seems that Mr. Estebany alters either the ionic or the dipole properties of some of the water molecules.

Dr. Dolores Krieger, who teaches nursing at New York University, did some experiments in which Mr. Estebany treated 19 patients by laying-on of hands for 15 minutes, morning afternoon and evening, for 6 days. The patients showed an average rise in the haemoglobin level of 1.2 gm. per 100 cc. of blood. The level did not increase over the 6-day period in a control group of 9 patients untreated by Mr. Estebany. Dr. Krieger is now testing 40 nurses to see if any of them have the same ability as Mr. Estebany. This experiment also gave significant results.

Dr. Justa M. Smith, O.S.F., Chairman of Biology and Biochemistry at Rosary Hill College, Buffalo, N.Y. decided to investigate the effects produced by Mr. Estebany on enzymes *in vitro* (Rindge, 1968). Dr. Smith was well qualified for this research because she was awarded her doctorate a few years ago for demonstrating that the activity of enzymes could be modified by magnetic fields (Cook and Smith, 1964). Enzymes are proteins which act as catalysts in the body which has some 2000 different ones. Each enzyme increases the rate of some particular biochemical reaction. Dr. Smith, in her doctoral work, showed that if a test-tube containing a solution of trypsin (one of the enzymes that aids in the digestion of food) is placed in a magnetic field, e.g. 13,000 gauss (which is very strong — that of the earth is only about 0.5 of a gauss), then the activity of the trypsin is increased to a significant degree. Now Dr. Smith is one of those biochemists who believe that if anyone is ill it is due to a malfunctioning of one of their enzyme systems. Therefore she reasoned that if a healer is effective it is because he increases the activity of one or more of the patient's enzymes. Dr. Smith therefore invited Mr. Estebany to Buffalo for laboratory measurements in which the activities of untreated solutions of trypsin was compared with that of solutions in tubes which he had held in his hands for 75 minutes. One series of experiments showed no effect, but the result of another series was very

striking. The treated trypsin showed an increase in activity of about the same magnitude as would have been produced by exposing it to 13,000 gauss. Naturally Sister Justa tested Mr. Estebany to see if he was generating an intense magnetic field near his hands. But measurements with delicate magnetometers showed that he had no magnetism. The force or field by which Mr. Estebany influences water or enzymes is therefore not the ordinary magnetic field.

More recently Dr. Smith (1972) has tested the effects of seven other healers on trypsin and acetyl cholinesterase, a brain enzyme. This repetition was very important as it confirmed her earlier results with Estebany. Also it showed that the different enzymes responded differently to the individual healers, and "mental" healing can occur.

I now should mention an experiment by Dr. Schoneberg Setzer who grew radishes with ordinary water and with water that had spent time in church sanctuaries during Sunday service. It was found that water that had been sanctified in this way grew larger radishes than the purely secular water on one Sunday, but inferior radishes the next Sunday. In fact repetitions showed a 14 day cycle which is approximately the semi-lunar period, so this may be a lunar effect rather than a consequence of having been in church in the presence of a congregation. However, irrespective of how it ought to be interpreted the effect itself seems to be genuine, because another series of experiments was done by a leading spectroscopist at a major chemical company in the United States. He measured the concentration of hydroxyl ions and the amount of hydrogen bonding in the two kinds of water and found the same kind of 14 day oscillation; in fact at Sundays near the full moon there was a decrease of hydrogen bonding compared with regular water, but at Sundays near the new moon the hydrogen bonding was in excess. Perhaps therefore this work initiated by Setzer falls into the category of subtle astrophysical effects, several of which I believe have been demonstrated in recent years. Even so, it has some relevance to our topic — psychokinetic forces exercised by humans — because it suggests that very subtle and weak forces can have chemical effects. Also the use of physical methods like spectroscopy make for more reliability than merely biological measurements or studies of growth as well as, perhaps, giving more insight into the precise nature of the effect produced.

Returning to the question as to what is special in the case of Mr. Estebany's hands, and those of other healers, let me record my own opinion. I think that healing hands emanate some kind of force while the healer is healing and that the especially large flares and coronas which occur in the Kirlian photographs of the finger tips of healers demonstrate this.

(Professor Dean concluded his address with a display of Kirlian photographs including those of healers such as Krivorotoff in Russia and Mrs. de Loach in New Jersey).

## 5. Physics and Metaphysics

*Dr. Owen, introducing this session, said:*

In science though in general it pays to be cautious, like any other good thing caution can be overdone and on its account excellent scientists have often failed to make important discoveries. In the hope that we may avoid that pitfall I have encouraged the speakers to be as bold in hypothesis as they wish, because it may be that we can only assimilate P.K. into a system which harmoniously embraces both physics and psychology only after both of these sciences have been submitted to what I call "concept therapy", i.e. therapy applied to ailing or aged concepts.

I think there is a faint similarity between the exploits of Professor Smook's "matter-creating monads" and Professor Josephson's idea that possibly the mind can alter the Hamiltonian of matter. After all, the latter would be equivalent to changing the actual nature of matter (i.e. the mode of existence of matter) at least temporarily and locally. It seems to me that although the speakers set out from totally different starting points they are concerned with the same problem — how to bridge the chasm which separates physics and psychology. Professor Smook assimilates the problem of P.K. to the mind-body problem; Professor Josephson points out that quantum physics is enigmatic perhaps because its theoretical system contains observers but makes no allowance for these observers having a psychology.

*Professor Roger Smook: Psychokinesis from the standpoint of philosophical idealism.*

In discussions of P.K. there occurs one particular conceptual model which is applied apparently in complete exclusion of all other possibilities. I am, of course, alluding to the idea that some form of energy is transferred from the P.K. subject to the P.K. object. Sometimes the experience of the P.K. subject does in fact suggest that this may actually be the case; for example, Matthew has spoken of a tingling sensation in his hands while key bending. However in other cases where the P.K. subject acts at a distance without contact it is not obvious how energy flows, or if energy flows. An example of this was the bending of a fork at ten foot range as described by Dr. Owen.

I would like to suggest as a kind of 'thought experiment' that we abandon energy flow as a model for the P.K. process. Let us see how we could explain P.K. effects if there were no flow of energy whatever. The resulting line of thought takes in the direction of philosophical idealism, and harkens back to George Berkeley, Leibniz, and also to William McDougall, the psychologist and psychic researcher. More recently, Professor Mundle (1967) has put forward an idealist theory though somewhat half-

heartedly and with diffidence. However, I would like, at least for the purposes of the present discussion to employ the idealist approach, for what it is worth.

Now, what are the advantages of philosophical idealism? Well, basically what we do in idealism is to dispense completely with the idea of matter — more precisely with matter as something alien to mind. Of course, even the idealistic approach requires us to render some account of what matter does, and how it seems to behave, but this is done without supposing that there's some kind of stuff 'out there' which is *fundamentally* different from mind. As a model for what is involved in an idealistic theory of matter let us begin by considering mental imagery. If one conjures up an image into one's mind, that image can be regarded as being a kind of matter. We could if we wanted to, call such an image 'psychic matter'. It is a type of matter which was brought into existence by the activity of the person who is mentally imaging. However, this type of matter — the image, (or, if you like), the symbol — it not really alien to the mind which produced it. After all, the mind actually brings it forth. Admittedly, we do have a sort of dualism. But it is not that radical dualism, which materialists tend to insist upon.

Following this line of thought I would like as a kind of experiment in reasoning to further develop the idealist point of view according to which there is nothing at all in the universe which is alien to the mind as such. This also involves putting forward a certain concept or method of what constitutes a person — a human being. This model regards a person as a hierarchy of monads. *Monad* is a term introduced by the philosopher Leibniz in his *Monadologie* published in 1714, to describe a hypothetical entity which is nonspatial, indestructible and indivisible, and partakes of the nature of mind. Leaving aside for the time being the characteristics of the monads which I conceive of as constituting the personality of a human being, I must admit that, at first sight, one experiences considerable resistance to the notion that a human personality — the self — is composite rather than unitary. Mind, person, and individual consciousness are very fundamental notions and we have a strong belief that the self is a whole, and not divisible. On this view even psychological dissociation such as occurs in trance states or in hypnosis or in automatic writing, cannot be regarded as a dividing of the self because, by hypothesis, the self cannot be divided. However, though I am not putting the composite model forward in any dogmatic sense, it is worth noting that dissociation is readily explicable in terms of a hierarchy of monads; if one monad abdicates the chief role or dominating position in the hierarchy, there are other monads which take over.

My primary concern today is, of course, not the theory of personality, but with explaining P.K. I would like to start with the mind-body prob-

lem. I believe that this famous problem may really be one of P.K. The more we think about how we move our bodies, the more incomprehensible it becomes. It's really a very hard thing to understand how a person moves his body, unless we regard a person as being simply a machine which I, for one, find it difficult to do. We can however, explain how the mind can influence the body if we introduce the hypothesis that the person is a hierarchy of monads. In this model there is in particular one monad which is in control; I call this the dominant monad. So far, so good, but henceforward the theory becomes somewhat adventurous. I postulate a group of other monads closely related to the dominant one. These I call "matter creating monads". A monad "creates" matter in a way analogous to the way in which I create a mental image in my own mind. When I summon an image into my mind then I form it and shape it; sometimes even I can in my mind's eye "see" the image in three dimensions. These postulated matter-creating monads do exactly the same sort of thing except that they stand in the same relation to physical matter that I stand to my psychical matter.

As to the nature of monads, let me say that by monad I mean a purely psychical entity — an entity that unfolds a psychic life, but which has no physical component at all, being wholly a psychic thing — an entirely mental type of being. Now, if one thinks about it, one sees that every change in the physical world happens through creation and destruction. The mere fact of change requires the destruction of objects and their replacement by others, or, alternatively, the abolishment of one state and the creation of a new state. This is also what happens in my own psychical life where I can modify my own mental images. For instance, I can visualize a pencil, and then remove the eraser from its end. I'm king in my own little realm — my psychic realm — and I can annihilate the eraser instantaneously. For the purpose of our model we assume that the matter-creating monads function analogously with respect to physical matter, and that normally they do this in a very lawful and orderly fashion, so that no anomalies or inconveniences arise.

It is important to postulate yet a third type of monad. This last is not a matter-creating monad; instead, it is a sense-data-creating monad. I will explain later how I conceive these to be operating. Meanwhile we note that according to this model the person consists of three types of monads, some of each kind. In Leibniz's philosophy his monads were, as he said, "windowless"; there was no communication between them. In my model however, I postulate telepathic interaction between the monads constituting a person. Telepathy is assumed as a basic unanalyzable fact. Mind-body interaction is conceived of as happening in the following way. Suppose I want to move my body, then my dominant monad sends out a telepathic instruction to the matter-creating monad, which actually creates and destroys in a way exactly corresponding to a motion

of the limbs. Normally there is a conservation of energy, so that the occurrence can even be construed in a materialistic way.

On the present hypothesis the physical objects that are created by the matter-creating monads have a reality, but it is the reality of a purely psychical thing which has come into being in somewhat the same way as our mental images do. How does the individual gain his particular sense impression of the object? Well, I suggest that the sense-data-creating monad is also on a telepathic relationship with the matter-creating monad or monads, and relays the appropriate impression to one's dominant monad. The sense-data-creating monad is in contact with the matter in the world and it is this which leads to the telepathic impression causing the dominant monad to see the matter from a certain definite point of view.

We can now take account of P.K. Normally the dominant monad is only able to contact a certain limited group of matter-creating monads. However, we can suppose that in exceptional circumstances its range of contacts can be enlarged. No longer restricted to communicating with monads associating with maintaining its own body, the dominant monad could enter into liaison with "foreign" matter-creating monads so that its intentions would manifest in action at a distance — physical effects at a remove from the person's own body.

My model is admittedly a high unparsimonious way of looking at things. It postulates the existence of many monads. Indeed there is nothing in the theory to prevent us assuming the existence of monads which are not connected with people at all. The critic may say "You are bringing in a lot of spirits". This is a fair point to make, and I do not seek to elude it. Indeed I frankly confess that I do seriously entertain such a possibility. This is not all loss: my theory offers certain positive advantages; it avoids the radical alienation of matter from mind which is characteristic of many philosophies.

I would like to speak about Philip, briefly if possible. (As if one could deal briefly with any of these fascinating and challenging topics!) Maybe, in that situation the dominant monads of the several members of the group become capable of simultaneously contacting matter-creating monads other than their own. Coming now to the possibly simpler case of a single person bending a knife we have a single dominant monad contacting "alien" matter-creating monads. Normally, if that person moves his own finger he's contacting particular matter-creating monads that have to do with that finger. However, if he's bending a knife he's contacting other monads — part of the monad furniture of the world, one might say. Now the theory I have expounded is admittedly something of a *jeu d'esprit*. I have not wished to become entangled in speculative details, only to throw out to you a few ideas. However in the very act



of describing my model for P.K. I have come to think that this whole picture has value for explaining clairvoyance and psychometry as well as P.K. As various writers have pointed out clairvoyance is difficult to handle conceptually because of the selectivity involved e.g. in "down-through" guessing of a pack of cards, which totally rejects accommodation in a materialistic type of framework. For this and other reasons I have a certain faith in the idea that I outlined. They may seem wild according to some contemporary modes of thought, but I feel that in principle ideas of this general kind represent a necessary and logically indicated return to something which perhaps has been neglected far too long. I feel there has been too much talk of energy flow; other models ought to be looked at.

*Professor Brian Josephson: Possible connections between psychic phenomena and quantum mechanics*

The view of the world presented by quantum mechanics seems to be unsatisfactory to anyone who thinks hard about it, though most physicists tend to suppress their uneasiness and to say "Well, it works!" However, there may be a connection between psychic phenomena and the difficulties inherent in the quantum mechanical world-view. In classical physics — the world-view that prevailed until the nineteen-twenties — the world is just a group of interacting particles. In principle you know where all these particles are and how they are moving. You have equations of motion which allow you to predict where every particle will be at any future time. In the classical theory there's no doubt as to what reality is, and reality is the same for everybody — it's all the particles in their known positions. In quantum mechanics, however, it's not clear exactly what reality is. Now I am not at all sure that I can say anything significant as to what reality is, but I can speak about quantum mechanics and how it is formulated.

Quantum mechanics involves a somewhat mysterious mathematical quality called the wave function  $\psi$ , which has only a rather indirect physical significance. It is something one uses in order to obtain physically meaningful statements. Provided one is not observing the system, the wave function  $\psi$  changes at a rate given by  $kH\psi$ , where  $k$  is  $2\pi/i\hbar$  and  $\hbar$  is Planck's constant, while  $H$  is the so-called "Hamiltonian" of the system. The Hamiltonian is related to the energy, and it is this function (or "operator") which actually determines how the mysterious wave function  $\psi$  evolves. All this is just a problem in mathematics, deducing from this equation what the value of  $\psi$  becomes. The really interesting question is not a mathematical one; rather it is, — how does one get from this very obscure description of the system to a knowledge of how the system actually behaves?

The peculiar thing is this: quantum mechanics *doesn't* say what the system is like now. Quantum mechanics says something quite different; it says what you'll observe if you make an observation on the system. Quantum mechanics gives a prescription for making observations. First *you* must decide just which feature you are going to observe. For example, if the system consists of a particle (e.g. an electron) you can select the position of the particle as the observable or the velocity of the particle as the observable but not *both*. If, for example, you choose to observe the position of the particle you will set up your observing apparatus accordingly. Quantum mechanics tells us that *however* you set up the apparatus and make the observation your results will be of limited value, as they will have a kind of built-in uncertainty. For instance, if you want to locate the particle you have to inspect it by shining light on it. But light exerts pressure, and in bouncing off the particle it will change the particle's velocity in an *unpredictable* way. Consequently the knowledge you have acquired of the particle's position is not much use for prognosticating its future position because you will not know how fast it is moving, or even in which direction.

The essence of quantum mechanics seems to be the inherent limitation in observing nature and thus in acquiring full information about it. However, this limitation itself may be just a reflection of the kinds of observation we can make. Maybe the physical description of the world would change radically if we could observe more things.

Another point which most physicists don't seem to think about is the fact that quantum mechanics itself does not legislate as to which quantity your apparatus will be set up to observe. This is a decision of the observer — whether for instance, to look at the position or the velocity of an electron. It seems that you just decide yourself which feature to look at. Perhaps there is a psychological element here which has to be specified, if we are to get a complete picture of the universe. The physicist says to himself, "Well, I know that if I set up such and such an apparatus, then I shall be observing the position and not the velocity of this particle". He doesn't normally deduce from a theory just which particular kind of observation he will be making. All that quantum theory provides is predictions of what will happen when he carries out the type of observation that he chooses to make. The wave function  $\psi$  doesn't describe the whole world, only the system itself, and the apparatus that observes it but does not include the observer as a conscious being. Thus the wave function cannot lead to any prediction as to what the observer will choose to do.

The wavefunction, it seems, cannot control the observer's intention. We may ask therefore whether the observer's intentions can influence the outcome of an experiment. Quantum mechanics only tells us the probability distribution of observed values of physical quantities. If the observer was emotionally involved in the outcome of the experiment and

particularly wanted one result to come out rather than another, perhaps that would shift this probability distribution. Physicists normally have a degree of detachment and probably wouldn't influence the results of experiments in just that way (if they did, they would end up in some other job). They might, however, have an influence in causing the experimentally determined probability distribution to come out just as they expected it ought to be.

Currently in physics there's the strange phenomenon that the laws of nature seem to keep on changing. New symmetry violations are being discovered, the velocity of light is found to be different from what people thought it was, and so on. An odd thing, which may or may not be significant, is that sometimes when a new observation is made different people get different results. In one instance a particular symmetry was broken on one side of the Atlantic, but not on the other; however, after a while everyone got the same results. The conventional explanation would be that errors were being made on one side of the ocean, but conceivably the true explanation is that the discrepant results were genuine, and that it was the process of communication of knowledge from one side of the Atlantic to the other which caused a kind of phase transition or ordering process, as a result of which identical results were subsequently found in both places. One might speculate that perhaps one can control not only the state of the system but the Hamiltonian itself. That is to say, perhaps one can modify the laws of nature. This may be the way in which psychic phenomena take place. One could make a force to act on something merely by modifying the Hamiltonian so that the object had more energy in one position than another. Psychic phenomena might thus be connected with altering the Hamiltonian which determines the equations of motion in a system. Perhaps also some kinds of psychic phenomena can be considered as establishing a coupling energy between oneself and the thing one wants to influence.

## **6. The Nature of ESP.**

*By way of introduction Dr. Owen said:*

Parapsychologists feel that in some way extrasensory perception, E.S.P., is related to psychokinesis, P.K. There are logical reasons for this. Often the persons who manifest P.K. abilities also, it seems, possess or acquire skill in ESP. Examples are "George", Uri Geller, and Matthew Manning. Also in poltergeistery the P.K. person appears sometimes to exercise a fine control over the movement of objects that are out of his direct view. This suggests a degree of clairvoyance. In the Philip situation, group members get the impression that it is through a form of telepathy that their individual intentions are harmonised and their individual contributions to the P.K. force become synchronous.

Another obvious question is whether ESP is not mediated by P.K.? On a crude view we could hypothesize that telepathy occurs when a thought in my mind causes (by P.K.) a flow of electricity in your brain. On this view, of course, the percipient is passive in ESP, but it is by no means obvious that this is so. This is brought out in Dr. Osis' paper which also deals with other puzzling aspects of ESP — its relative indifference to distance, and its fantastic selectivity — topics on which Dr. Osis' researches have made him the recognized authority (Osis 1965, Osis et al. 1968, 1971, Owen 1973). Dr. Tanous is actually one of the subjects with whom Dr. Osis has lately been working to elucidate the real meaning of travelling clairvoyance, and what he has to say is of keen interest.

Professor Persinger will expound a theory of telepathy which many of us will feel is one of startling novelty. It has the great merit of working entirely in terms of known physical principles. It is extremely important that although it postulates that telepathy is in actual fact "mental radio" there is in this theory almost no falling-off with distance, at least for telepathy between terrestrial locations.

Professor Persinger's model unambiguously posits that telepathic perception is the direct response of the brain to a carrier wave which has been modulated by another brain. Now it is an interesting fact that quite recently (Lloyd, 1973) we have in Canada learned how to exhibit the response of the cerebral cortex consequent on the transmission of a telepathic stimulus to the possessor of that cortex. This result, of course, does not tell us whether in fact the message is first received in the brain; however it is very exciting and has already made quite a stir in the world. As we have already received many enquiries we thought you would like to have an interim report on the progress of the research. In the absence of Dr. Lloyd, this will be given by Dr. Whitton who is familiar with the work.

*Dr. J. L. Whitton: Response in the brain to telepathic stimulus.*

I will commence with a brief review of the theoretical problem that Dr. Lloyd is involved with. If one presents an auditory or any other kind of sensory stimulus to a person then there is a small response in the brain waves. This cannot be seen directly because the ongoing brainwaves are so large that the response gets buried in them. To look at the response we require a technique for extraction of a weak signal from noise. This is done by presenting many repetitions (e.g. 64) of the stimulus seriatim and at equal time intervals. If the 64 collected time segments of the EEG are added up on a time point-to-point basis and divided by the number of segments then to good approximation the background brainwaves average to zero. What is left is called the Averaged Evoked Response. The shape (i.e. the time-profile) of this response to an auditory

stimulus is fairly specific. Clinically this is used for detecting hearing thresholds. One presents a tone and obtains the AER if it is loud enough. The experiment is repeated using tones of diminishing loudness until the threshold of hearing is reached when, of course, there is no response.

What I have described is the experiment as it should be. It is not true however that there is never a response below the threshold of hearing. Dr. Lloyd noticed that occasionally, even though the person could not possibly hear the stimulus, there would be a response! For about 15 years this had been either overlooked or assumed to be a machine artifact. About four years ago Dr. Lloyd began to wonder if, in fact, there was a stimulus but not a physical one. Perhaps the technician who was counting off the particular samples was somehow influencing this. By checking back into the equipment and doing some routine tests it was found that indeed this might be happening; somehow the technician telepathically, in time with the sample, was sending a stimulus to the person and it was the receipt of this that was being recorded.

Therefore in 1969 or 1970 Dr. Lloyd and some other Canadian physicians carried out a pilot study (Lloyd, 1973). Since then, the group has repeated this experiment. I have graphs of the type of response obtained in a standard Lloyd experiment which goes as follows. Two electrically shielded rooms are available. One of them is very effectively sound-proofed but connected, when desired, with the other room by an audio-communications system. The receiver sits in this room and the sender in the other. There is an observer with each subject. In the new series, each experiment consists of four parts. In A the receiver's EEG is measured. In B the receiver is in the room but not connected to the EEG apparatus. In C there is no receiver in the room. The sender is not told whether A, B, or C applies. The receiver is not told what the experiment is about. In case A we get classical auditing AER. In cases B and C we get zero signals. This is important as it shows that the sender does not P.K. the apparatus itself.

How does the sender synchronize a transmission with the time intervals in the averaging process? There are various ways of doing this and the sender uses whichever suits him best. In one method a light flashes simultaneous with the sampling of the brainwaves by the equipment. The sender watches the light flashing and at each flash he puts into his mind the mental image that he wants to send. There is a second method in which the sender activates the equipment by pressing a button when he's ready. Now the time required to perceive a light and react even only to the extent of forming a mental image is of the order of a fifth of a second. If a button has to be pressed it's even longer — a half second. Yet it seems that regardless of the biological limits involved the sender is usually able to link himself in to when the equipment is sending. Sometimes, of course, synchronization fails — the sender says he's losing the

ability to keep up with the equipment. In such a case no response is found in the EEG. The sender can almost predict ahead of time how accurate his timing is and whether there's going to be a response or not.

Dr. Lloyd had difficulty finding good senders because it requires a high degree of concentration to be able to send a stimulus on a repetitive basis. A technique I have developed myself when being a sender is learning not to look at the light or think about it. Nevertheless one becomes aware when one's cortex is responding and, having bypassed the operation of thinking about perceiving, one's response is almost immediate. However senders do require a considerable amount of training and it seems that some people never become proficient at it.

However it is interesting that in cases of successful transmission it seems to make no difference as to whether or not there is any rapport between the sender and the receiver. Also it doesn't seem to make much difference what the stimulus is, i.e. what kind of mental image the sender concentrates on. Just as in ordinary ESP experiments, the symbol never comes through in its entirety e.g. a "cup of coffee" is received as a cylinder and the colour brown. A "red triangle" is sometimes received as "red" and sometimes as "triangle."

Because some senders are better than others, to get the best consistent results Dr. Lloyd has always picked out the best sender and receiver to demonstrate. Of course, as in ordinary ESP sometimes it doesn't work even with good subjects. It may depend on the receiver's state of mind. In one experiment the receiver didn't know the nature of the experiment or expect to receive a mental impression. There was zero evoked response. Then the receiver fell asleep and there was a response, though only while she was in Stage II sleep! There was no response after she had awakened. She was asked to attempt to receive a telepathic message, and then we got evoked responses in the waking state.

In the Lloyd work originally reported the telepathically evoked responses were almost identical in pattern (i.e. time-profile) to an auditory response. What Dr. Lloyd was unaware of was that the pattern depends on the subjects. When he used another sender a different pattern resulted. The pattern seems to be reproducible with the same sender and receiver, but a different pair of subjects will give a different pattern. Thus one pair produce a triphasic response with a latency of about 0.3 sec. which is totally unlike any AER belonging to a sensory modality (sound, sight, tactile stimulus etc.). However this pattern seems to be reproducible in about 80% of experiments with this pair of subjects. With another pair there is a reproducible biphasic response at about 0.1 sec. latency. This pair only produces a response about 30% of the time but it is always at the same point.

Whether in the "Lloyd Effect" the message is conveyed by electromagnetic radiation is hard to say. In one of Dr. Lloyd's experiments a

door to the shielded room failed to close properly but the response was neither enhanced nor diminished. Following on a discussion with Professor Persinger I could suggest that some insight into this might be obtained if some benefactor would provide a 10 Hz. ELF generator suitable for some jamming experiments or even, for enhancing the telepathic AER.

*Dr. Karlis Osis: Rival models for ESP.*

Let me say that I'm glad to be here. You have something very very pleasant in Toronto. There is so much that is unusual — you seem to have the gift of going your own way without being brainwashed into conformity. Where do you get these beautiful people who do these beautiful things? They are so stimulating. I love to be with the Foundation where one certainly gets the feeling of looking at a new horizon.

For some years I have carried out experiments in which from the ASPR we send out people all over the world with picture cards in their pockets in order to test the effect of distance on ESP. What is impressive is the immense selectivity of the process. How does the percipient "locate" the agent, or "tune-in" on him? It is like seeking the needle in a pretty big haystack — the area of the earth is about 200 million square miles. It seems in our experience to be unimportant how much or how little information is given the percipient about the agent's whereabouts. Also the percipient need not know the agent personally. We find that there are many equally effective ways of forging a link between agent and percipient, e.g. by the percipient's handkerchief, or a photograph of him, or merely a physical description. Similarly we are able to get clairvoyance over vast distances with no agent at all. Whether telepathy or clairvoyance, none of this seems to fit any kind of radiation hypothesis, in which the perceived object sends out an energy which the percipient passively receives. If, for example, a percipient in New York is trying to perceive an object in Australia, one of a number of objects which, by hypothesis, are giving out radiation, how can the signal from the target possibly be unscrambled?

Indeed several other models have to be suggested. Thus Dr. Rhine conjectures that the percipient somehow reaches out to the object and brings the information back. Another hypothesis, associated with the names of distinguished people like Myers, Tyrell and Whatley Carrington, suggests that there exists a mind greater than ours. Could it be a kind of cosmic Ma Bell connected as if by a universal telephone system to an object, or to an agent, or to a percipient? Another model is suggested by the "out-of-the-body experiences" or OOB's as we call them. A surprising number of people feel that under suitable conditions they can "be" in one place while their body remains in another. Rather than scanning or sensing and organizing a perception, they feel as if they were

there with the object. It is difficult to find a method for researching the "reach of the mind" model or the Ma Bell model so as to distinguish them from each other, or from other alternatives, but lately we have been investigating OOB claims. The problem is, if one has something out there, away from the body — a mind, soul, monad, how does one catch it? Well, we proceeded by stages. First we selected the small number of people out of many tested who were able to describe accurately the objects and events in my room at the ASPR at times when they were in other cities.

We then found that some of these percipients tended to organize the information as if they were actually in the room looking from one definite viewpoint. We followed this up by making a special optical device. If one could put one's eye at a certain point one would see four quadrants each coloured differently. On one quadrant there would be a picture. The point is that part of this complex image is an optical illusion which does not actually exist. The whole figure can only be seen from the appropriate point. Hence, this provides a means of testing whether the percipient is organizing his perception from that particular location or viewpoint. In a typical experiment the percipient is in a soundproof room on the other side of the ASPR building. He puts himself into what, subjectively at least, is an OOB state. When he returns he describes what he has perceived.

From time to time we have set up physical detection devices to see if they could be triggered by persons out of the body. Only one subject (Pat Price) has on a few occasions caused the apparatus to register. This percipient "flew into" the box (subjectively at least) and it so happened that the recorder went wild as if something had disturbed the electric field inside the box.

We have studied the EEG in OOB persons in the hope of discovering if there is any modification of the brainwaves at the time that the percipient is (subjectively at least) going out of his body. All we got was some flattening of the peaks, i.e. lower average voltages, and increased Beta frequency with less Alpha. This is interesting, but of course, the same patterns can be got by asking the subject to do any of several mental tasks such as holding a particular image in the consciousness.

We have also compared the EEG patterns of subjects when high scoring and low scoring for OOB perception and found no difference.

To conclude I might say that we find that only a very very few individuals can produce consistently high scores when in their OOB state.

*Dr. Alex Tanous: Out-of-the-body experiences.*

My OOB experiences seem quite normal to me because they have been occurring since childhood. When I was about seven years old I began to find myself in places which I didn't recognise. The form of the experience



has not changed. I seem to myself to have become a very small point of light, my body seems to be no longer there, but the whole universe seems to have opened up to me. This is the state I enter when doing the experiments in OOB at the ASPR with Dr. Osis, of the kind he has described. The observers say that I can speak through the whole experiment, and describe what is going on, and what targets I see inside Dr. Osis' apparatus. I myself declare when (subjectively at least) I have left the body and the little ball of light which I seem to be is at its brightest. At that moment I name the target which I see.

An experiment was set up at another laboratory in New York to detect my presence physically when travelling OOB. A light-sensing device was chosen as possibly appropriate to my case in view both of my subjective experience and of my experiments in projection of light which I shall be describing later. A number of photomultipliers were set up in a totally black darkroom, which contained a totally black chair on which were placed two target objects, whose nature was unknown to me. I was in a small room in another part of the building. Simultaneously with my entering the darkroom OOB and describing my experience, the photomultipliers recorded five or six bursts of activity well above the average level for a perfectly dark room.

Attempts at photographing me (i.e. my actual physical body), have produced some strange results. Thus, Leonard Barcus photographed me on a couch by candlelight at the ASPR. The first three pictures showed the candle, the couch and myself. But in the fourth picture there was only the candle, and in the fifth and sixth pictures there was nothing, as in Ted Serios' "blackies". These were all on polaroid. What made it more striking was that Anne Johnson, who was also present, got exactly the same results with infra-red photographs. On another occasion when Joseph Goodavage was interviewing me, he took numerous polaroid photographs all of which failed to develop. Similarly when a television company brought cameras my voice was recorded but no picture. Even the monitors were blank.

*Professor Michael Persinger: ELF waves and ESP.*

In the Psychophysiology Laboratory at Laurentian University our primary goal is not only to understand how parapsychological experiences take place, but to predict and control them. Thus we would like specifically in experimental situations to control what (tentatively) has been called telepathic behaviour, and also understand and replicate so-called P.K. events. Today I shall discuss two experimental models which are quite testable and which seem to emphasize the importance of the environment in parapsychological experiences. I myself am trained as a psychologist and physiologist, but in graduate school my outside concentration was geophysics.

When one talks about energy exchanges with Psi phenomena I have to stop and note the fact that, so far as we know, there is *no biogenic* energy that can travel from the body to such unusual distances as occur in telepathic behaviour. Consequently, assuming the phenomena are real, the energy involved with ostensible telepathic events must be coming from somewhere else. Our first investigation indicated that perhaps this energy is coming from the environment.

The earth is a charged sphere surrounded by the ionosphere, which is a layer full of ions and charged particles, commencing at about 50 miles above the earth's surface. Essentially the earth-ionosphere construction is similar to a spherical condenser. The region between the ionosphere and the earth's surface thus constitutes a spherical waveguide within which certain electromagnetic frequencies can propagate with small attenuation.

These "Schumann waves" are extremely low frequency (ELF); the fundamental frequency is about  $7\frac{1}{2}$  Hz. (i.e.  $7\frac{1}{2}$  cycles per second), but significant harmonics (e.g. 14.5 Hz) do exist. A feature of the Schumann resonance is that the frequencies within the spherical wave guide can propagate round the earth at least once without appreciable attenuation. This is an interesting property because we know that telepathic behaviour seems to involve great distances. These Schumann resonance waves also have tremendous penetrability. It is almost impossible to shield them out; the ordinary shielded room, such as is used in most electrophysiological work, is very likely to be inadequate. In Germany, where much of the ELF research has been done, it is found that in order to shield out more than 95% of ELF one needs an underground bunker surrounded by several inches of steel. This constitutes a second parallel with psychic phenomena because we know that many psychic experiences occur inside buildings. A third characteristic of these natural frequencies, perhaps the most important one, is that, although they show diurnal and seasonal variations, none the less they occur all the time. Detailed description of the physical and biological properties of ELF fields can be found in a recent text (Persinger, 1974a).

Another feature of ELF waves is their time variation within biofrequency regions. In other words if we consider the brain as a generator of time varying electrical potentials (i.e. the cortical voltage measured in the EEG) we find that a proper maximum is developed at frequencies near 10 Hz. In fact, most of the electrical processes taking place in the brain, e.g. memory, occur at frequencies in this band. As mentioned, the ELF waves exemplify an energy which can be transmitted over long distances and through substantial material barriers. It should be now clear that they are at the same frequency as the basic electrical processes occurring in the brain. Calculations by my German colleagues show that if indeed the cortical voltage in the brain is oscillating at 8 Hz., and if

there is an electromagnetic field in the environment also vibrating at 8 Hz., then energy interaction can take place.

This model is very testable because a number of things can be predicted from it. For example, a significant number of nocturnal ELF fields propagate more between midnight and 4 a.m. than at other times. Also they have a geographical preference; e.g. it is easier to transmit at ELF field west to east than east to west. Furthermore, propagation of these ELF waves is heavily dependent on the local magnetic field. We can imagine lines of magnetic force coming out of the earth; ELF fields follow these lines. Just as the U.S. missile called the "Sidewinder" could follow a jet heat trail, so do the ELF fields use the magnetic flux lines as guides and transmission ducts. Consequently, if you disturb the static magnetic field of the earth you would modify the propagation of these waves.

Now, we collected accounts of cases of telepathy and clairvoyance from various sources — the Journal of the American Society for Physical Research, as well as from some popular magazines, and plotted their occurrence distribution as a function of the hour and the day. It appears that they have a tendency to peak roughly between midnight and 4 a.m. This is what one would predict from the ELF model. We find also that there is a greater tendency for the putative agent in telepathy cases to be west of the percipient rather than to the east. This is, in fact, statistically significant, but we are aware that this is only a pilot study, and we plan to replicate it. Similarly the number of cases as a function of distance between the putative agent and the putative percipient falls off in the same order of magnitude as you would expect if an ELF field was involved with telepathy. According to the ELF model, if there is an interference with the propagation of ELF waves around the earth, then there should be a decrease in the number of "ESP" reports. This is indeed what we find. There is a significant negative correlation ( $r = -0.68$ ) between the number of telepathy-clairvoyance reports and the U index which is a measure of the amount of geomagnetic disturbance throughout the world. When there is a geomagnetic disturbance the magnetic flux lines all over the earth's surface are shaken about and the propagation of ELF waves is impaired. Thus we have found a number of interesting parallels between telepathy and ELF propagation which suggest that ELF fields produced in nature, vibrating at the same frequency as electrical activity in the brain, may be involved in the production of ESP experiences.

But, what of P.K.? Well, if indeed the environment can be tapped for ELF, then an energy exchange will result. We have made some calculations which indicate that if a person had some peculiarity in his brain so that its power peaked at 7.8 Hz. then he would have the possibility of absorbing ELF energy, and using it in his body. Now there is a great

amount of energy available in earth's spherical waveguide, so that a considerable energy contribution is potentially available from the environment. Another interesting speculation concerns the harmonic frequencies of the ELF. Although the major fundamental frequency of the Schumann resonance is only 7 to 8 Hz., it has a second harmonic which peaks at about 14.5 Hz. According to the present theory individuals who have brain energy output peaking at both 7.8 and 14.5 Hz. should be the ones with exceptional P.K. powers. Interestingly enough, some of the Soviet literature indicates that when the Soviet medium is causing objects to move, then there is an increase in that activity (i.e. 3-7 Hz)\*. One could argue that the energy is coming from within the medium. Alternatively, we suggest that there is a resonance taking place between her brain and the ambient ELF fields.

Of course there are various features which are not clear from the model. How is the energy focussed on the object which is moved? Also, why can't we all harness the Schumann ELF waves? Well, for one reason, most people have their alpha power peak around 10-12 Hz. However, certain people with thyroid problems and also certain kinds of psychotic patients have a different distribution of cortical energy output. It may be these individuals who are most liable to have telepathic, clairvoyant, or P.K. experiences.

Now the model is very testable. For example, we can actually put ELF energy into the brain. We have done this at Laurentian University and the data are promising. We take a putative agent and get him to look at an object. Meanwhile we detect his cortical voltage with an EEG apparatus and feed it through an amplifier. The amplified EEG which is now of the order of 10 volts is then applied to large flat metal plates. A "percipient" is seated between the plates and is exposed to an electrical field which is a "replica" of the brain potentials of the agent.

One last similarity between ELF waves and the natural electrical activity of the brain is worth comment. The magnetic component of the brain's field is of the order of a millionth of an oersted, which is very small compared to that of the earth, (about  $\frac{1}{2}$  an oersted), but just the same order of magnitude as that of the ELF field. The amount of energy in the ELF field is, of course, very small. However, Professor Frank Brown, at Northwestern University, has shown that living organisms are sensitive to minute differences in the geomagnetic field though apparently the functioning of their nervous systems is unaffected by more powerful electric or magnetic fields. More detailed information on this model can be found in a recent book on this subject (Persinger, 1974b).

\*C.f. page 193, this Journal, and Whitton (1974).

## 7. Luminosities and other Strange Phenomena.

*Dr. Owen said, by way of preliminary:*

In the present section we are putting together a number of phenomena which are doubtfully related but nevertheless, phenomenologically speaking, have something in common in that they all involve light patterns, luminous appearances etc. Professor Persinger's paper suggests a natural origin for some types of nocturnal light. But, as Professor Hynek shows, there are a number of nocturnal experiences which seem to fall outside the limits of seismic effects. In the UFO experiences, as with the appearances described by Dr. Tanous and by Matthew Manning, we are up against the problem of multiple witnessing which militates against the phenomena being entirely hallucinatory or subjective. Luminous phenomena, curiously enough, do not occur in poltergeist annals — the sole modern exception is the occurrence of flashes of light at Clayton, North Carolina (Roll, 1972). Whether visual experiences having a religious content can be legitimately discussed in parapsychological terms is a problem that has never been legislated for (Owen, 1972c). It may be permissible therefore to remark that the only event that I have heard of which resembles the wall projections described by Dr. Tanous and by Matthew was the vision alleged to occur in 1879 at Knock in County Mayo, Ireland (Delaney, 1961). Our justification for including a discussion of luminosities in a conference on P.K. is, of course, association with P.K. both in Matthew's case and in numerous UFO sightings.

*Professor Michael A. Persinger: Thermoelectric and seismic effects.*

Perhaps you have heard about allegedly haunted houses in which there are "cold spots", and of UFO sightings where something is seen that looks rather like a luminous object. I would like to put forward a model for predicting why certain kinds of unusual experiences take place in some areas. Part of the model involves the Peltier effect. If an electric current is passed through two conductors separated by a thermo-electric material a temperature change takes place depending upon the current direction. Such a temperature change will result if an initially high potential gradient discharges across the conducting layers through the thermoelectric material. We get what is called "heat reduction" at the interfaces. Preliminary calculations indicate that an initial voltage gradient of roughly 1000 volts per meter will cause the temperature at the junction to fall at least 5°C, this reduction being for approximately 15 minutes. This is the same order of magnitude as is claimed for the so-called cold spots of some "haunted houses".

This model predicts that the closer the junction is to the house the greater the cooling effect will be. Thus the foundation of an old house

would be likely to have more continuity with the conducting layer and the cooling phenomena would take place more effectively. Another event that could take place if the house was on the top of a hill is that any nearby thunderstorm or local electrical change could induce a peak voltage on the hill-top, energize the layer, and produce a cooling effect inside the house.

Now it seems at first sight as if potential gradients of 1000 volts per metre don't occur in nature. However this is not quite true. Such electrical potential can occur specifically in areas under seismic stress. Papers by Finkelstein and Powell at Yeshiva University, New York, indicate that in areas subject to seismic activity, people sometimes report seeing luminous objects. They have found that these areas have a high quartz content; if a very heavy mechanical stress is put on the quartz then potential gradients as large as 100,000 volts per metre are generated. Such voltages can locally ignite the air producing luminous appearances that could be mistaken for UFOs. Dr. Yutaka Yasui from Tokyo has published photographs of such luminosities associated with major earthquakes.

We do not expect these phenomena frequently in areas which have had recent big earthquakes, because a fracture of the geological strata dissipates the energy. Thus areas like some parts of California are not so likely to exhibit these phenomena as often as others. However there are many areas where seismic pressure is building upon the local quartz-like structures. Brown Mountain, whose lights were the subject of a report in *New Horizons* (Bessent, 1972), is such a region. Another area which we predicted is the famous New Madrid region which comprises southwestern Illinois, Missouri, Arkansas, and western Tennessee. Similarly, seismic activity is increasing in an area which includes New England and portions of the St. Lawrence Valley in the U.S.A. and Canada. We also predict that the sites of UFO "landings" would show an increase in manganese silicate and perhaps magnesium and iron because the passage of excessive current tends to destroy the thermoelectric material and associated natural Peltier condition.

*Professor J. Allen Hynek: The strangeness of UFO experiences.*

My own interest in UFOs dates from 1948 when I was teaching astronomy at Ohio State University, which is not too far from the Wright-Patterson Air Force base in Dayton. The Air Force needed an astronomer to help assess reports of strange flying objects and to weed out those which could be explained astronomically — meteors, stars, planets, etc. Assuming that it was merely a nonsensical craze I undertook this work as a kind of game. To my surprise I found however that about 20% of the reports baffled the mind, and resisted any rational explanation. That figure has continued down the years as a basic invariant. When you see a newspaper

report the chances are about 4 out of 5 that the observation has a perfectly normal natural explanation. It is that fifth one however, which is the interesting one. As you know, the Condon Committee gave the subject a half-million dollar burial, and the Air Force got out of the business. Nevertheless in the fall of 1973 there was an unprecedented wave of UFO reports in France and elsewhere as well as in the U.S.A. This differed from previous waves in that it had not been stimulated by journalists; most people believed the subject was dead. I decided therefore that something should be done. I and a few scientific friends had long before constituted ourselves informally into a kind of "Invisible College" for privately discussing the UFO phenomenon. What we have now done is to create the CENTER FOR UFO STUDIES, which has faculty member representation from U.S. universities and several national laboratories. (We held a meeting recently in conjunction with the American Institute of Astronautics and Aeronautics. This has a sub-committee on UFOs which acts as a link between establishment science and our kind of study). The centre has a "hot line" manned 24 hours a day by telephonists in the Wrigley Building in Chicago. Its number is 800-621-7725 and is toll free for calls originating within the U.S.A. It receives at least one call nightly because the number has been given to thousands of police chiefs and sheriffs. If a report is very dramatic then I am alerted and get on to it immediately. Normally however, next day we notify one of our 300 local voluntary investigators who then interviews the witnesses.

Now, what we study are not UFOs but UFO reports, and the people who make the report. The result of this study is to correct three popular misconceptions. It is not true that only crackpots generate UFO reports. The better reports tend to come from people with considerable technical and other training — pilots, air traffic controllers, policemen, etc. Indeed I have been particularly impressed by the number of policemen who are primary witnesses, i.e. actual witnesses — not just the people to whom the sightings are reported. Furthermore UFO sightings do not seem to be mere products of overheated imaginations. It is an important fact that UFO reports fall into a certain limited range of distinct patterns which is repeated all over the world irrespective of cultural differences. For example, we don't get reports of unidentified sailing objects, UFOs with wheels or with wings, floating Taj Mahals, or flying elephants. To use a terminology introduced in my book (1972, 1974), although the "strangeness index" is high, the reports fall into a very narrow band in the strangeness spectrum. I assign two index numbers to each new report. The strangeness index is just the number of information bits (binary digits) that the report contains that defy explanation by normal means. The other index is the witnesses' credibility, i.e. the probability that what they said happened did happen. When these indices are plotted in a two dimensional diagram, the payoff lies in the upper right hand region:

cases of high strangeness with high credibility. The third misconception is one that some psychologists share; they keep telling me, "It's all projection; people see what they want to see." In my experience this is just not true. Time and time again, I have been told by my most credible reporters, "At first we thought it was a balloon", or, "We thought it was an aircraft", or, "We thought it was Venus or Sirius". These observers go through a process of what you might call escalation of hypothesis. They're trying to explain it to themselves — first wanting a natural explanation, but not getting it; finally they're driven to the wall and wondering — "Well, what is it?"

If now we look at the factors which constitute strangeness we find elements which strongly suggest a linkage, or at least a parallelism with poltergeist phenomena and with phenomena in general, rather than with actual solid items of nuts and bolts hardware. This is one of the reasons why I cannot accept the obvious explanation of UFOs as visitors from outer space, despite the fact that as an astronomer I can agree with most of my colleagues that the chances of extraterrestrial life existing are enormous. Among the features which belie the idea of extraterrestrial visitation there is, first of all, the statistics of sightings. Some people are UFO prone, i.e. experience repeated UFO experiences. Another peculiarity is the alleged ability of UFOs to dematerialize; there are examples where UFOs have been shot at and have disappeared in a flash of light. In a variant form of this disappearing trick a cloud — almost a plasma — is said to develop around the object. The cloud becomes more and more opaque until it completely obscures the object. Finally the whole cloud disappears as though going into another dimension. Yet another queer phenomena was reported in a recent case. The observer — a medical man — saw two typical UFO disks. Each disk was shining a light down on to the ground. As he watched, the illuminated patches of light came closer and closer together. Corresponding, the two disks converged. Eventually the light patches coalesced. Simultaneously the two UFO disks seemed to fuse into one object.

The phenomena I have described seem to have a visionary or hallucinatory quality, and so to have something in common with mental phenomena in parapsychology and with certain types of religious experience (c.f. Vallee, 1974). But there are also similarities with poltergeist happenings, particularly electrical phenomena. For example, two brothers driving in Nevada saw four bluish lights "pacing" them. One blue light left the pack, so to speak, crossed over in front of the car and became a bright orange light over to the left. Then, the car's engine began to stutter, its lights dimmed, and it rolled to a stop. This behaviour of the car has been paralleled in hundreds of UFO reports. Meanwhile a further bright light appeared ahead of them on the roadway. One of the travellers got out and shone a flashlight in its direction; the light thereupon



seemed to come closer. The brothers became extremely frightened. Suddenly it seemed that the car was given a tremendous shove; the axle broke. Later I had the axle examined; the break was a perfectly ordinary one, typical of the kind that follows on the bearing being worn out. However it remains a fantastic coincidence that it should break just when the passengers were seeing five strange lights hovering around them. Interestingly enough, besides the effects and experiences already described, this case also included an episode quite typical of classical parapsychology — an ESP message received from a relative in time of crisis — a happening so frequently attested as to be almost commonplace. At the precise time that the brothers were being scared witless, their mother in Buhl, Idaho, felt the presence of one of them in her bedroom, and heard him say “Mom”.

This case was, of course, exceptional in having an episode of classical ESP type additional to the UFO sighting, and the attendant physical happenings, but the apparent electrical interference with motor vehicles is almost a commonplace of the subject. An official of the Northern Canadian Power Commission at Chesterfield Inlet, N.W.T., described an experience of himself, a colleague, and a visiting Professor from the U.S. while hunting caribou. (Incidentally, he remarked that since then they had been too scared to go out hunting; — which is lucky for the caribou!). The party came round a bend in a ravine and encountered an object which looked like two gigantic dinner plates, one turning one way, and the other rotating in the opposite sense at such a speed that it seemed to glow orange and blue. The top had a dome; the underpart, which had a slight dip in it, was no more than six feet above the ground. As they came round the corner the three skidoos they were riding all cut out — “The motors just quit”. Both the description of the object and the failure of the motors are entirely typical of many other accounts. In this case, as in most other reports, once the UFO experience terminates, the car engines return to normal working with no ascertainable fault or cause of intermittent failure.

A feature of some UFO sightings which suggests a kinship to those poltergeist cases in which the principal person suffers from conversion hysteria (c.f. Owen, 1964, 1971a), is the occurrence of various ailments such as temporary blindness or paralysis or skin rashes. These conditions are typically psychological in origin (Owen, 1971b) and from this point of view it is not surprising that UFO observers who suffer from them invariably recover after a time. Other UFO cases involve unexpected healings and to that extent resemble certain visionary experiences with a religious content which quite frequently are associated with a dramatic cure of certain ailments (mostly, it must be admitted, ones with a strongly psychological component in their aetiology). For example, one UFO observer, himself a physician, had shortly before the close approach of

an UFO sustained a severe cut, which was closed only by the recently clotted blood. According to his own and his wife's account, only an hour after his UFO experience while talking to his wife about it, he suddenly noticed that the wound had completely healed, indeed vanished from his skin. These cases of UFOs and wound healing are surprisingly common all over the world. In one that I investigated two police officers in Louisiana declared that one of them had been completely healed of a fresh alligator bite almost instantaneously while observing their UFO. So far as I am aware this seems to be beyond what can be expected of psychosomatic effects. It behoves us therefore to consider what features of UFO sightings are in disharmony with familiar psychological or parapsychological paradigms.

The most acceptable theory of poltergeist phenomena is that the people concerned themselves produce the physical effects, though they are usually unaware that they are doing so. However, despite some similarities, there are real problems in completely assimilating UFO sightings to phenomena already known in psychical research. For example, in the many cases where the object is seen by a group of people it is always seen from the beginning by all the members of the group. This bothers me, because if it were a hallucination then its hard to see how all the group could hallucinate simultaneously. If there is such a thing as mass hallucination with agreement as to details of the object's appearance, then that's a phenomena in itself, which is as mysterious as the UFO. We can ask if it's akin to a group poltergeist or P.K. phenomenon in the sense that the group, acting co-operatively like the Philip group, may be producing lights or images of objects. However the Philip group acquired its collective ability as the result of self-training and continued association, but group UFO sightings will occur when people who have previously been strangers to one another happen for the first time to be travelling together. One of the most interesting aspects is that the UFO sightings occur when they are in no way thinking about it. It just occurs; there has been no pre-conditioning of any kind.

It may be useful to list the characteristic features of UFO studies. In this I am happy to express my gratitude to Dr. Claude Cohaire, who is a member of our Center for UFO Studies, and a director of a division of the organization which in France corresponds to NASA. He has shown how scientific method can be applied to UFO reports. He compared about 200 well investigated French cases with a world-wide sample, and showed that statistically the French data agreed with the international reports. Generally speaking, the following facts emerge.

(1) UFOs prefer clear skies; that is, in 75% of cases there is at most scattered cloud.

(2) Close encounter cases (i.e. those where the UFO is reported

either on or very close to the ground) occur in relatively uninhabited regions — near isolated habitations and rarely in urban zones.

(3) The objects tend to be luminous. All nocturnal UFOs, of course, are luminous, but so also are the majority of daytime UFOs. UFOs are therefore essentially a luminous phenomenon and may have a stronger relation to what Dr. Tanous describes than at first meets the eye.

(4) It seems to be an almost universal finding that the objects change in colour as they accelerate.

(5) As regards movement, the typical reported behaviour is the ability to hover close to the ground and then take off with great acceleration, seemingly in violation of Newton's Second Law; the objects appear to have the ability to abrogate, at least temporarily, the inertial properties of matter. Alternatively this could be taken as supporting the visionary or hallucination hypothesis.

(6) As regards numbers of witnesses however, more often than not, there are at least two witnesses. This tells against the hallucination theory.

(7) When the objects are not silent, they are usually reported as humming, or as emitting the sound of a sewing machine, or of a dentist's drill.

I classify UFO reports in six groups.

(1) The majority of cases are nocturnal lights which cannot be explained as meteors or in any conventional way.

(2) Then we have the daylight disks — the daytime sightings, generally oval in shape — the traditional "flying saucer". (It may well be that the same objects appear at night as nocturnal lights).

(3) The third category consists of radar cases. The ones that I like best are those in which the radar confirms a visual sighting. For example, a high ranking officer of the Royal Australian Air Force told me how he saw an intensely bright light near each of the wing tips of the craft he was flying. After a while they drew off to a distance but continued to "pace" him. He asked the control tower if there was any traffic in his area. They reported back that there were two other aircraft, and that in fact he was the middle "blip".

The remaining three groups are called close encounters, i.e. sightings within a few hundred feet so that vision is effectively stereoscopic, etc.

(4) In close encounters of the first kind the observers may be frightened but there are no physical effects.

(5) In those of the second kind, physical traces are left. These are the most interesting because the traces can be photographed or subjected to laboratory analysis. In a case at Columbia, Missouri, the object seemed to have a metallic centre surrounded by an orange glow, and then a whiteish blue one. It seemed to come within 30 feet of the house. The telephone went dead, as was confirmed in an affidavit by the telephone operator in Jefferson City. The wind speed that night was certified by the weather bureau as only 5 mph. However the observers reported that the trees near the object swayed as if in a hurricane. There was a loud cracking sound; when the police arrived two hours later they found a branch, diameter  $2\frac{1}{2}$  inches and 17 feet above the ground, ripped off one of these trees. The leaves on the branch and neighbouring parts of the tree were curled and shrivelled in a rather strange way.

This is typical of 800 or so cases in which physical effects such as broken branches or rings on the ground are found subsequent to the episode. For example in Iowa two girls in a farmhouse saw a luminous object pass their window which overlooked a soybean field that the farmer had inspected that afternoon. Next day he pooh-poohed the apparition, but found a ring about 40 feet across in which (as I confirmed myself) the soybean plants were unbroken but shrivelled and slightly charred as if subject to intense radiation from above. I walked over the surrounding terrain but found no sign that any farm vehicle had approached the spot. In Kansas a youth tending sheep heard a noise and saw an extremely brilliant lighted object descending; it was quite blinding. After some minutes it lifted off and left a glowing ring. The boy's mother, a nurse and therefore a person of some practical competence) took a polaroid photograph on which the glow showed up. She also stuck her fingers into the ground, to test whether the glow was warm. Her hand developed a numbness, and for two weeks she was unable to take her patients' pulses at the hospital. We took soil samples down to 14 inches. The soil in the ring looked quite different from normal soil. Also it was hydrophobic; a drop of water put on it would not sink in at all. We also found at Northwestern that nothing at all would grow in it, even though we tried to force water into it; but samples from other parts of the field were quite fertile.

Like the radar cases these episodes in which the luminosity of rings can be photographed, and where permanent physical and chemical effects are left, certainly militate against the assumption that the UFO experience is a purely psychological or psychical event.

(6) Close encounters of the third kind are those in which occupants — Ufonauts, humanoids, etc. — are reported. These narratives constitute the most bizarre and seemingly incredible aspect of the entire UFO phenomenon. As I said in my book, I would gladly omit consideration of

them if I could do so without offense to scientific integrity. Unfortunately one may not discard data simply because they may not be to one's liking or in line with one's preconceived notions, though I must confess to a considerable degree of prejudice against reports of humanoids stepping out of flying saucers. Maybe this involves an atavistic fear of the unknown, or of rivalry with another species for the ownership of the earth. However there are more logical objections to the ufonauts as reported. It is odd that the humanoids should apparently be adapted to our own gravity, and to the pressure and composition of our atmosphere. This would mean either that they are robots, or that they come from a habitat very like our own. Yet the stories of occupants are too numerous to discard even though they are much harder to understand than the other UFO categories; their number runs into the hundreds. Also (and this should be stressed) the close encounter narratives do not differ significantly from the other five classes in regard to geographical distribution, weather conditions, or professional qualifications of witnesses, except that among the witnesses there are no pilots, air traffic controllers, radar operators, or scientists, although almost every other responsible profession is represented.

The difficulty with these reports is that they usually contain many or all of the elements found in cases of type 5. As an example, I can cite a case investigated by the Westmoreland County UFO Study Group in Pennsylvania, who are closely associated with our Center. About 9 p.m. on 25 October 1973 a farmer, Stephen Polaski, and Trooper Burns of the State Police, heard a noise in the woods. Some fifteen other witnesses saw a bright red ball hovering over a field. As Polaski and two neighbours drove towards the field their auto headlights went dim. They saw the object slowly descending. Walking over the crest of a hill they saw it low down, sitting directly on the ground or hovering just above it. It was now bright white and illuminating the area. The object was dome shaped like a big bubble about 100 feet in diameter and emitting a sound like a lawn mower. They also saw two figures by the fence. Polaski, taking them for bears, fired over their heads. However, he then saw that they were strange. By comparison with the six foot high fence he could see that the creatures were over seven feet tall. They were covered with long grey hair and had greenish yellow eyes. They made whining sounds apparently directed at each other. Polaski eventually fired three rounds into one of them, who whined, and then accompanied by the other, turned round and walked slowly back to the woods. At the very moment that they turned the object in the field just disappeared. But on the ground it left a glowing white area (confirmed by Trooper Burns) bright enough to read a newspaper by. About 150 feet in diameter, the glow extended about a foot up from the ground. Plants normally growing on the spot could be discerned within the glow.

Narratives of the above kind are difficult to reject as out and out fictions or phantasies, because of the multiple witnessing. The object behaves in some ways as a mere phantom, but generates physical effects and leaves physical traces, behind it. Whether the objects and the creatures are projections or intrusions from another dimension or plane of reality, remains for the time being a subject of speculation. The practical study and on-site investigation of UFO reports will, I hope, continue, because I feel it brings us into contact with real scientific problems of the deepest import.

*Matthew Manning: Luminous "pictures".*

Light phenomena happened to me during the time that I was at the centre of a very violent poltergeist outbreak. On the first occasion while I was asleep in another part of the building, the prefect in charge of one of the dormitories awoke at 4.30 a.m. and saw a patch of light on the wall about the size of a dinner plate. As he watched it slowly grew until it was six feet across. He then left the dormitory and prayed in the corridor for half an hour. On his return the light had almost disappeared. On a second occasion a similar light appeared in the same room. I was awakened and fetched from my own sleeping quarters on the other side of the building. There was a strange sensation of ether-like cold in the room. The school matron, the prefect, and I watched the patch of light grow bigger and bigger until it reached from floor to ceiling as before. We ascertained that there was no light source projecting light on to the wall. When I put my hand up it cast no shadow on the illuminated patch, which seemed to be self-luminous. When I felt it it was very warm, unlike the surrounding area which was cool in the way a plaster wall usually is. Curiously enough, while all three observers saw the growing patch of light, they did not agree in respect of certain additional details. I saw a pattern very like the Biblical Crown of Thorns round its edge. But matron saw only a light pattern in the form of a centrally placed cross, which was invisible to me. On my going through a procedure described in my book (Manning, 1974) the light began to shrink until it was a saucer-shaped area, without the cross or the thorns, which disappeared completely when we switched on the electric light. While the luminous patch was shrinking the room temperature seemed to rise until it felt normal.

This event had a curious sequel. Next morning, after I had made my bed and left my dormitory, a prefect found near my bed a length of wire which had been twisted into a saucer-sized ring, and a piece of sheet music on whose cover was a drawing of a crucifix with a crown of thorns placed centrally over it. The piece was "The Saint John and Saint Matthew Passion". John, incidentally, was the Christian name of the Headmaster, who was much exercised in his mind concerning the poltergeist happenings. The origin of the objects is unknown.

*Dr. Alex Tanous: Experiences with light.*

I have had a number of strange experiences with light, some of which resemble those described by Matthew. For example, once when I was visiting Mr. and Mrs. Frank Myers at Manchester N.H., we had had dinner and were discussing Ted Serios. The thought came to me, if someone can put photographs on polaroid, why not put a picture directly on to a screen? I said to the company, "I'm going to produce a picture on your wall". I took care not to specify what it would be. In the event, Mr. and Mrs. Myers and their children and I, all saw the head and shoulders of a man — not a shadow, but an illuminated area — progress across the wall. We all blinked and rubbed our eyes and tried re-focussing them etc. etc. For a split second we were successful and briefly abolished it, but it returned. The Myers family swore an affidavit which I gave to Dr. Osis, who also got the statement confirmed by them on audiotape.

On another occasion I was visiting a lady in hospital and happened to look out of the window into the full glare the sun. I then stared at the wall, which was painted a light colour. Squares began to appear on it. However this was not a mere optical illusion because three of four other people and the nuns who were in the ward also saw the squares and asked what was happening. It lasted about a minute and a half.

The next episode occurred when I was in the home of Mrs. Poloski and seven other people — some were housewives but the men present were engineers, film technicians, etc., all highly critical. I was relaxing after talking to the group. The room was only dimly lit — a small electric candle over my shoulder. Mrs. Poloski suddenly put her hand on her chest as if having a heart attack and said "Dr. Tanous, are you doing anything?". I asked what she meant and she said lights were shining on the wall that she (alone of the company) was facing. We all turned, and for two hours watched a display of light streaming over the surface of the wall. This is testified to by affidavits sworn to by several of the people present. What startled them most was that the pattern included the picture of a ship. I did all I could to suppress the phenomenon — I closed my eyes — turned the room lighting on and off — but the pattern and pictures always reappeared as soon as we dimmed the lighting. However I was able to modify the picture; for example, I "detached" the ship and made it sail across the wall. Everyone saw this. Thereafter all sorts of images appeared — lines, crosses, etc. It seemed that though everyone saw luminous patterns on the wall they differed as to the details of what they saw.

Later, at the invitation of Alan Vaughan I went to the Dream Laboratory at Maimonides Medical Centre and produced some of these effects in the presence of Alan, Charles Honorton and Mr. Stubb from Durham, N.C. We sat in a dimly lighted room; I would look at a picture and then attempt to reproduce it as a light pattern on the wall. Alan and Charles

said they saw something but were not sure whether it was a telepathic projection from my mind or theirs.

My next experience was at a lecture I gave at Utica, N.Y. Normally I never do any demonstrations in public, but this meeting was to raise funds for purchase of a heart lung machine, and I said that I would attempt to solidify light. I explained that I would look at a 500 watt lamp at close range and then, in total darkness, I would make a ball of light. I did produce the light and about a dozen photographs of it were taken. Subsequently I did it twice more in public and once in the laboratory with Vera Thelman. At Dr. Osis' invitation I did the experiment with photomultipliers at the ASPR which I described earlier.

I do not know how it fits in with the light projection phenomena or whether it is something unrelated, but I got some Serios-like effects when a group of medical doctors in Boston were studying my physiological responses. They set up a camera in a totally black hospital darkroom. I tried to solidify light in the same way as in Utica. Of the four pictures that they gave me, the first shows a bed in front of me with a coffin upon it; over it there is a shape like a hand made of luminous energy. The others continued to show the coffin, but show the hand more bright and concentrated rather like the ball of light in the Utica pictures.



## EDITORIAL POSTSCRIPT

Since the Conference a detailed account of the EEG "ramp function" finding has been published (Whitton, 1974) and other experimental work at the Conference has been briefly described by Owen (1974) and alluded to in Matthew Manning's book *The Link* (1974). A verbal report on these and other P.K. topics was given by Dr. Whitton and Robin Owen at the Tarrytown Conference on *The Physics of Paranormal Phenomena* (21-23 Feb. 1975; sponsored by the Foundation for Parasensory Investigation, The John L. Tishman Foundation, and Lab Nine Ltd).

Developments in our knowledge of psychokinesis acquired subsequent to the Conference have been reported in the next issue of this Journal *New Horizons*, Vol. 2, No. 1 which is published simultaneously with this issue, and include further elaboration of the "Philip" research, a report on the metallurgy of a "Gellerized" object, and the discovery that paranormal "Philip" raps differ acoustically from raps generated by normal percussion.

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## Notes

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## Important Movies

The following movies (16mm. colour and optical sound track), professionally made, may be hired or purchased from George Ritter Films Limited, 2264 Lakeshore Boulevard West, Toronto, Ontario M8V 1A9, Canada. Tel. (416) 252-2291.

*PHILIP, THE IMAGINARY GHOST:* A film, professionally made, showing how a group of ordinary people developed a revolutionary new technique for generating genuinely paranormal physical phenomena (sounds and movements of objects) during their efforts to make their own ghost. (16 minutes).

*MATTHEW MANNING: STUDY OF A "PSYCHIC:"* This movie, made on location in England shows how Matthew, an English schoolboy, developed the strange powers of psychokinesis and clairvoyance, and brought them under voluntary control. (30 minutes).



## Important New Books

Obtainable through any bookseller.

*THE LINK*: By Matthew Manning. (Published by Colin Smythe, Gerrards Cross, England and Holt, Rinehart and Winston, New York).

This book is the record of an eighteen-year-old boy Matthew who "is one of those rare persons endowed with a high degree of psychokinetic power". He is also remarkable for his ability to harness this power and channel it into metal bending like Uri Geller, or, as he himself prefers, to redirect it into clairvoyance, and automatic writing and drawing in a variety of classical styles.

*PSYCHIC MYSTERIES of CANADA*: By Dr. A. R. G. Owen (Published by Fitzhenry and Whiteside, Toronto).

Written in a clear but entertaining style so as to interest both scientists and laymen, Dr. Owen illustrates the subject matter of psychical research from Canadian sources, and explains the remarkable new discoveries in this field that Canadians have made in the last few years.

(Published in the U.S.A., by Harper and Row, New York under the title — *PSYCHIC MYSTERIES of the NORTH*).

# New Horizons

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# EDITORIAL

Following our normal custom we include a purely antiquarian paper—*Quetzalcoatl in Ancient Athens?* The purpose of that essay is not to criticize the general thesis which Dr. Gordon puts forward in his book *Before Columbus* or to impugn his scholarship. But, in the Editor's opinion, it shows how a great scholar can be led astray if he fails to pause for reflection; — “even Homer nods!”

Vicki Branden's paper is of first-rate importance to both psychologists and parapsychologists. There are, so far as I am aware, few texts, in either literature, which analyse the cause of an apparition so convincingly into its various components — toxicity, anxiety, recollected imagery, and perhaps telepathy. Vicki Branden's article is an uniquely insightful contribution to the theory of hallucinations.

The note on the Barbados coffins is self-explanatory. A blend of the antiquarian and the parapsychological, it reminds me of the state of affairs in parapsychology when I came into the subject, about twenty years ago. At that time psychic research was in the doldrums; the prevailing complaint was that there weren't any phenomena. Hence, particularly in England, the idea arose that there could not have been many genuine phenomena in earlier centuries either. A school of historical criticism flourished which aimed, by a kind of retrospective diagnosis, at discovering the truth about psychic phenomena alleged to have happened in past times. This proved not to be an easy task, though it was an educational one in that it provided some training in evaluation of testimony and the weighing of evidence.

The situation is now much changed as regards psychokinetic and allied phenomena which have become relatively abundant, as I explain in my account of the highlights of fifteen years of my own investigations in P.K. Phenomena are now also reproducible, as is shown by the continuance of research of the “Philip” type which is recounted by my wife, as well as by the proliferation of metal-bending. (According to an estimate given by some of the participants at the Tarrytown Conference, this phenomenon has now been reliably witnessed in no less than sixty practitioners!).

Another crucial feature which has transformed the evidential status of P.K. events is the advent of audiovisual recording. It is difficult now to realize that the most novel feature of the Sauchie poltergeist investigation made in 1960 by Drs. Nisbet and Logan and Revd. Lund was the audiotape record of the rappings (Owen, 1962). This totally inhibited those critics who otherwise would have asserted that the noises were hallucinatory! Nowadays audiovisual recordings, when efficiently carried out and

preserved, successfully eliminate a variety of problems, such as the reliability of the memory, the completeness of written logbooks, or failure to maintain continuous observation. In addition it guards the investigator to a very great extent from possibilities of sleight of hand, distraction of attention, and substitution of objects by the subject.

Contrariwise, the existence of the possibility of audiovisual recording exempts the scientist from giving a disproportionate amount of weight to the gratuitously offered and *uncorroborated* statements of a particular kind of critic. Typical of the kind of allegation made by commentators of that ilk (usually stage magicians) is that they saw "Mr. X" (or whoever it might be) doing something illegitimate while the investigators were looking elsewhere. Clearly, if unsupported by visual recording, such statements are of no evidential value, because they could be the products of false memory, careless observation or defective eyesight — to name but a few out of the many possibilities which will suggest themselves to the reader.

But the investigator in the 1970's has further advantages in being able to utilize technology which twenty years ago was more primitive than it is now or even non-existent. One possible application of modern techniques is to the discovery of unusual physiological states as concomitants of paranormal phenomena. This was exemplified by Dr. Whitton's pilot experiment on the EEG frequency spectrum (1974). Though the interest of such findings far transcends the narrow question of the evidentiality of the paranormal events themselves, it is fair to note *en passant* that the occurrence of an unusual neurological state contemporaneously with an event is evidence in support of the paranormality of the event though, of course not conclusive evidence.

The most exciting applications of scientific methods of analysis are those which disclose that the physical outcome of a paranormal action differs in its nature from the outcome of the corresponding normal action. We are privileged to be able to publish in this issue *two* distinct findings of this kind. It is wellknown that most of the fractures induced in metal by Mr. Uri Geller and other metallotropic P.K. subjects resemble fatigue fractures even though the metal may be new (as with key blanks) or have parted without application of any known physical stress. However Professor Franklin has discovered a remarkable exception. This is a ring which spontaneously develop a fissure in itself, Mr. Geller being present but not touching it. Dr. Franklin's electromicrographs of the fracture surfaces disclose a strange state of affairs in which adjacent small areas manifest totally different conditions resembling (a) cleavage at very low temperature, e.g. that of liquid nitrogen, (b) distortion as if by mechanical shear, and (c) incipient melting, typical of temperatures in the neighbourhood of 2000° because the ring is platinum! It would be remarkable to produce either (a) or (c). To produce both is very remarkable. To

produce conditions (a) and (c) at sites only one hundredth of an inch apart is extremely remarkable.

To coin a new word: we are in the presence of a *paramorphic* event. A paramorphic event is one which differs in *form* from normally caused events of the same general category. Thus the fracture of the platinum ring is indeed a fracture but it is different in form from any fracture caused normally regardless of temperature. We may remark incidentally that in appropriate contexts the fact that an event is paramorphic is a complete proof that it is a paranormal one, i.e. that it was paranormally caused. (If additional vocabulary is really necessary we might introduce the term *para-aetiological* to describe a one that is paranormally caused irrespective of whether or not it is normal in form).

So far as we are aware this issue of *New Horizons* represents the first occasion on which evidence of the paramorphic nature of certain paranormal events has been published. As it so happens, either through serendipity or as a reward for industry and acumen, we are able to make this occasion a double first. This is because the analysis of the acoustical properties of the "Philip" raps, as reported by Dr. Whitton, proves that these raps are also paramorphic! To be specific, the duration of each "Philip" rap in the sample analysed was much shorter than that of normal percussion raps obtained under similar conditions. The physics of this is, of course, not yet understood, and will be the subject, we hope, of continued research.

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# Fifteen Years of Psychokinesis

A. R. G. OWEN, M.A., Ph. D. \*\*

*ABSTRACT: Current trends in the practice of P.K. are interpreted in the light of fifteen years research in P.K. by the author and his co-workers.*

This paper starts in the first person "I" in reference to my earlier interest in P.K. but then changes to "we", referring collectively to the Canadian group with whom it has been my privilege to work over the last five years. For convenience, I use the word psychokinesis, or P.K., to include any physical effect produced by mental intention. I took up the study of P.K. fifteen years ago when I came on evidence that *some* poltergeist phenomena were genuine. At the time, I thought (just as I do now) that P.K. was not merely the biggest thing in parapsychology, but the biggest thing in science. Because I knew that it was an immensely important and interesting fact, I publicly affirmed my belief in it. This sounds easy in retrospect, but fifteen years ago there were, even among parapsychologists, only a few who would grant any very hearty assent to the possibility of large-scale P.K. Strange as it may seem, things are much easier now. If we stand up to be counted there are certainly more of us than there were then. In those days, however, I learned a few things about the art of controversy which may be worth passing on. Nothing is truer than George Lansbury's maxim: "Never argue, just repeat your assertion." This does not mean that we should be aggressive or evangelical, merely that we should fight our battles on ground of our own choosing instead of being lured into our opponents' terrain. Just say, "Well that's what happened when *we* were there; that's what *our* videotape shows." In these matters the minutiae of debate are not important, it is *morale* which counts. Timidity invites attack; on the other hand, a simple faith in the power of truth — its ability ultimately to assert itself — will carry one a very long way.

Fifteen years ago, poltergeist effects were important, because they were on a much larger scale than those which Dr. Rhine (1944) had found in dice-throwing experiments. But they were tantalizing, because they were of short duration. Poltergeist people usually lost their powers. Any exception, therefore, was intensely interesting. About ten years ago, my wife

\*\*This paper was read by Robin E. Owen on behalf of the author at the Tarrytown Conference on *The Physics of Paranormal Phenomena* held 21-23 February 1975 at the Tarrytown Conference Center, Tarrytown, N.Y. under the sponsorship of The Foundation for Parasensory Investigation, The John L. Tishman Foundation, and Lab Nine Ltd.

and I came on a poltergeist person "George S." who went through what seemed to be a progressive series of types of phenomena, poltergeistery, trances, and mental abilities — clairvoyance and precognition, but we were not able to delve very deep into George's case. Also George's phenomena seemed to be involuntary. (Branston, 1974).

It was not until 1970 when we had moved to Canada that we obtained first-hand experience of voluntary P.K. through our experiments with Jan Merta (Owen, 1972). Jan could voluntarily initiate and control the motion of a mobile suspended in a sealed jar. Two things were interesting. He was something of a poltergeist person, though only to a minor degree. What is more important: he deliberately induced this power by training himself what we now call "a psychological skill". Jan Merta learned that in order to produce his P.K. effect he had to put himself into a special frame of mind. He had to be relaxed, yet he had to "intend" the motion of his P.K. object, but he could not allow himself vehemently to "will" the outcome. Later, these facts gained heightened significance for us.

About the same time as we were doing this work we received news from England. Three years previously, we had studied Matthew Manning, an "ordinary" poltergeist boy, then eleven years old. His phenomena had stopped after three months and we had doubted if they would ever recur. But in the spring of 1971 they returned on a vast scale, both at his Cambridge home and at his English boarding school. In a way, they can be said never to have died out since that time. Matthew says that even now the "energy" builds up every few days and expresses itself in poltergeist phenomena. However, in 1971 he found a way of regulating it. If he did automatic writing or drawing, the built-up of "energy" was suspended. This is interesting as it shows a kind of "symptom substitution", as we put it at New Horizons. Matthew's capacity for symptom substitution turned out to be very useful to us. In March 1974, we were fired by a successful outcome to the "Philip" research and an experiment with Uri Geller to seek to convene Matthew Manning, Uri Geller, the "Philip" group, and friendly professors to a brainstorming conference. We wrote to Matthew who told us that, having seen Uri on British television, he had taught himself to do metal-bending! We were pleased, not least because the existence of a plurality of practitioners of this art tends to cut the ground from beneath the feet of our various critics. In the event Matthew, at our Conference, bent or divided scores of metal objects, many of which were borne proudly away by their owners — often distinguished professors. For good measure, he could also (like Mme. Mikhailova) deflect a compass needle, and he produced some very strange Kirlian photographs for our friend Douglas Dean (Owen, 1974; Manning, 1974).

So far so good; our Anglo-Canadian experience in a decade and a half had shown that, in respect of P.K., some are born great (Uri Geller),



some achieve greatness from humble beginnings (Jan Merta), but what of ordinary people? Is there a way by which people either singly or in groups can attain to psychokinesis? The English experience was encouraging; the children, discovered by Dr. Taylor, Dr. Hasted and Dr. Bastin, who took up metal-bending may be representative of the "common man". On the other hand, any genetically minded investigator might wonder if these are merely included in a hundredth of one per cent of the human race who happen to be endowed with a "P.K. genotype". Perhaps we have found part of the answer in our "Philip" group research.

We have recounted elsewhere how that research came about (Owen and Sparrow, 1974). (This in itself has implications for the origin of scientific discoveries, but we do not have time for that now.) Suffice it to say that a group of eight people who met regularly and addressed themselves to a totally imaginary and fictitious entity "Philip" thereby equipped themselves with the requisite psychological skill. In consequence, they produced genuine physical phenomena, essentially sounds — rappings out of the wood-work — curiously reminiscent of poltergeist knockings such as the first published document of that ilk — the Sauchie rappings (Owen, 1962, 1964). What does this mean? We think the simplest interpretation is the best. Most people have a little P.K. in them even if, as compared to the great geniuses like Uri Geller, Matthew Manning, D. D. Hume, or Stella Cranshaw, they are mere "psychic morons". As in the old days, six men could carry the litter of a king — portage by Committee — so, in our day, when the Iron Age of the archaeologists shows signs of drawing to its close we have P.C. — "Psychokinesis by Committee."

This finding confronts us with numerous issues as yet unresolved. How are the separate individual quotas of P.K. force synchronized in time so as to permit their effective summation? Only telepathy would seem adequate to that task. Is telepathy a form of P.K. operating on the brain of the percipient? We do not yet know if the work of our Dr. Lloyd is likely to solve this problem (Lloyd, 1973).

Be that as it may, very interestingly we have quite recently found that the type of P.K. phenomenon produced by the "Philip" group is malleable (Iris Owen, this Journal). That is to say; by conscious direction of effort they can substitute other phenomena in place of rapping or table movements. In this way, they have just added metal-bending to their repertoire. A few weeks ago the group during their sessions kept metal objects on the table with the intention of bending them. They succeeded in bending a thin medallion and a key. More recently, they were visited by a journalist, Mr. Bill Dampier. He sat in the circle asking his own questions and getting answering raps under his hand. He asked the group to bend his housekey which was laid on the table and was quite flat. A professional photographer was present taking pictures continually and the room

was in bright light. After a while, the key could be seen obviously to be bent. It was photographed, and taken home by Mr. Dampier who was told that it might continue to bend. The next day, he telephoned to say it had bent still more and he had sent again for a photographer!

Now it is not really true what is sometimes said: that paranormal phenomena need more proof than other ones. Every phenomena needs the same degree of proof – neither more or less. What is true, however, is that our critics will not be silenced until the phenomena are too abundant to be denied. However that point has almost been reached; the practitioners will soon outnumber the critics. The history of metal-bending agrees with that of the “Philip” phenomenon in showing that faith is an efficient generator of paranormal abilities in those genetically endowed with latent talents. We cannot tell what the end of it will be but it is clear that current trends represent a total transformation of the status of P.K. powers making them available for scientific investigation and eventual understanding. We are at the end of an era and at the opening of another.

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# Fracture Surface Physics indicating Teleneural Interaction

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*ABSTRACT: A metal physics analysis of four specimens broken by or in the presence of Mr. Uri Geller is reported in which scanning electron microscopy was the principal method used in the analysis of the fracture surfaces.*

## 1. Introduction

The interesting question of what provided the causal influence for the deformation and fracture of metallic objects is raised by the recent reports of Owen (1974a, b) concerning the teleneural\* interactions with matter which occurred in the presence of Mr. Uri Geller and Mr. Matthew Manning. Additional evidence, of a metallurgical nature, is given in this report of four metallic objects broken by or in the presence of Uri Geller. Most of the metallurgical investigation which is reported here was done at the Stanford Research Institute prior to the initiation of a special research program in the fall of 1972 with Mr. Geller and which is reported, in part, in a recent article dealing with information transmission by Targ and Puthoff (1974).

The investigation which is reported here is unusual in nature, significant to various fields of science, and casts the physical analysis of fracture surfaces in an important role in the endeavor to understand the question of the teleneural interaction capabilities of humans. The four fractures which are analysed reveal two distinct types of fracture surface. One is not widely different from control fractures whereas the other displays significant differences from normal room temperature fracture surfaces of the metal involved. The fracture surfaces which are analysed are those of three household items, specifically, two stainless steel spoons, a stainless needle, and a platinum ring.

## 2. Fracture Conditions

All four of the metallic specimens, as observed by the author, were fractured in a room temperature setting. All were handled by the author or coworkers within approximately 30 seconds to a minute after fracture

\*The word *teleneural* stems from the Greek word *tele*, meaning *far* or *distant*, and *neural*, which has to do with the nervous system in the broadest sense.

and no one reported the sensation of uncomfortable heat or cold from the specimens. All four specimens were owned by colleagues of the investigator; none was owned by Geller or his associates. A fracture occurred in the small part of the shank of one of the spoons, as it was observed visually, when the spoon was withdrawn by Geller from a cup in a time of less than three seconds. The fracture in the second spoon was seen to occur as the spoon was held in Mr. Geller's fingers while he bent it in a very gentle manner back and forth five or six times to angles of approximately  $45^\circ$  from the spoon's original shape. No apparent strain on the part of the subject was observed during the bending or fracture process of the spoons or of the other specimens. In the case of the platinum ring, the fracture appeared as a crack in the ring while an associate of the author's held it between the palms of her hands gently in the proximity of Mr. Geller. Subsequently, Mr. Geller took the ring and gently bent and broke a small segment out of the shank. The fracture in the needle occurred as it lay on a table approximately a meter from Mr. Geller.

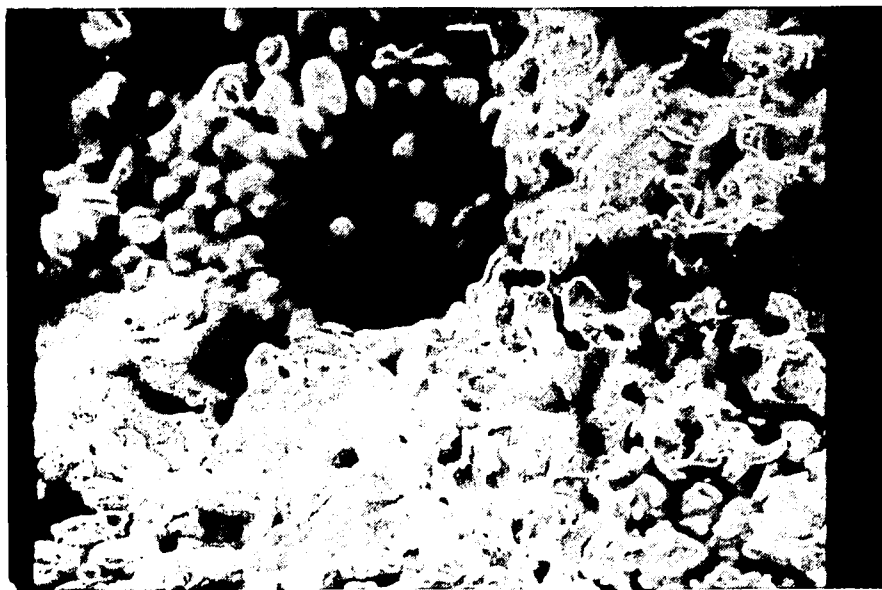


Fig. 1. SEM photomicrograph (1115X at  $30^\circ$  angle) of a portion of the fracture surface of a platinum ring broken in the presence of Mr. Uri Geller. This region is suggestive of localized incipient melting.

From the brief description given above as well as the observation of other fractures seen by the author or reported by others (Owen, 1974a, b) it is apparent that two distinctly different types of fracture occur. In the

first type, the metal appears to weaken in mechanical strength and increase in ductility to the point that a small mechanical force can plastically deform the metal. The successive frames of a movie film which show this kind of fracture have been shown by Vaughan (1973). In the second type of fracture a crack appears to develop in the material while it is not being observed visually.

### 3. Metallurgical Analysis of Specimens

Of the various instruments available for metallurgical use, the scanning electron microscope (SEM) was chosen to examine the fracture surfaces since the natural "as broken" surfaces could be examined directly, the

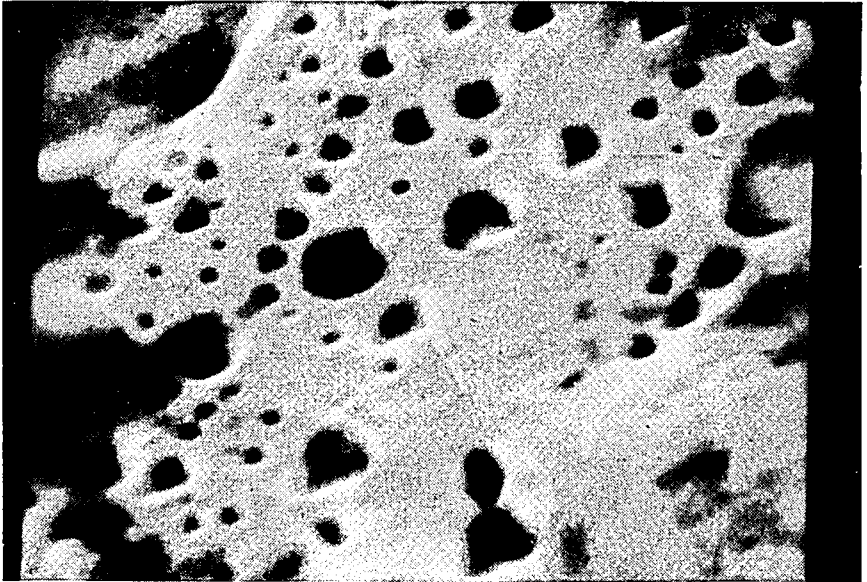


Fig. 2. Same specimen as Fig. 1 at a location approximately 0.01 inch away (12,000X at 30° angle). The flat, slightly terraced, structure in and around this field of view is suggestive of low temperature cleavage.

depth of field was good, and since both high and low magnifications could be utilized easily. A Cambridge Stereoscan Mark 2A SEM was used for the analysis and all of the SEM photographs were taken between November 9 and 22, 1972.

The fractured spoons were of the Heavenly Star brand of Japanese stainless tableware. SEM photomicrographs showed no large differences between the fracture surfaces of specimens broken by Geller and those broken in the laboratory as controls. Microhardness measurements with

a Tukon Hardness Tester gave an average hardness of the sample material corresponding to an approximate ultimate tensile surface strength of 109,000 psi  $\pm 5\%$ . Immediately adjacent to the fracture surfaces in the Geller and control specimens the microhardness was essentially identical and corresponded to 113,000 psi, which is less than 4% higher than the matrix material and may, in both cases, be attributable to work-hardening during the deformation of the material. However, hardness measurements were not made on the spoon which apparently broke without bending. Since the smallest cross-sectional area of the shank of the spoons was  $1.17 \times 10^{-2}$  in<sup>2</sup> the load required for fracture in tension would have been 1270 pounds. However, the bend load required for fracture is probably of the order of 20 times smaller. (The author could not bend another spoon from the same set by more than 10° manually).

The SEM photomicrographs of the fracture surface of the needle showed no regions of dimpled network typical of ductile failure. The surface showed regions of distinct granular structure, which appeared like intercrystalline fracture, and a region with small spherical sections similar to those sometimes seen in sintered metal powders. The needle did not "neck down" in the region of fracture as ductile metals do and there was no evidence of bending deformation or fracture.

The most interesting of the fracture surfaces were those of the first fracture in the platinum ring. There was no evidence of necking down or bending. The SEM photographs showed a widely variable microstructure with regions which appeared to have been distorted by shear, others characteristic of incipient melting, and one which appeared similar to a low temperature cleavage surface. Rounded over protuberances around a cavity, which appear similar to specimens which have been heated to near the melting point, are shown in Fig. 1. Fig. 2 shows a region approximately  $10^{-2}$  inches from the field of view of Fig. 1. This region displays a terraced topography, similar to cleavage surfaces at low temperature, with included geometrical forms which are close to hexagonal in structure. The latter are most likely inclusions and/or cavities which reflect the face-centred-cubic symmetry of platinum.

If ductile failure had occurred in the needle or ring the SEM should have shown a dimpled pattern appearing like a lacy white filigree network. In addition, necking down should have been evident. The intergranular patterns seen in the needle fracture surface suggests corrosion or stress corrosion. But Geller did not hold the needle prior to fracture so that corrosive chemicals could not have been applied. In addition, an energy dispersive X-ray analysis was done on the needle's surface and did not indicate the presence of corrosive chemicals. The overall pattern of the surfaces of the needle and ring were not indicative of fatigue or shear failure, either.

#### 4. Discussion

From the metallurgical analysis of the fracture surfaces it is evident that the type of fracture which occurred in the spoons does not produce any significant differences from room temperature control ductile fractures. This observation has also been made by Doris Wilsdorf (1974) on specimens which were apparently broken by Geller in a manner similar to that of the spoons. However, a second type of fracture surface, exemplified by those of the needle and platinum ring, is distinctively different from known types of room temperature fracture surfaces. This conclusion was reached after consulting with professional metallurgists and reviewing the available SEM literature and photographs in the American Society for Metals library. The flat, slightly terraced structure shown in Fig. 2 appears similar to low temperature cleavage surfaces whereas the hexagonal inclusions and neighboring regions which appear like incipient melting are indicative of structures typical of high temperature creep and localized melting, respectively. Therefore, it is concluded that it would have been extremely difficult to fabricate these surfaces by known laboratory techniques.

Since the mechanism of signal transmission in mental telepathy may not be electromagnetic (Franklin, 1974) it is interesting to speculate that information transmission may be related to teleneural interaction with matter of a non-electromagnetic nature. There is no known method whereby room temperature induction or other electromagnetic means could result in fractures of the nature seen. If these observations are correct there is a necessity for the development of new theoretical constructs capable of characterizing the patterns of behavior of the new force or influence function which is operative in the process.

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## “Philip’s” Story Continued

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*ABSTRACT: A brief account is given of a further year of the “Philip” research and variations thereon. The group has developed new P.K. abilities including that of bending metals.*

The story of the creation of “Philip, the Imaginary Ghost” was first published in *New Horizons*, January 1974. This was followed in July 1974 by an article attempting to explain some of the underlying psychological skills required in order to generate the phenomena that occurred. The experiment has continued, and grown, and it seems appropriate to record what has happened since those two reports were written.

The response to the experiment was fantastic — Philip seems to have caught the imagination of everyone who has read about him! We have had correspondence from physicists, psychologists, spiritualists, parapsychologists, as well as reporters, television producers etc., from almost every country in the world. So much so that we have felt the necessity to record the whole experiment in book form, and this is with the publishers right now, and hopefully will be available in the fall of 1975. The book will be a full and factual account of the whole experiment, together with some discussion on its relevance to various aspects of the field of parapsychology, and spiritualism, and speculation as to its possible future applications. But for the present record it will probably be best to give a blow-by-blow account, so to speak, of what the Philip group has achieved since the report of the experiment in January 1974.

In January 1974, concurrently with the writing of the first report, it was suggested that a short factual film of the experiment, giving the details of how the experiment was conceived, and what exactly happened, together with some raps and table movements, should be made. This would effectively record the whole thing, and dispose once and for all of any allegations that the phenomena were in any way subjective or the result of mass hallucination. The group itself regarded this as a challenge to perform under the light of film cameras, and in front of people whom they had never met before. A member of our Society, Bruce Raymond, who is a film maker and distributor, generously offered to arrange to have the film made, and to back the production financially. The film was to be made professionally, and subsequently be available for distribution to the trade. The film was made during the course of one whole Sunday — a fantastic day in every respect — the members of the group were able, under the direction of Ian Brims, to completely recreate the experiment,

and in spite of being under glaring lights, and somewhat restricted space because the film cameras were everywhere, Philip produced raps, and movements entirely to order. It is a very interesting fact that however sceptical newcomers are, when they actually hear the raps, they are immediately convinced. It is quite clear that under those conditions there is no possibility of fraud whatsoever. The group were delighted with the film, which is available for commercial distribution, and in fact, at the time of writing, it has been shown in many countries of the world, the latest being Finland.

Of course, the film being available for distribution attracted the attention of the media, both newspapers and television, and we had to cope with the fact that this was not just regarded as a scientific coup by those seriously interested in the subject, but it was also very marketable from the entertainment point of view, and the group had much trouble with this aspect. Basically, as parapsychologists we shy away from publicity that takes the form of popular entertainment. People who are not well read in the subject do not understand the issues involved, and generally there is more misunderstanding and misconception than justifies the publicity. However, parapsychology is also a "people" subject — and without people no work can be effectively accomplished, and sometimes as a result of media publicity one has found people very valuable to work with. In the event the group found itself, almost against its will, involved in giving a half-hour performance on a local television station. A talk show, with Dr. Owen, Dr. Whitton, and a local United Church Minister, the Rev. Lindsay King, was arranged, with the Philip group, in a corner of the studio, ready to perform if "Philip" would deign to appear. And of course he did! The group were beginning to realize that there was nothing "Philip" liked more than to appear in public and the bigger the audience the better. It is obvious there is a bit of "ham" in all of us! Philip quickly made it obvious that he felt his place was on the dais with the speakers' panel, rather than in a corner of the studio, and his efforts to mount the dais and take his "rightful" place were hilarious, to say the least. Both audience and studio staff were in fits of laughter as the table lifted first one leg, and then another, and then swung around, wriggling and pushing to get to the forefront of the show. Eventually it succeeded, and the Moderator, Rev. Lindsay King, who had been watching with some amusement, was asked to say "Hallo" to Philip. He did so, and a very loud rap in response came from the table, right underneath his hand. His facial expression of surprise was a picture — until then he had probably not really believed the table would talk to him. He carried on a conversation for several minutes, and the table, as Philip, responded with loud and clear raps. All this of course is recorded both on camera, and sound, and the show was so successful that the television station regularly replays it. Later in the year, at the special request of our Presi-

dent, Allen Spraggett, the Philip group gave another similar television performance for Allen's show. The highlight of this performance was that the table flipped upside down completely, as it does on occasion, and when the group knelt round it the raps came loud and clear from the table, which had its top flush with the carpeted floor. Again the rappings were recorded loudly and clearly. So during the year 1974 the Philip group proved that they could produce their rapping phenomena in any table, under blazing lights, anywhere, and with anybody present.

To go back to the actual phenomena. Following the making of the film, on that same evening, the group felt that they were particularly "charged" (if that is the right word) and had a private session after the filming had stopped. Dr. Whitton made a strong suggestion that at this time they could get the table fully levitated. The table did actually leave the floor, about one inch above the carpet, and glided for 4-5 feet. Dr. Whitton and Robin Owen, who were in the room both witnessed this, but unfortunately, although Robin had his camera in hand, the lighting and positioning were such that an adequate picture could not be obtained. Although on occasion the table has appeared to be floating, it has never lifted sufficiently for the group to be sure of this. Generally speaking the group has continued to concentrate on production of rapping because this seems to be the most easily measured phenomenon.

A conference was held in June in Toronto, and the proceedings of this were reported in our last Journal, but it will be seen from this that the Philip group have felt through most of 1974 that they should continue to produce raps as their first priority. However, on one occasion, on a very hot night, they decided to concentrate their energies on producing a cool breeze, and succeeded in doing this. They were wondering whether this was, in fact, subjective, when George Owen walked into the room. "Put your hand in the middle of the table, and tell us if you feel anything" said one of the group. George did so, and remarked, "It feels like a cool breeze, as if a fan were blowing". So if it was subjective, it had affected him also. Following the visit of Matthew Manning, and the work done with Uri Geller (Owen, 1974a, b), the Philip group were interested in metal bending, and in November at one of the meetings, a light metal medallion was placed on the table and Philip asked to bend it. It was left there during the evening and the group members did not touch it, and at the end of the evening, it was bent slightly at the edges. The group generally felt a little disappointed, and left it lying on the table when they went out. I was the last to leave the room and switch off the light and it was still only slightly bent. The group members went straight upstairs and left, and George returned to the room to check ashtrays, and noticed the medallion completely crumpled up. He thought it was a chocolate wrapper, and didn't bother to move it. I went downstairs the next morning and found it, still crumpled. So it had apparently continued to bend

after the group left. The following week, under the same conditions, a key was bent slightly, but this did not continue to bend after the group left, and the group decided to discontinue the metal bending attempts. However, in January 1975, the group were visited by a journalist from *The National Enquirer*, Mr. Bill Dampier, who had been given permission to write about the phenomenon. He proved a very pleasant visitor, and quickly related to the group and Philip, and was soon part of the circle, asking his own questions and getting answers under his hand. He asked about metal bending, and was told of the previous efforts. "Will you try and bend my house key," he asked. The group somewhat reluctantly agreed to try, but warned him it might not work. A professional photographer was present, taking pictures continually, and the room was in bright light. After about half an hour the key was bent very slightly, but quite obviously. Pictures had been taken of it beforehand, quite flat on the table, and now further pictures were taken of the bent key. Mr. Dampier replaced it in his pocket, and he was told that it might continue to bend. The next day, at about 3 p.m. he telephoned to say that he had had difficulty in getting his house open the previous night owing to the amount the key was bent, but had left it lying around during the day, and now it had bent considerably more — so much that he had sent for the photographer to come and take another picture of it in its present state.

In December of 1974 the Philip group was invited to Cleveland, Ohio, to demonstrate before a group of psychologists and physicists. Unfortunately, being just before Christmas only four of the group could go, Al, Dorothy, Bernice, and Sid. However, this did not matter. The group were able to give a superb demonstration, so much so, that some of the physicists present declared that this would mean they had to completely rethink their theories on physics. The table used there was an antique, heavy wooden chess table with wheels on castors — one of which was broken; the other three needed oiling, and squeaked when the table was pushed. Nevertheless the table glided around the carpeted floor, without the wheels squeaking, and without making track markings on the carpet. On two occasions, one of the men present sat on the table and was thrown off, once quite violently. Also a drawer in the table, which fell out very easily under normal conditions when the table was moved, did not move at all when Philip was moving it. As a result of this visit, and the fact that some of the physicists had seen some of Uri Geller's metal bending, a serious attempt to study these phenomena is being made at Kent State University in Ohio, under the heading of "Teleneural Physics".

To return to Toronto! A few further facts are worth reporting. A second group of people, completely different from the Philip group, decided to attempt the experiment, and as their imaginary ghost they invented a personality quite different from Philip. "Lilith" was a French Canadian

girl, who was in love with an officer in the Canadian armed forces during World War II. When he went to serve in Europe she volunteered for service too, and because of her French background, and knowledge of the language, was trained as a spy to make contact with the French Resistance. However, she was betrayed and captured and lost her life at the hands of a firing squad. A story full of love and drama, as was Philip's history. The group attempting to produce "Lilith" very quickly had some success, as they had the experience of the Philip group to draw on, and had seen Philip in action many times. Unfortunately, once they had taught themselves to produce the phenomena, they became somewhat bored with the procedure, and decided to switch to trying to produce "voices" in the manner of the Raudive experiments. Interestingly enough, they are still continuing this type of experiment, as they have been having results that seem difficult to explain in any rational manner. These experiments are still too new to be reported on at this stage.

The Toronto Society for Psychological Research has an annual Christmas Party, which is one of their main social events. This party was held on December 18th, and almost all the members were present. The party spills over the whole house at headquarters, and it was natural that a number of people should drift down to the basement room where the Philip experiments are carried out. There were party goodies, and decorations, and the pictures of Philip and Lilith were on display. A paper Christmas cover was on the table. Someone put hands on the table and said, "Is anyone there?" A loud rap came in reply. The rest of the people present joined in, and the table continued to answer and move around. However, as the group around the table consisted of a "job" lot of members — some of the Philip group, some of the Lilith group, one or two from a new group that was just starting, and some who had not even seen the phenomena before, it was difficult to know "who" was responsible for the phenomena. It being Christmas, somebody said, "I wonder if it is Santa Claus?". "Are you Father Christmas?" said another. "Yes", came the reply. The group then continued to ask such questions as "Have you finished packing all the childrens' presents?", "Are you tired now with all that work?", "Is it cold at the North Pole"?, and "Are your reindeer with you?" They were — under the table — said Santa. It was a perfect example of the child-like approach to the phenomena that is recommended, the complete belief, and a beautiful example of the fact that in this situation you "get what you expect".

Later, after Christmas, the third group of people that were working on this experiment — again a completely different set of people — having produced raps and table movements in a somewhat random fashion, without having made a clear decision as to who they should have for their imaginary character — suddenly decided to have a literary ghost. One of the group (obviously a classics fan!) asked the table "Are you a

character from Dickens?" "Yes", came the reply. "I know; are you the Artful Dodger?" said the same person. "Yes", came a loud and clear rap. Thus, the group had acquired their imaginary character. Some of them were familiar with the original story as written by Dickens; and they all knew and loved the musical, "Oliver". The raps were loud and enthusiastic. Dodger, as they quickly called him, admitted to loving to pick pockets — but on being asked if he would like to pick theirs seemed hesitant. It soon transpired that the fact that all the ladies were wearing slacks confused him! Fagin, Oliver, Sykes, and Nancy — and even the dog — were with him he said. Predictably, he said he disliked Sykes, and felt very sorry for Nancy — he had been very fond of her. He liked music, particularly jolly songs and typical cockney ditties. He agreed to have his picture drawn, and on saying "Goodnight" a whole series of raps were given. At the time of writing this group has only been going a short while, and it remains to be seen whether they can continue.

A few observations are probably relevant at this stage. There is great difficulty among the members of the Toronto Society now in keeping a group going other than the Philip group. This may be for several reasons — it needs time and patience to learn the psychological skill to produce the phenomena, and many people once they have experienced it for themselves, then want to go on to something else. Also, there is possibly a feeling that the Philip group, being the original one in the society, gets all the attention, and does all the original work, and therefore any other group comes second. In fact, the Lilith group when it was working had table levitations on at least two occasions much better than the Philip group had been able to obtain, but one has to recognise that it is in fact an experiment for people who have both great motivation and a deal of time and patience.

The Philip group feel that they themselves are continually learning from the experiment. They believe that it has continued relevance for the fields of psychology, physics and spiritualism.

They feel that the experiment is undoubtedly a group experience with value in the realms of group therapy. They continue to function as a group in their social relationships; there is a strong family feeling of affection and friendship, and during the Christmas period, when they took a break from meeting, they felt impelled to keep in close touch, and were obviously very glad to be back together again. Quite a degree of telepathy has grown up between some of the members.

Since the Philip experiment started, the metal bending feats of Uri Geller and Matthew Manning, as well as many other people, have caused the physicists to look at the whole field of psychic energy from a new standpoint. The Philip group, while providing only a limited amount of that energy, nevertheless can produce phenomena to order, and so are

ideal subjects for experiments, and this is why they have been invited to take part in experiments at Kent State University in 1975.

From the point of view of spiritualist belief, while the group still realise that one batch of experiments is entirely inadequate to attempt to enter into the question of the validity or not of spiritualistic belief, nevertheless, they have become more and more convinced that in a seance situation it is quite possible that the physical phenomena which often occur, and are ascribed to the spirits of departed friends, *could often* be only the result of the intense desire on the part of the members of the circle to hear from a particular person, and their own mental image of that person. However, one is quite aware that there are many instances on record which would not be attributable to this theory, and obviously many years of research into these areas lie before us.

Finally, to the members of the Philip group, this remains the most exciting parapsychological experiment they have ever done. It continually opens up new ideas, and gives rise to continued speculation. Especially have the group speculated on the relationship of the force generated by Philip to faith healing for instance, seeing, perhaps a tenuous connection between it and the work done by Dr. Grad, and Sister Justa Smith on the alteration of the molecules of enzymes by a faith healer (c.f. Dean, 1975). Do advances in the knowledge of healing methods lie with the secrets of the PK force? If we could learn to control the force, what practical uses could we make of it? Could it be the answer to the energy crisis? We just don't know in what direction it could be used, or if at all, but the finding out is exhilarating and challenging.

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# Qualitative Time-domain Analysis of Acoustic Envelopes of Psychokinetic Table Rappings

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*ABSTRACT: A preliminary analysis suggests that the acoustic envelopes of the paranormal psychokinetic table rappings recorded in the "Philip" experiments differ radically in pattern from ordinary physical raps produced (as controls) by percussion.*

## 1. Introduction.

In 1971, Dr. Alan Gauld reported on a series of mediumistic experiments performed 20 years or so previously. During some of these sessions, putatively paranormal table rappings were heard and tape-recorded. In 1973 in a personal communication to the Toronto Society for Psychical Research, Dr. Gauld indicated that the acoustic envelopes of some of the recorded paranormal table rappings had a "curious effect at lower frequencies", viz., the paranormal raps built up over time (Fig. 1) as contrasted to normal raps which began high in intensity and gradually became damped away (Fig. 4). This information prompted the Toronto Society for Psychical Research to analyze acoustically the tape-recorded paranormal table rappings obtained from the "Philip" group sessions. (Owen and Sparrow, 1974, 1975; Owen, 1974, 1975).

## 2. Method.

Cassette tape recordings of "Philip" raps were made available to the author for analysis. These were made by Robin E. Owen from sessions recorded on October 25, 1973, November 21, 1973, and February 21, 1974. These sessions were initially recorded using a Bell and Howell cassette recorder model 87500 with its microphone firmly taped to the mid-point of the undersurface of the table (a standard wooden card-table with a metal rim and metal legs). Ampex-60 high-frequency cassette tape was used in all sessions, and playback for all sessions was done on a Sony dictaphone, model BM-35, playing directly into a Brush strip-chart recorder, running at 125 millimeters per second. In all sessions (recording and playback) tone and volume controls were kept at a constant position. The frequency transmission and gain characteristics of the entire system



are unknown, but were thus kept constant. The Brush strip-chart recorder was capable of reproducing information from D.C. up to 200 Hz., and (indirectly) it could register the envelope of higher frequencies that were present with sufficient voltage. Figures 2, 3, and 4 are redrawings of envelopes as developed from the strip-chart recorder. Figure 1 is a stylized drawing of Gauld's (1973) findings. In this initial analysis no attempt was made to determine the frequency components of the two kinds of raps (paranormal and control); the author tried only to establish whether there was a qualitative difference between the acoustic envelopes of the various noises.

The paranormal and control noises were produced in situations as identical as possible; specifically, the Philip group's hands were on the upper surface of the table for both kinds of noises. Although there are a dozen or so sounds that the author believes were genuine paranormal "Philip" raps, only those raps that the group verbally signified (on the tape-recording of the sessions) as being a desired response were used. Thus, for example, if one group member said, "Philip, are you there?", and this was followed by a pause and a rap and then by the group's response of "Good! That's it", or, "Now, let's have another rap then", that "rap" noise would be used for analysis. Seven such raps were obtained and represent all four recording dates.

The control raps were produced in the following varied ways:— gently tapping with the finger-tip upon the surface, or undersurface, or the edge of the table, then repeating these blows with more force and then using knuckles instead of finger-tips; gently and firmly kicking the table leg; striking the table with the ring while on the finger; striking the table edge subtly with jewellery beads hanging around a group member's neck; tapping the table with the eraser part of a pencil; finally the hands were drawn across the table surface creating a "rubbing" noise.

### 3. *Results and discussion.*

Figure 1 is a stylized redrawing illustrating the report from Gauld (1973); Dr. Gauld suggested that the paranormal raps may have a configuration opposite to control raps. There is no time scale calibration in Fig. 1 which is only illustrative. The time scale for each of Figures 2, 3, 4 is 5 millimeters = 80 milliseconds. Figures 2 and 3 are redrawings of results from the "Philip" raps, and Figure 4 is typical of control raps.

It should be emphasized that the "Philip" raps are in the same order of magnitude of intensity and are subjectively as loud as the control raps. However, one must note the short duration of the sound in the "Philip" raps and the over-damping of the envelope, as compared to the control raps which are slowly damped like any other percussion noises. Some of the "Philip" raps had as short a duration as 160 msec. (i.e. 0.16 sec.),

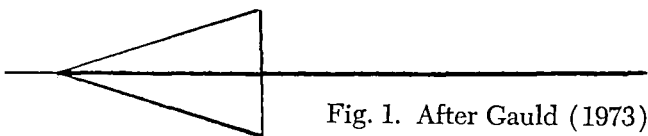


Fig. 1. After Gauld (1973)

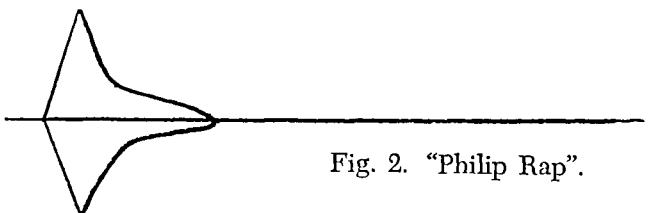


Fig. 2. "Philip Rap".

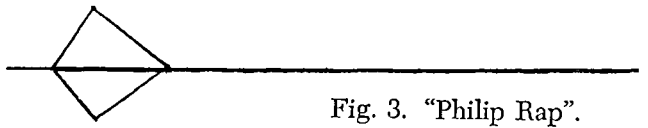


Fig. 3. "Philip Rap".

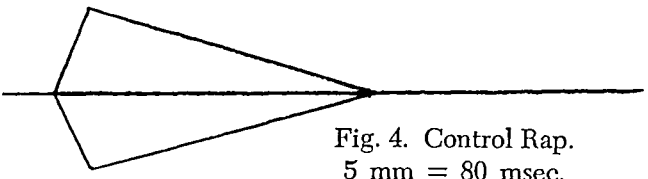


Fig. 4. Control Rap.  
5 mm = 80 msec.

and are essentially impulses; the control raps are typically of 500-600 msec. duration (i.e. 0.5-0.6 sec.), as would be expected from a percussion on a pressboard medium.

Although we have not illustrated the fact graphically, visual inspection of the frequency spectra of the raps seems to indicate that low frequencies contribute in exactly the same proportion to the envelopes both of Philip raps and control raps. Hence it does *not* appear to be the case that the Philip raps damp more quickly merely because they contain a dominant frequency which the table surface does not respond to or resonate with. Furthermore, the high damping factor of the Philip raps cannot be explained by having more hands on the table during paranormal events, as the experimental situation was kept constant as possible.

The difference between the paranormal raps produced by the Philip group and that reported by Gauld may result from any or all of several factors; e.g. differences in the geometry and material of the tables, in the equipment for recording and display, and (very plausibly) differences in the kind of psychokinetic ability possessed by the two groups.

If the results presented here are valid, then two interpretations are possible. First, the psychokinetic (PK) rap may be a phenomenon spatially isolated within the material of the table; that is to say, in a PK rap the table surface may exhibit an isolated deflection and the surface at large may not be in motion or exhibit standing waves. Second, when psychokinesis acts on the table, in addition to a motion initiating a sound, the elasticity of the table material may temporarily be modified, thus altering the rate at which its vibrations are damped.

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# A Phantom Motorcyclist: the Genesis of an Apparition

VICKI BRANDEN, B.A., M.A.

*ABSTRACT: The factors entering into the aetiology of an apparition experienced by the author are identified. Some general hypotheses are put forward relating hallucinations to mental imagery in various states of consciousness.*

Early in December, 1974, returning from a long trip, I began to realize that I was driving badly — wandering on the road, nearly missing turns. In the back seat, my dog was making noises suggestive of distress and I pulled off the road to let him out. A man on a motorcycle appeared in the headlights — not riding, but standing astride his parked bike. He was glaring at me with an expression of vicious hostility; I thought (roughly) “Now I’m going to be murdered.” But almost before the thought could register on my consciousness, the motorcyclist vanished. He had not driven off — he had dematerialized. He had been an apparition, in spite of seeming to be three-dimensional, and real enough to be menacing. This was rather scary, but not nearly as scary as a live, murder-bent biker. The dog and I lurched out of the car and both of us were violently sick. When I went to get back into the car I realized why: the car was full of fumes. I hadn’t noticed them until I came back from the fresh air. At the beginning of the trip, I had bought a pressure-tin of “starter-spray”; its cap was defective, and the fumes had been leaking and anesthetizing us. I threw it away (destroying the evidence against the supplier) because of course it was too dangerous to keep in the car. The phantom cyclist, then, had been a false creation, proceeding from the fumes oppressed brain, as Macbeth might have diagnosed it, if he’d been with us.

The most interesting point was that, although the motorcyclist had no real-life identity, I had seen him before . . . in another sort of “vision”. In the summer of 1973, I had gone to the Menninger Clinic in Topeka, Kansas, for a workshop on biofeedback findings, directed by Dr. and Mrs. Elmer Green. In the course of this, we experienced the monitoring with EEG feedback devices of “theta” brainwaves, the slow waves which usually occur as one is slipping off into sleep. The mental state associated with theta waves is often accompanied by vivid imagery.

To quote Green, Green and Walters (1970), speaking of a theta training program,

... soon we noticed that the psychological state associated with theta contained, in a number of subjects, very clear hypnagogic-like imagery. Pictures or ideas would spring full-blown into consciousness without the person being aware of their creation. The theta "reverie", as we began to call it, was definitely different from a daydreaming state and much to our surprise we found that it seemed to correspond with descriptions given by geniuses of the past of the state of consciousness they experienced while being their most creative. From these observations and from our experience in training college students we developed our present research project called "alpha-theta brainwave feedback, reverie, and imagery".

Many people will have experienced this kind of imagery while dropping off to sleep. For myself, it is exactly like a film unrolling in my head — a series of unrelated images melting and dissolving into one another. Faces, animals, landscapes succeed each other disconnectedly. Usually the memory of them is so faint that I barely remember them, because I fall asleep in the midst of them. Occasionally, if I've been disturbed at this stage of dropping-off so that I don't go to sleep, I will remember something vividly. Very rarely there will be voices accompanying the images, but their remarks are irrelevant and sometimes funny — or seem funny at the time. Some people, however, regularly hear voices or music instead of seeing the pictures. E. M. Forster described the experience in *Howard's End*.

He watched a patch of moonlight cross the floor of their lodging, and as sometimes happens when the mind is overtaxed, he fell asleep for the rest of the room, and kept awake for the patch of moonlight. Horrible! Then began one of those disintegrating dialogues. Part of him said: "Why horrible? It's ordinary light from the moon." "But it moves." "So does the moon." "But it is a clenched fist." "Why not?" "But it is going to touch me." "Let it." Presently a blue snake appeared; then another parallel to it. "Is there life in the moon?" "Of course." "But I thought it was uninhabited." "Not by Time, Death, Judgment, and the smaller snakes." "Smaller snakes!" said Leonard indignantly and aloud. "What a notion!"

Once in a while there will be elements in the imagery that suggests there is some telepathic content. In meditation or situations involving silent concentration, I see the usual reel of faces, animals, and landscapes; once at a séance, a new landscape appeared, which I recognized later in a photograph belonging to another member of the group. Presumably I had picked it up from her mind. The images unroll in my head, and I am a spectator only; the images are unaware of me, have no more consciousness of an audience than do the photographed figures moving on the television screen. I can only think of one exception, which occurred when I was a child. I was in bed with 'flu, and had been reading *The Sword in the Stone*, the description of the boar hunt. That night as I

was slipping off to sleep, I saw the boar — “the rank mane of bristles, one flash of a sour tush, a red flame from a piggy eye” — and he looked back at me, and would have charged, but I opened my eyes, annihilating him. Nothing like this happened while I was actually connected with the EEG-feedback device, although it affected me rather unpleasantly. I felt strange and disoriented, as if my grip on reality had diminished. Once, in a near-accident, I had seen my “double”; there was a like sensation of disembodiment and confusion.

The night of the workshop as I was drifting into sleep, still feeling a little unreal, the usual succession of images was flowing through my mind. Suddenly out of the misty landscapes a motorcyclist rode, wheeled, and turned toward me. He was two-dimensional, part of the film, so to speak; the difference was that he could see me. He shook his fist at me, and I could see that he was mouthing threats, although I couldn't hear anything he said. He was ordering me to get out, to get away. I had some crazy idea (a vague left-over from a science fiction story) of having stepped through a space-warp into Motorcycle Land, where I was recognized by the natives as an enemy and an alien. It was so disturbing that I woke myself up, and had to get up and walk around before I could shake off the unpleasant sensations. Later I described it to the researchers at Menninger, and Mrs. Green suggested that the workshop, with its prolonged maintenance of the theta state, might have made me unusually sensitive so that the imagery was more vivid than it ordinarily appeared.

A further elucidation, unexpectedly perceptive, came from my 15-year-old son when I returned home. “You don't like motorcycles,” he reminded me, “and you're scared of the motorbike-gang type of guy. Lately you've been afraid that I'll want a bike as soon as I'm sixteen. So all this stuff has been going on in your head.” He reminded me of my exaggerated reaction to *A Clockwork Orange* (book, not film): I had been horrified at the malevolence and destructiveness of the motorbike-riding protagonists, and possibly I had unconsciously feared that my son might turn into a similar monster, given the machine. So that the image was there in my unconscious, beyond a doubt. Its appearance among my “theta images” may have been triggered by telepathy; during my absence my son had been staying with friends who had a motorbike, and (enjoying an illicit ride) had frequently thought of how much he would like a bike of his own, and how much parental resistance there would be to the suggestion.

The phantom motorcyclist had first appeared inside my head, and later was projected outside myself, possibly because of the fumes I had been breathing. It seems possible that a similar process may occur in the case of other apparitions. A friend has told me of how she woke one night and saw her grandmother looking at her from the foot of the bed; she was certain at once that her grandmother, who had been ill for some

time, had died in the night. Her interpretation was that her grandmother's spirit had come to say goodbye to her (although her first thought had been that the grandmother was actually there, since the figure was three-dimensional and quite "real".) It is at least worth considering that she herself was creating the image, just as I created the motorcyclist. We are not surprised or alarmed when the images appear "inside our heads"; the experience is familiar and natural. When we project them outside of ourselves so that they seem to have an independent existence, we become frightened and believe that we are seeing ghosts. This belief is strengthened by the fact that so many of these visions are of people who have recently died. It seems plausible that the strong emotions affecting people at a time of illness or death in a family may create a suggestible state; or, conceivably, the dying person might send powerful telepathic flashes which trigger the projection of the image. Conversely, there are numerous cases of people seeing apparitions of acquaintances and relatives who are alive and well. Such projections of theta imagery might account for the famous "Adventure" of the Misses Jourdain and Moberly at Versailles; visiting with their heads full of Marie Antoinette, their visions of pre-Revolutionary France might have imposed themselves on the outside world. Both women reported a sense of oppression, an "eerie feeling", which might have signalled the altered consciousness in which such experiences occur. Telepathy might account for an apparition being seen by more than one person at a time.

I don't suggest that there are no other explanations for apparitions; there may be many different kinds of apparitions, with different causes. But I suspect that many ghosts may share in the nature of my phantom motorcyclist and Macbeth's air-drawn dagger.

How do we project the images outside of ourselves, when ordinarily they seem to belong inside our heads? I referred earlier to autoscopia, the experience of "seeing one's double". This is a not uncommon phenomenon, and has been abundantly documented in literature. Goethe has described how he one day met himself, riding on horseback; the writings of Shelley, Dostoevski, Kafka, Conrad and many others suggest familiarity with the experience. Perhaps the earliest account of it is Aristotle's reference to one Antipheron, whose phantasmal reflection approached him one day while he was taking a walk. It was believed to be a death sign, and many accounts describe the fear and horror which accompanied it. This is understandable, since it seems to be precipitated by danger (as in high speed accidents and near-accidents) and has been observed in cases of people suffering from "anxiety, fatigue, attacks of acute labyrinthine vertigo, and the febrile-toxic states of typhus and influenza", according to Todd and Dewhurst (1955). Such conditions may produce isolated instances of autoscopia; but the authors point out that there is a relatively high incidence of *recurrent* autoscopia in people afflicted

with epilepsy, dementia paralytica, encephalitis lethargica, chronic alcoholism, drug addiction, and schizophrenia. The phenomenon also occurs in cases of "cerebral lesions in general, and of the temporo-parietal-occipital zones in particular." Dr. N. Lukianowics (1958) states that there is a relationship between autoscopia

. . . and such parahallucinatory phenomena as imaginary companions, eidetic images, hypnagogic imagery, clairvoyance, and some anatomically incomplete body image disturbances such as phantom limbs . . . Many authors believe some normal subjects with well developed imaginations, a visualizer type of personality structure, and narcissistic character traits, may occasionally see their double under conditions of emotional stress. (p. 208)

Some of the phenomena mentioned above have occurred in mind-body research, associated with alpha-theta states. Menninger researchers received reports of body-image changes such as the following: "I felt I was floating above the chair." "I'm sort of light like. I'm not even sitting here. I feel like I'm detached in some way . . . you know, if I create some sort of image I feel as if I'm just there." Others reported the sensation that an arm was detached and moving away . . . "I had to look at it to see if it was still in the same place." (Green et al., 1970, 1971). That is, in the "theta" state, body image changes as well as hypnagogic imagery are reported; and body image changes such as seeing one's double involve the projection of an image outside one's self.

. . . an important relationship exists between hypnagogic imagery, alpha-theta EEG patterns, and certain states of consciousness that, because of their inward-turned nature, we have chosen to associate with the relatively undifferentiated Western word *reverie* . . . Reverie is a state of unusual significance because with it is associated hypnagogic-like imagery in which unconscious processes are often revealed to the waking self in symbols, words, or gestalts. (Green et al., 1970, 1971).

I am suggesting that there is some sort of continuum between the internal visual imagery and minor body-image changes of the reverie state, and the much more startling effects which occur in shock, danger, illness, and the other conditions cited by Todd and Dewhurst. That is, instead of internal imagery, we may see apparitions; instead of slight body-image changes, we have out-of-the-body experiences, see our doubles, or may experience sensations of levitation or astral travel. Determined believers will not, of course, accept such an hypothesis to account for their ghosts; I have heard members of the audience where we showed the film *Philip, the Imaginary Ghost* vehemently insist that the experimenters were playing with fire. (They might think they were moving the table with some concentration of natural energy, but how could they know they hadn't summoned up a spirit that was doing it?). By such reasoning, no doubt, I am being haunted by the shade of some furious motorcyclist



whose enmity I must, unwittingly, have aroused. I prefer to believe, however, that he is a projection of a hypnagogic-like image in which an unconscious process (anxiety about my son) reveals itself to my waking self as a threatening biker.

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## Quetzalcoatl in Ancient Athens?

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*ABSTRACT: The archaic Greek statue claimed by Dr. Cyrus Gordon as a bearded feathered serpent reminiscent of Quetzalcoatl is considered in the context of classical archaeology. It appears to constitute at best very feeble evidence for prehistoric contact between Greece and Mesoamerica.*

Dr. Cyrus Gordon, in a recent book *Before Columbus* (1971), writing from the point of view of authority on ancient Semitic languages and a keen student of early Mediterranean history, has summarized much of the evidence linking the Old World and North and South America. It is not proposed to review the book here. Suffice it to say that the book is extremely stimulating, and may well open up new areas of research into Pre-Columbian problems. This note arises from issues raised by Professor Gordon in his chapter "The Plumed Serpent".

One of the most esteemed and widely honored deities in Pre-Conquest Mexico was Quetzalcoatl, whose name can be interpreted as meaning "feathered serpent". On occasion he was represented as a snake with a ruff of feathers. There is also a tradition of Quetzalcoatl as a bearded man with a fair complexion. Dr. Gordon therefore draws attention to a piece of statuary belonging to the so-called archaic period of ancient Athens. The figure is that of an amiable-looking monster. He is comprised of four male torsos. Three of these have retained their heads which are bearded and wear rather genial expressions. The torsos are joined to a coiled tail. It is difficult to see from the photographs given by Dr. Gordon whether the tail is a single very convoluted one, or three or four tails coiled around one another. There are no feathers on the heads, which seem to have a normal archaic Greek coiffure, or around the necks. The headless torso, however, has some fragments still attaching, which seem definitely to represent plumage. Some loose fragments, which also represent plumage, have been placed on the chest of the headed torso on the right. This would seem to have been done in the course of reconstruction.

Dr. Gordon cites this piece of statuary as representing three feathered serpents who are also bearded white men. He feels that this is evidence for diffusion of ideas from the Mediterranean to Mesoamerica and says "There are too many details involved to be attributed to accident", and suggests that it is difficult to suppose that the same combination — bearded white men who are at the same time feathered serpents — developed independently at the ends of the earth in isolation. Dr. Gordon appears

to be assuming that the cult of Quetzalcoatl in northern Mesoamerica arose from contact with Mediterranean traders, bearded white men, landing on the shores of Mexico and Yucatan. If we accept this as explaining the occurrence of a Mexican white bearded deity, how are we to account for the other or alternate aspects of the cult — the serpent and its plumage? Is it to be assumed that the bearded feathered serpent from archaic Athens represented an artistic or mythological theme which was transmitted entire to Mesoamerica? This we shall consider; meanwhile, it may be noted that Dr. Gordon's argument seems actually to proceed otherwise. He remarks that there was a Babylonian tradition that all arts and sciences were attributed to a culture-hero called Oannes, who came out of the sea. Oannes was a kind of merman, half man and half fish. Dr. Gordon ascribes the origin of this legend to the dependence of Sumerian arts and crafts on foreign imports. It seems therefore that he is suggesting that the Mesoamerican attributes of Quetzalcoatl arose as a result of contact with Mediterranean traders, their fair-skinned bearded faces contributing one element, while their imports into Mexico and their technological innovations encouraged an Oannes-type myth. Within this context of ideas, what is the significance of the Greek monster? Are we to assume that the Greeks had received, perhaps from Babylon, the idea of a culture-hero from the sea, who like Oannes, was a biological hybrid? To substantiate this we would have to prove that the Athenian statue represented a being of exactly that mythological origin. At the same time, we should perhaps consider the possibility of diffusion, in reverse, from Mexico to Athens. Did the traders bring back from America the notion of a bearded white deity who was a feathered serpent? This would imply a certain degree of reflexivity in the process of origin of the concept, but it could conceivably have been a two-way process.

To approach any solution of the problem we need to consider not only Mediterranean and Mexican mythology, but the actual artistic representations of Quetzalcoatl in Mesoamerica, and of monsters in Greek statuary. The statue to which Dr. Gordon refers is in a museum in Athens. It filled the angle of a pediment over the facade of a temple on the Acropolis in the archaic period prior to the burning of the city by the Persians in 480 B.C. (Gardner, 1897). The invaders demolished all the temples and overthrew the statues. When the Athenians returned, they built new temples without mortar, so that the statues, which were in *poros*, a soft limestone from the Piraean peninsula, were not sacrificed to lime-kilns, but used as filler for the new terracing of the Acropolis where they remained until excavated in 1885-89. Statuary from several temple pediments were recovered, and showed great similarity in choice of subject and treatment. Many pediments were devoted to the exploits of Hercules and showed him tackling various monsters, such as the Hydra or Triton.

Selection of these themes may have been due in part to the popularity of Hercules, but also may have been occasioned by the difficulty of fitting statuary into the tapering triangular shape of pediments. Monsters with human torsos whose rumps tail off into snakes or fish-shaped extremities were admirable for satisfying the exigencies of the space available.

Our commentator, E. A. Gardner, (from whom we have quoted) says that all these pieces of statuary show a love for uncouth and monstrous shapes, far removed from the usual conception of Greek art. The tails are treated so as to make the most of their scaly decoration. However, the heads of the monsters are always represented as human. The forms of the bodies are massive but not unnatural in their proportions. The faces are fleshy and heavy but vigorous and with life-like expressions. They are, says Gardner, like naturalistic studies from life, and are not conventionalized, like most Greek sculpture. The example chosen by Dr. Gordon is described by Gardner as the last and finest of the limestone pediment groups. On one half of the pediment Hercules fought the snake Echidna, while on the other half, Hercules' father, Zeus, combatted the Typhon. In mythology Echidna was half woman and half snake. By Typhon she was the mother of a whole menagerie of monsters — Cerberus, the Chimera, Orthus, the dragon of Colchis, the Sphynx, The Hydra, the Gorgon, and the dragon who guarded the apples of the Hesperides. Typhon is the personage with whose representation we are concerned. He is sometimes equated with Typhoeus. Typhon was reputed the largest of all monsters (Graves, 1955). From the thighs downward his body was coiled serpents. His arms had innumerable serpent's heads in place of hands. He had a donkey's head as well as wings, and fire and flaming rocks issued from his mouth. He was reputed to be the father of the north wind and other inclement blasts but not of the mild breezes, such as Zephyr. He was also equated with hurricanes, as well as with the hot Sirocco from Africa. Typhon was the son of Gaea, the earth goddess, and Tartarus, a god of the underworld. He hurled mountains at Zeus, who deflected them with thunderbolts. When Typhon took refuge in Sicily, Zeus threw Mount Etna on top of him. The fires of Etna were attributed to Typhon's breath.

Clearly any artist seeking to represent Typhon had a great deal of matter to work with. However, simplified portrayals were in order. One representation of Typhon, under the name of Typhoeus, depicted him with two scaly snake-like legs, a normal human torso, and head adorned with beard and moustache. The hands are human, except that the fingers are snakes. (Morris and Morris, 1965). This, in its elements, though not in its style, agrees with Athenian representation, except that the torsos of the latter have normal human hands and genial faces. It would seem, therefore, that the statuary in question cannot be considered an isolated oddity, necessarily requiring explanation in terms of knowledge of Quetzalcoatl, but derives from an antecedent in Greek mythology, which

is itself not an isolated theme. The Greek myth-makers were fond of monsters, and a surprising number of them, as well as Typhon, were described as having serpent tails — the Giants, the Echidna, the Chimera, and Cecrops. The hero or demigod Erechtheus, who was revered on the Acropolis, also had a snake's tail. The tritons and the Hippocampus, who were sea-creatures, had fish-tails, which certainly suggests a connection with the Oannes myth; however, these beings were in no sense culture-heros. It would, in fact, seem that serpent tails played a role in Greek myth independent of fish tails, and it would be rash to equate the two. Indeed Greek mythology and folk myth, from which in part it derived, is, like most mythologies and folklore, replete with serpent motifs. Snakes almost universally tend to be associated with the earth because they live on the ground, and are seen emerging from or going into crannies and crevices. As most of the monsters in Greek mythology had Gaea — the Earth mother — somewhere in their ancestry, it would be natural for them to share her attributes. The case for snakes as worldwide objects of both fear and reverence among primitive peoples could be argued at great length, but the fact is so well-known as to render this hardly necessary.

It would seem that snake-worship and the appearance of snakes in religious art is both too spontaneous and too ancient to require that its appearance in different parts of the world be explained by cultural diffusion. If a common origin for snake-cults in the Old and New Worlds is desired, it could (if such an explanation is necessary) be regarded plausibly as a heritage which the American Indians brought with them from Asia in the Old Stone Age. Positive evidence that Palaeolithic men had a certain degree of preoccupation with snakes is provided by the recently discovered Dome of Serpents in a cave at Rouffignac in central France. On the clay roof are traced hundreds of intertwining serpents. The work is ascribed to the Aurignacian era. In a cave at Baume Latrone in Southern France a serpent ten feet long is depicted. It might possibly represent a mythical giant snake because the accompanying figures of mammoths are much smaller. (Morris and Morris, 1965).

To treat the Athenian Typhon impartially in the present context, we need however also to examine the Mesoamerican representations of Quetzalcoatl. In Aztec times Coatlicue was much honoured. She is interpreted both as a moon goddess and as Earth. Her most famous representation is the great statue in the National Museum of Mexico which shows her in a skirt of serpents. The god Quetzalcoatl was born after she was fertilized by the Sun through the medium of either a feather or an emerald. Thus, the god Quetzalcoatl (or Huitzilopochtli, according to an Aztec identification) was, like Typhon, the son of an earth goddess with serpent attributes. There was also a parallelism in that Quetzalcoatl in his manifestation as Ehecatl was a wind god. The mythology of Quetzal-

coatl, which presumably grew up over a period of the order of 1500 years in the cultures of Teotihuacan, of the Toltecs, and then finally, of the Aztecs, became very complex. In a creation myth in the form of a serpent he subdued an earth monster, tearing her into two parts, one of which became heaven and the other the earth. In another persona, as "Precious Tree", he helped prop up the heavens. As Ehecatl he acted as messenger of the gods, visiting heaven to fetch back the art of music. Generally, like the Greek Hermes, Quetzalcoatl was the messenger of the gods and patron of highways. It was he who learned the secret of planting maize seeds and transmitted the art to men. He was also equated with the planet Venus, which takes 584 days to complete its orbital revolution. Now, five times 584 days is equal to 2920 days, which is almost eight solar years. The Venus cycle and the solar year thus came into coincidence every eight years. Also, every 104 years they coincide with the repetition of the practical solar calendar which was based on two kinds of month, which only synchronized every 52 years. Thus, Quetzalcoatl, as Venus, underwent cycles of return.

In addition, by identification with Venus, Quetzalcoatl symbolized renewal, resurrection, and spiritual life. Venus, as morning star, disappears in the brightness of the sun's light and then is reborn as the evening star. As the sun rises in the east Quetzalcoatl was associated with the eastern of the four quarters of the world, and so with the east.

The origin of Quetzalcoatl's feathers is not fully understood. The Quetzal is a bird of brilliantly green plumage found in Guatemala, the Maya country, and the name is Mayan. The Quetzal is still respected; its name is given to the Guatemalan dollar. *Coatl* which means serpent is a compound of *co*, the Mayan word for snake, and *atl* a word for water in Nahuatl, the family of languages which included Nahuatl, the speech of the Aztecs. The brilliance of the quetzal bird's plumage symbolized everything that was splendid, including the royal and the divine. As the bird lives in the high branches, far from earth, it may have become an appropriate symbol for a radiant god of air and sunlight. The degree and mode of association of Quetzalcoatl, the god, with water and the sea is somewhat obscure. On the so-called Pyramid of Quetzalcoatl in the Citadel of Teotihuacan, the god is portrayed as a serpent with a ruff of feathers at his neck. The local Mexican guides suggest that the rippling form of the serpent body imitates the meanderings of a river, and symbolizes water in its fertilizing aspect. On the pyramid, in juxtaposition to the serpent are reliefs in the shape of fishes, and these may be taken to refer to water, but whether to fresh water or the sea is not easily to be decided, especially as the pyramid is shared with Tlaloc the rain god. In addition, as elsewhere in Teotihuacan, and in many other places, the conch shell is associated with Quetzalcoatl. If such a shell is cut through transversely the section is star-shaped, and it has been suggested that this

equates the shell with Quetzalcoatl as Venus (Nicholson, 1965). The more usual interpretation is that it symbolizes the whirlwind, and thus Quetzalcoatl as Ehecatl.

Besides the god there were also men surnamed Quetzalcoatl. Priests and princes appear at various times to have assumed or been awarded this honorific name. The most celebrated bearer of this title seems to have been the origin of the belief in a bearded god who departed across the sea and who would return. Though diverse myths accumulated about him, he seems definitely to have been a historic person, and the son of one Mixcoatl — “Cloud Serpent”, an epithet for the Milky Way, which also was associated in myth with the god Quetzalcoatl. Mixcoatl was a leader of the Toltecs, a nation which filled the power vacuum caused by the fall of Teotihuacan. Entering Central Mexico about 980 A.D. the Toltecs established a kingdom. Mixcoatl’s son was Topiltzin (High Prince”), also called Ce Acatl (“One Reed”), the name of the year in which he was born, which was either 935 A.D. or 947 A.D. (Coe, n.d.). In addition, he was entitled Quetzalcoatl, presumably as leader of the cult of the god. He appears to have played an important part in the founding of Tula, the Toltec capital. The legends are very confused, but indicate that dissensions broke out between his followers, and those of another military-religious cult devoted to another god, Tezcatlipoca. As a result, Quetzalcoatl-Topiltzin retired from Tula. Going south through the valley of Mexico and then westward, when he reached the Gulf of Mexico he boarded a raft made of serpents (or one covered in snake skins). Some say that he set off for an unknown destination declaring that one day he would return. But other accounts maintain that he went to Tlapallan — “whither the sun called him”. This place is, of course, mythical. Called Tlillan-Tlapallan, it was the land of the black and the red — colours, which in combination, signified wisdom. One of the three paradises recognized in later Mexican mythology, Tlapallan was the celestial home of initiates of the cult of the god Quetzalcoatl. Another variant of the legend of Topiltzin’s departure says that he immolated himself on a funeral pyre from whence his ashes ascended to the sky to become the planet Venus.

The Mayan account is that a Mexican conqueror called Kukulcan (“Feathered Serpent”), arrived from the sea in 987 A.D. In Mayan legend he is described as a wise and just ruler. He is said to have returned to Mexico and been adopted there as one of their gods and called Quetzalcoatl. There certainly was a conquest of Yucatan by Toltec invaders. Murals in the Temple of the Warriors at Chichen Itza, a Mayan city largely rebuilt in the Toltec style, show them approaching in war canoes. Mayan accounts of the conquest are somewhat confused with those of a later conquest by the Itza, a people whose leader also took the name of Kukulcan, and who seem to have initiated Toltec ideas in their further

development of Chichen Itza (Coe, n.d.). No support for the theory of transatlantic contact can be got from the story of Votan, the legendary founder of Palenque, because all that is said of this hero is consistent with him having come from Mexico. Also, there is a legend that he came from Tula, which suggests clearly that he was a leader of Toltec émigrés (Coe, 1966).

Topiltzin, the historical Quetzalcoatl, was described as bearded and fair-skinned. The legend of his departure, mixed with the various attributes of Quetzalcoatl the god, seems to be the only source of the fair-skinned bearded man from the sea. As such, it is too late, by 1500 years, to relate to archaic Greece. The description of fair-skinned, in any case, does not necessarily have to be understood factually, because it may be merely a mythological attribute arising from the god Quetzalcoatl's solar affinities. The subject of beards in Mesoamerica is a difficult one. We know that Moctezuma had a "short black beard, well-shaped and thin" (Diaz, ed. 1963). This seems good evidence that beards were by no means so absent from the New World as is usually supposed. It is therefore less necessary to regard the dozen or so artistic representations found in Mesoamerica of men with beards as a mystery requiring explanation in terms of immigration from the Old World. Occasionally false beards appear to have been used; a stele at Tepalaxco in Veracruz shows homage being rendered to a notable personage who appears to be adorned with a false beard (Irwin 1964). The *a priori* argument that Amerindians could not have been bearded because they were Mongoloids and the latter do not have beards can be faulted by scanning any book on oriental art. Japanese examples are inadmissible because of possible intermarriage with the Hairy Ainu, but beards and moustaches are found in Chinese art of periods prior to the development of European contacts. If beards, though naturally occurring in the New World, were rare or usually sparse or (as is likely) more pronounced in older rather than younger men, it is logical to suppose that they were associated with the ideas of age, maturity, wisdom and dignity, and also perhaps, with fertility and virility. It would be natural therefore for monarchs and dignitaries to cultivate their beards or, where growth was lacking, to don false ones for public occasions. Attributes of leaders tend to equate with those ascribed to the gods, and Quetzalcoatl-Topiltzin's reputed beard may have been genuine, like Moctezuma's, or honorific, awarded to him posthumously in view of his fame as a man and dignity as a god.

If we review the most famous representations of Quetzalcoatl we find no true correspondence with a bearded man with feathers who is half serpent, or even the combination bearded-feathered-serpent. The one instance which can be cited of the latter type is that of Quetzalcoatl as a serpent which occurs on the base of the main temple at Xochicalco. From the snake's lower jaw there hang three fronds which could be in-



terpreted as a beard, but it could be argued that they are feathers. At Teotihuacan the Quetzalcoatl are merely serpents with feathered ruffs, and quite innocent of beards. At Chichen Itza they are just serpents, without beards or feathers. There are also S-shaped "serpent columns" or with plumage delineated but without heads or beards.

Among the human representations of Quetzalcoatl we can cite the Huastec statue of about 1000 A.D. showing him Janus fashion as Lord of Life and Death. In both guises the god is human and clean-shaven, as well as devoid of feathers. The famous statue of Quetzalcoatl as Ehecatl, god of the wind, associated with the circular Matlatzinca-Aztec Pyramid at Calixtlahuaca shows the god as a fully human "featherless biped" except for a duck-bill mask covering his mouth. The duck-bill is somewhat myterious but clearly nothing to do with Typhon or Greece. In the National Museum of Mexico there is a stele of Quetzalcoatl as Ehecatl wearing a breastplate of conch shells and a conical cap. He is human and beardless, but has a curious structure projecting each side of the base of his nose. This is not a beard nor even a moustache; it is a nose-plug. Some other statues are ambiguous since it is not surely known whether they represent Quetzalcoatl or priests or initiates of the god. Such is the charming statue the "Huastec Adolescent", sometimes cited as the young god Quetzalcoatl, but which on the reliable authority of Dr. Ignacio Bernal (1968) more probably represents a young priest. It is totally anthropomorphic. So also are the famous Atlantides of the Temple of Quetzalcoatl as the Morning Star of Tula — statues that once supported the temple roof on their heads. They have feathered head-dresses, reminiscent of North American Indians, but are clean-shaven. Irene Nicholson (1965) indicates a stucco head from Tabasco as pre-classic Mayan and possibly a portrait of Kukulcan. Even if the dating and identification are correct, it does not take us far because though possessing somewhat European features and equipped with a trim beard the head is completely human, and there is no body available for comment.

Representations of Quetzalcoatl as part man and part serpent do occur but seem to have been relatively uncommon or of restricted provenance. An Aztec carving, dated between 1200 and 1500 A.D., shows Quetzalcoatl as a head growing from a mass of coiled plumage. The god has a peculiar appendage growing from his chin, spadelike in shape, but showing nothing in the nature of hair, it develops into a serpent. But this is doubtful evidence as it is of such late workmanship and represents the Aztec tendency to elaborate philosophical symbolism. Only in the Maya country do we find feathered serpents with human faces as illustrated in Victor van Hagen's book (1960, p. 33). But these presumptive Kukulcans are not only beardless, their feathers are indubitably Mayan and cannot easily be mistaken for traders from Greece, Rome or Carthage, or even

for Phoenicians or other inhabitants of the ancient Levant. In short: there seem to be no facts available which at all weaken the conclusion of Hedrick (1971) that in respect of Quetzalcoatl “. . . there is no evidence whatsoever – whether or not Kukulcan was indeed Quetzalcoatl – that the man was from any other land but Mexico”.

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# The Moving Coffins of Barbados

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*ABSTRACT: The story of the moving coffins of Barbados is reconsidered in the light of a recent visit to the site.*

The story of the moving coffins of Barbados is an old one indeed, and must be familiar to anyone who has read much of parapsychological anecdote. In fact, so many times has it been told and re-told, with variations of detail, (see Owen, 1964), that perhaps one needs an excuse for yet another telling. My excuse is that so very few of the accounts originally given were in fact eye-witness accounts of the mysterious happenings; most of the literature is a rehash of previous accounts incorporating the writers' own theories and prejudices as to what actually happened. More important, I can find no accounts of recent visits to the vault — in spite of the influx of modern tourism to the island; and so on this score alone, as we recently vacationed in Barbados, and paid two extensive visits to the vault, I felt that some modern observations might not come amiss.

For those unfamiliar with the story the details briefly are these — in the churchyard of Christ Church in Barbados there is a family vault, belonging to a family named Chase, local plantation owners and a white family, resident in Barbados. The vault was opened in 1807, when the body of a Mrs. Goddard was placed in it. In 1808 Miss A. M. Chase was interred there, and in 1812 Miss D. Chase was also buried in the vault. When later in 1812 the vault was again opened to receive the body of the Honourable T. Chase the three previous coffins had apparently been moved around and were in some disarray. On Sept. 25th 1816 an infant child was to be buried, and again, on opening the vault, the four coffins (which had been rearranged tidily when the Hon. Chase was buried), were again found to have been moved and disturbed. Two months later, when the vault was opened to receive the body of a Mr. Brewster, and again in 1819, when a Mr. Clarke was buried, the coffins were found to be disarranged. Each time they were replaced in their original positions, and the vault sealed between each opening. The door was a massive cement slab, requiring six or seven men to move it, and it was cemented in place. The floor of the vault was sand, and no footmarks or disturbance of the sand was apparent after each opening. The coffins were originally three on the floor side by side, and the others laid on top of them. Most of the coffins were of lead, but there seems some doubt about Mrs. Goddard's which may have been of wood.

As would be expected, these mysterious happenings caused a great

deal of interest and speculation, not to say dismay, and when in July 1819, a Mrs. Thomasina Clarke was due to be buried (this time in a wooden coffin), the Governor of Barbados himself, Lord Combermere, together with his aide-de-camp, and a large crowd of interested and excited spectators, decided to be present at the opening of the vault. Again the coffins were found to be in great disorder. The interior of the vault was carefully examined, and no trace could be found of any secret entrance. The coffins were replaced, the floor carefully covered with sand (presumably in order that any footprints of possible intruders would show), and the cement slab replaced and carefully sealed. The Governor himself put his own seal on it, and various other people present also added their own marks. The largest coffin had been placed on the ground, and the others placed on top. Some accounts say the children's coffins, of which there were three, were placed on bricks in the vault, but whatever the arrangement, the vault was getting crowded. The only wooden coffin (apart from the one just placed inside), that of Mrs. Goddard, had practically fallen to pieces during the various disturbances, and was tied in a bundle, according to contemporary accounts, and stacked against the wall.

In April 1820, eight months after the last burial, after hearing rumours that noises had been heard in the vicinity of the vault, the Governor ordered the vault re-opened, although there was no body to be interred — the motive seems to have been curiosity. The Governor, the Rector, and two or three other persons of eminence, together with an excited crowd that is reported to have numbered thousands, were present at this opening. The Governor's seal, and the other private marks were found to be untouched, completely as they had been left, and undisturbed. But, once again, the coffins themselves were in a state of utter confusion. One was standing on end, against the door itself, rendering it difficult to open the vault. The remains of the wooden coffin were still stacked against the wall. At this stage the Governor gave permission for the bodies to be removed and buried elsewhere, and for the vault to be left empty.

Controversy over what actually happened has raged intermittently even since, and obviously at this late date any kind of proof of what occurred is out of the question. Nevertheless, when one actually visits the site, as opposed to reading about it, one or two points strike one with some degree of force, and perhaps should be added to the general account.

The vault is a minor tourist attraction in Barbados today, to the extent only that the details of the above story, as related, appear on a notice posted in the Church porch, and over the vault itself. A copy of a contemporary account is currently out-of-print, due (we were told) to lack of interest.

The churchyard is, as has been said, on the top of a hill, some 250 feet

above sea level, and a mile or so from the coast itself — there is a beautiful view over the Caribbean from the churchyard. The main road runs round the brow of the hill, and a small road at right angle to it, leads up to the church itself. There is an open space outside the church wall, and on the opposite side of this a modern school. At the time of the happenings one would imagine this was occupied by the houses of some of the local people. A sturdy wall runs around the churchyard. The Chase vault backs almost on to the church wall — there is approximately 15 inches of space between the back of the vault and the surrounding church wall. The Chase vault is the only vault along this wall. There is another, much more modern vault, further down by this wall, but it stands parallel to the wall, and is some four feet inside the wall. The rest of the churchyard is full of vaults, all much of the same pattern as the Chase vault, but many more grand and much larger. Burials in vaults continue to take place to this present day, and have apparently continued throughout the two centuries. However, in that churchyard, the only vault that is almost backed on to the surrounding wall is the Chase vault.

The vault itself is half above ground, and half below, not completely below ground level, as might have been imagined from some accounts. This is typical of the other vaults in the area. Some accounts say that the vault was dug out of solid limestone rock, but there was, or rather is, certainly a good layer of earth on top today. The "lid" of the vault is a chunk of solid rock, or rather several chunks cemented together. Inside the vault, the floor space is twelve feet long by six and a half feet broad. From inside it is arched, although on the outside it appears square. The sides and overhead arch are made of bricks, with somewhat crumbling mortar between them, although, even today, they appear fairly solid. However, the back of the vault, that which is against the outside churchyard wall, is composed of what seems to be rubble masonry, that is, uneven and random slabs of rubble loosely cemented together, and, today, broken and fallen out in places. At the top of the back portion of the vault the masonry has completely fallen out in a couple of places, and an old, very rusty length of piping can be seen to traverse the whole width of the vault, some 4 or 5 inches behind the facing, and between it and the church wall itself. This piping is about 6 inches below the surface of the ground outside. It looks indeed as if this pipe could have been there for the whole time of the existence of the vault, in fact it seems unlikely that the earth so near the vault would have been disturbed to lay such a pipe later. We could get no information from local people on this; in fact most people we talked to did not seem to have either noticed it or appreciated its possible significance.

It may be true that there were no signs of water entering the vault at the time of the disturbances; the same is not so today. There are very obvious, and many, stream marks down the back of the vault, apparently

emanating from the area of this pipe. The lower part of the vault is obviously damp, and green with fungus. If the pipe did exist at the relevant times, then it is obvious that either through a leak in the pipe itself, or by means of water flowing alongside the pipe, water could have got into the vault, perhaps in large volume at times of heavy storms. This is a hurricane area, and in fact, the church was destroyed by a hurricane some eleven years after the happenings. It was rebuilt, and destroyed by fire in 1935, and the present church is the third on the site.

Two points struck us when actually looking at the vault and its surroundings. Firstly, as stated above, the real possibility that water did enter the vault, and float the coffins into their disturbed positions. It has been well established that if lead coffins are properly sealed they will indeed float, as witness the account of the floating coffin of the actor Charles Coghlan in September 1900. Coghlan died in Galveston, Texas, in late 1899, and was buried in a leadlined coffin in the cemetery there. However, in September 1900 a hurricane struck Galveston and among the damage wrought was the flooding of cemeteries, and the disinterment of bodies by the flood water. Coghlan's coffin was one of those unearthed, and it floated out to sea, making its way by degrees and over a period of time to the shores of Prince Edward Island in Canada, to his own home village, where it was found by local fishermen. The coffin was rescued and reburied in Coghlan's home village with the proper ceremony. (I am indebted to Vincent Gaddis' account of this in his fascinating book *Invisible Horizons - True Mysteries of the Sea*). Rupert Gould, in his book, *Oddities*, gives a similar account of a coffin having been picked up off the North Foreland in May 1751, which when opened, contained the body of a man, embalmed and dressed in fine linen, which had been consigned to the Goodwin sands a couple of months previously. So, if water could have got into the Chase vault in large quantities, it is quite possible this could have been the cause of the movements of the coffins. And the vault at the present time certainly does not seem to be waterproof, it is in fact one of the more poorly constructed in a churchyard full of fine vaults.

The other point that seemed to us to offer a possible explanation for the occurrences is the position of the vault itself. As stated previously the vault is very close to the main wall of the churchyard, and in fact is the only one where the back of the vault lies alongside the outer wall. While the present day wall is very sturdy, being apparently of stone slabs, or bricks, covered over with cement, which would certainly show signs of tampering, there is no record of the old wall that I can find. There would have been a wall, certainly, as it enclosed consecrated ground, but this could have been of bricks only. It appears quite possible that anyone bent on disturbing the vault could more easily enter the vault from the back, rather than try to force an entrance from the front, within the

churchyard. It could have been a comparatively easy matter to remove bricks from the churchyard wall, dig out a few inches of earth, and then break into the rough rubble at the back of the vault. It is reported that the Hon. Chase was a cruel and unfeeling man. He may have been a hard taskmaster to his slaves — one has to remember that the island was owned by white settlers from Britain, many of whom spent only half their time in the island at sugar-cane cutting time, and the work was done by negro slaves who were kidnapped in Africa, and brought over to the island to do the manual hard labour. The churchyard is off the main road even today, and at night time it must be very quiet, and one could work undisturbed. At the time of the happenings it would have been quiet and dark indeed. It could have been an act of revenge, in an effort to frighten away a cruel and unfeeling master; it could equally have been a straightforward attempt at grave robbery, in the hope that valuables had been buried with their owners, but I personally favour the former view. When one walks around the churchyard and reads the history of the time as written on the vaults, one gets a feeling for the period, and its history. My own personal feeling is that the vault was entered from the back from motives of revenge at ill treatment. The matter of the undisturbed sand floor is easily explained — nothing would be simpler than to spread fresh sand behind on leaving!

At this late date, one can only speculate. I found it an interesting experience to visit a site about which I had read so many times, and to realize once again that there is nothing like seeing with one's own eyes, imagination can let one down. From the various accounts I have read over the years I had never realized that the vault was placed exactly in the position that it is; neither had I quite appreciated the life and customs of the day, and the situation of the slaves in the society of the island at the time.

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# EDITORIAL

The appearance of this issue of *New Horizons* has been delayed longer than desired, however it is hoped that the increased size of the Journal may serve as compensation to our regular readers.

Readers will be interested to note that the "Philip" phenomenon will soon have completed its *third year* of occurrence or rather of "manufacture". If words have any meaning therefore the Philip research represents an experiment of the "repeatable" kind so long demanded both by some parapsychologists and by their critics. Moreover the phenomenon is repeatable not only by the same people but by many other groups as well.

The repeatability of the Philip table-rap phenomenon is also brought out by the acoustic analysis reported in the second paper, which shows that raps recorded some 20 years ago by Dr. Gauld's group, raps recorded some 17 years ago by Dr. Paul's group, and raps recorded by the Philip group in 1975 and in 1976 all have the same peculiar feature — namely a rapid damping or attenuation of amplitude — a characteristic not shared by raps produced by ordinary percussion.

To describe any quality of this sort we introduced (in our last *Editorial*, 1975) the term "paramorphic". In so doing we were not committing the offense rebuked by Samuel Johnson of using "big words for little matters". Instead we were using a justly proportioned word to indicate a very important characteristic. A "paramorphic" event is one which not merely differs in causation from a normally produced one of the same general type but also in its *form*, as is discovered when the form is precisely examined. When we encounter a paramorphic event we can be surprised at the way in which it comes about, but also (to appropriate another phrase of the great Dr. Johnson) we should be "surprised to find it done at all"!

The importance to parapsychology of the occurrence and identification of paramorphic phenomena cannot be over-emphasized. An event that is paramorphic is thereby, and *ipso facto*, proved to be paranormal, and its causes must be looked for in areas not yet fully explored by contemporary science. The fact that paramorphic events occur is likely to be of assistance to parapsychology in refuting some of the criticisms made of it. Proof of paranormality in such cases no longer rests on the testimony of human witnesses as to the origin of the happening but in the event itself.

We are happy to publish three "guest" papers from researchers in U.S.A. Raymond Bayless' paper has relevance both to Philip raps and to the "Raudive voices". It is interesting that the Frank-Bayless raps do not seem to be a direct effect on the tape but, like Philip raps, are actual sounds (albeit ones of low amplitude), and in that respect differ from such of the alleged Raudive voices as are recorded without a microphone. These voices are considered in the fourth paper which describes lengthy and conscientious attempts to generate Raudive phenomena.

Dr. Wolfson's note draws attention to the problems presented by metal-bending *in absentia* or by proxy and thus to the perennial question of who or what, in any particular case, is the real cause of the paranormal event. Sometimes the cause can unambiguously be assigned to the actual persons concerned; thus, Dr. Wolfson (private communication) agrees with us that the

Philip phenomenon is a function of the Philip group alone; but in some instances the link with the human *dramatis personae* is sufficiently indefinite or the phenomenon so elaborate as to legitimately engender scepticism as to the causal adequacy of the human participants.

Our third guest paper by Dr. Joyce Goodrich, an associate of Dr. Lawrence Le Shan, breaks new ground. It is, or should be, regarded as notoriously difficult to demonstrate or precisely characterize paranormal elements in healing even when there is reason to suspect their presence. Dr. Goodrich's paper describes how new and ingenious methods are being employed to bring objectivity into this subtle and difficult field of enquiry.

The remaining papers in this issue are all in some degree interim reports on work in progress, and serve collectively to emphasize the point that for the most part reliable results in parapsychology, just as in any other discipline, have to be based on lengthy and even tedious investigations. The reports by Mr. Gribble and by Mr. Simmons show that it is not always easy to reproduce results claimed by other workers, especially in cases where there is a paucity of published technical information. Andrienne Henwood's paper suggests that we do not yet know all there is to know about telepathy, particularly in group situations.

The report on the Premonitions Bureau reminds us once again of the existence of paramorphic events, because true precognition, if it occurs, certainly belongs to that class of happenings.

The paper concerning hypnotic age regression is important in drawing attention both to actual dangers for the subject when this method is employed and to logical pitfalls in interpreting the results. It is also of great interest as exhibiting the facility with which "reincarnation memories" can be produced under certain circumstances.

# Continuation of the Philip Experiment.

IRIS M. OWEN

*ABSTRACT: The latest developments in the "Philip" research are described.*

It is a year since the publication of our last journal, and since the last report on Philip. At that time we said that a book had been written about the experiment — it had — but the publishing business being what it is, the book is only now appearing in the bookstore. Our publishers did not like our chosen title, and rechristened the book *Conjuring up Philip: An Adventure in Psychokinesis*. From all the comments we have received from people who know about the experiment it should be a best seller! The experiment is still continuing, the Philip group meet regularly each week, and at least two other groups have been meeting now for some time with a good degree of success. We felt our readers would like to be brought up-to-date.

The last report finished at Christmas 1974. In March of 1975, the whole group, including Drs. Owen and Whitton, were invited to Kent State University for a weekend of experiments with Professor Wilbur Franklin of the Physics Department. They were given an official, warm and courteous welcome by the President of the University, Dr. Olds. It was hectic weekend, as the Physics Department staff were full of ideas for experimentation and kept the group busy for two very long days. However, they were able to produce the rapping and table movement phenomena continuously. The entire proceedings were videotaped and recorded. A strain gauge was used to measure the upward thrust of the table. On several occasions when the sitters' hands were all on top of the table the gauge registered a force of more than 20 pounds, thus showing that the table was indeed pushing upwards. On occasion the phenomenon of one leg of the table only rising was witnessed; a videotape was made of Dr. Franklin sitting on the table to attempt to push it down — unsuccessfully. During the experiments one leg was completely broken off a very large and heavy laboratory table.

Conversation turned to metal bending, and the group attempted to bend some metal objects provided, including a small gold bar, but this was not very successful. However, subsequently Andy found that the stone fell out of one of her rings (the claws had opened), and another ring she was wearing had bent considerably. Everyone was amused when during supper, some of the cutlery was bent, and members of the faculty at Kent State found that they themselves could bend forks and spoons.

An interesting experiment that demonstrated the telepathic ability of the group was one where the group was asked to decide which of ten identical containers held a steel ball, as opposed green glass marbles in the others. The members of the group wrote down individually their own choice of the numbered tube. The group were no good at picking out the steel ball, but there was an obvious clustering of choice of number, and with each 'game' Philip was also asked to choose — which he did by rapping in the top of the laboratory bench and Philip's choice was invariably the majority number of the individual decisions. For instance, four or five group members might

mentally decide on number 2, two others would pick number 4 (and) the rest different numbers — Philip's choice would also be number 2, the majority vote. The steel ball could be anywhere!

Unfortunately the physicists could not offer much help at this stage on how to discover the origin of the rapping force. Dr. Franklin did suggest, however, that the group change from a wooden surface to a metal one, and try to get remote sounds, i.e., without actual contact of the hands. A heavy steel plate, two feet by three foot, was obtained and slung from the ceiling of the room in which the group work. The group get very interesting noises from this, a curious "pinging" sound which *cannot be duplicated by actual knocking* — it is more like the noise that hot metal makes when cooling rapidly. Instead of removing their hands from the table the group ask Philip to rap on other metal in the room, and at times this has been quite impressive, pings occurring in the overhead pipes — when no heat was on — and in other objects in the room. Very recently there were loud raps from the underside of the metal chairs on which some members of the group were sitting.

The "pingings" in the steel plate were recorded, and subjected to acoustic analysis by Dr. Whitton (this Journal). As was previously discovered for the Philip table raps (Whitton, 1975), the Philip "pings" also have an acoustic envelope not possessed by normally produced percussion raps, and characterized by rapid decay. At the same time recorded rappings which occurred in table-rapping sessions held some years ago by Dr. Paul's group were analyzed, and found to have the same unusual feature! This peculiarity has now been discovered in the raps generated by three totally different, groups beginning with that of Dr. Gauld in England many years ago (Gauld, 1973). This further serves to emphasize that we now have the repeatable experiment so long said to be the goal of parapsychologists!

Nevertheless we still seem to be stymied on the question of how to proceed further with the discovery of the physical force needed to produce these raps. It is a force of some kind, we have some idea of what it can do, we can measure it to some degree, as was done at Kent State; it can be projected over a distance, without contact; it is related to the psychological — basically emotional — make-up of the person or persons operating it, and that's as far as we can go at present.

Two other groups in the Toronto Society for Psychical Research have experimented on this phenomenon. The third group, as mentioned in our last report, is still in existence, although there has been some change of personnel, and a difficulty in keeping a 'personality'. However, they have consistently for more than a year succeeded in getting raps and table movements. A further group that has started recently decided to create the personality of a talking dolphin "Silk". This was an interesting variation, and it worked! The group put together a series of questions and answers which they all learned, about forty in all. When "Silk" was asked, for instance, "Are you frightened of sharks?", they all knew what was the expected answer and so "Silk" responded accordingly.

In the Philip group recently there was an interesting change of personality. The Toronto Society for Psychical Research has been engaged in setting up a Centre for Research into the UFO phenomenon. Members of the Philip group were very interested and involved in this, so it was quite a natural thing on a Thursday evening during this period for one of them to start the evening by asking, "Philip, did you ever see a UFO?" and, of course, the answer was "Yes". The conversation continued, with the men in the group doing most of the questioning; "Do you see them often? Are there beings in them? Do

they come from Outer Space? Could you bring one here?" "Yes", said Philip to all of this, and eventually "Venus", a green eyed, raven haired, white skinned beauty 'answered' the questions. She had come from Venus, where women were subject to the men (no Women's Lib there!) She came in a flying saucer, parking it across the road, in the parking lot, but camouflaged as a fast sports car, etc., etc. The group spent a fascinating evening, and every time Philip tried to get in an answer he was crowded out! Two very interesting things. First, the *character* of the knocks from Venus were different from Philip's. Just as one morse-code sender can recognize another by the character of his sending, so was there a difference between Venus and Philip. We had noticed this when the earlier group had worked with the Lilith character — Lilith's knocks were much gentler and more feminine than Philip's. Secondly, the group felt subsequently that psychologically the men in the group were somewhat bored with always dealing with a dashing Cavalier, it was time for them to have some fun, and why shouldn't they have a raving beauty from Outer Space for a change

The experiences with the various characters created in the groups — Lilith, Artful Dodger, Santa Claus, Silk the Dolphin, Venus, and a few other fleeting characters created from time to time, have proved to us that the *character* created is positively from our own minds and imaginations. It is interesting that one can also transfer this difference to the physical phenomena and change its character.

We said in our last report that it was difficult to keep other groups going; it is certainly true that, until we can find more profitable experiments to do, this is so. However, it is certainly not true that it is difficult to start a Philip-type group. We had a visitor from out of town recently, from a group of people interested in parapsychology who had been meeting regularly to discuss their various interests in the subject. She told us that they had hired the Philip film, and subsequently, after some discussion of the experiment, had sat round a table and asked it to reply to their questions, and they immediately got raps and movement in the table. Like the metal-bending, it seems that once a demonstration has been seen, and the fact that the ability exists is accepted, then anyone can produce these effects. However, unless there is an obvious objective to the experiment it quickly becomes boring.

We are disturbed by a small but steady stream of correspondence we have from spiritualists who warn us that we are dealing with mischievous spirits who could harm us, and who advise us that we should get in an expert medium to "interview" these spirits who are working through our characters, and persuade them to go away. We have no wish for a "confrontation" with people who hold spiritualistic beliefs, one's faith is a personal thing, but we have no doubt about the nature of our Philip experiment; to our minds it offers a rational alternative to the belief that spirits of the dead return to speak to us. We are not trying to change anyone's beliefs, but we just lay our own experiment and its findings "on the table".

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WHITTON, J.L. (This Journal) Paramorphic Table Rappings: Acoustic Analysis.

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# Paramorphic Table Rappings: Acoustic Analysis\*

JOEL L. WHITTON, M.D.

*ABSTRACT: Confirmatory evidence has been obtained of the paramorphic form of the "Philip" group table rapping. Acoustic analysis of table rappings recorded seventeen years ago by the Margaret Paul group revealed raps identical in form to the Philip raps.*

## 1. Introduction

The term "paramorphic" was first used by A.R.G. Owen (1975b) to describe an event which differs in *form* from the normal. In a previous report (Whitton, 1975b), preliminary analysis of the acoustic envelope of paranormal psychokinetic table rappings recorded in the Philip experiments indicated that the envelope pattern differed radically from ordinary physical raps produced by percussion. In this report more paramorphic "Philip" raps are analyzed and their various sound envelope forms displayed; raps recorded in a similar experiment done by Dr. Margaret Paul and her colleagues (1960, 1963 and 1964) are also analyzed.

The Philip group consists of eight people who have been meeting regularly for over three years. They have addressed themselves to a totally imaginary and fictitious entity "Philip" and developed the necessary requisite psychological skill to paranormally produce physical phenomena (Owen, 1975b); Whitton, 1975a). The Philip group's history and experiments are completely described elsewhere (Iris Owen, 1974, 1975, 1976; Iris Owen with Margaret Sparrow, 1974, 1976).

The Margaret Paul group consisted of Dr. Margaret Paul and her colleagues and a non-professional medium who met in experimental sessions for 28 months from September 1959 to December 1961. As with the Philip group, stringent experimental controls were applied. Paranormal raps originated from a table in response to questions addressed to a supposed entity. Interestingly enough, the raps could be produced without the presence of the medium.

For an insightful examination of paranormal physical phenomena the reader may refer to Owen (1964) and the *Proceedings of the Canadian Conference on Psychokinesis* (New Horizons, Vol. 1, No. 5, 1975).

## 2. Method

Data for analysis from the Philip group was recorded during a regular experimental session on March 4, 1976. Sound recordings from the Margaret Paul group made on October 8 and 20, 1959 were kindly supplied to the present author by Dr. Margaret Paul. The Philip raps were recorded using a Philips N4450 recorder with its microphone attached to the mid-point of the "table" surface (a steel plate, 23 inches by 36 inches and 3/32 inches thick, suspended horizontally by nylon ropes passing through holes in its corners

\*Indebtedness is acknowledged to Robin Owen for his technical assistance during the recording sessions, and to a generous patron of the Toronto Society for Psychical Research for donating the recording equipment.

and attached to very solid water pipes which were just below the ceiling of the room). The Paul group's raps had been recorded using a Bell T-210 recorder with a Tandberg TM-2 microphone detecting air-borne sounds in the immediate vicinity of their table (a large wooden one). Both recordings were played back (using the Philips N4450 recorder) into a storage oscilloscope, for visual inspection, and a Brush strip-chart recorder running at 125 millimeters per second, for a permanent copy of the wave forms. The Brush strip-chart recorder was capable of reproducing frequencies from D.C. up to only 200 Hz; however, the form and duration of the acoustic envelope were identical to those displayed on the storage oscilloscope. The absence of the higher sound frequencies and harmonics did not alter the overall sound envelope form or duration.

### 3. Results and Discussion

The figure displays actual graphs as obtained from the strip-chart recorder. The graphs are aligned so that the arrow on the bottom time scale indicates the onset of the sound (of the raps) as perceived during playback.

Two forms of the Philip raps are presented. Graphs B and C demonstrate that, in respect of the shape of the acoustic envelope, the maximum amplitude of the sound vibrations occurs nearer the end of the rap sound-burst. This is in distinct contrast to the envelope of the control rap. This paramorphic form of paranormal raps was first described by Dr. Alan Gauld (1973), and is now called the "Gauld-wave" by the present author.

Graphs D, E, and F demonstrate the second form of the psychokinetic rap acoustic envelope. The form is impulse-like and is quite over-damped. This paramorphic form is now called the "W-wave" as it resembles the letter W.

The paranormal raps are subjectively as loud as the control raps. They appear to originate from the metal surface and can be felt as a vibration on the surface if the fingertips are in the vicinity of the point of origin of the sound. The physics of the production of such a phenomenon by a person or a group is, of course, not yet understood.

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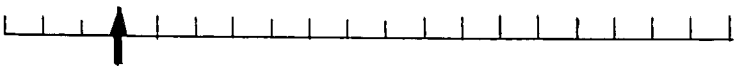
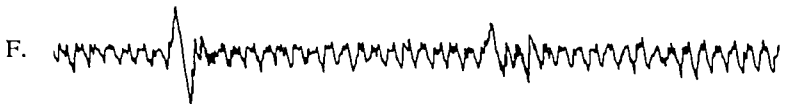
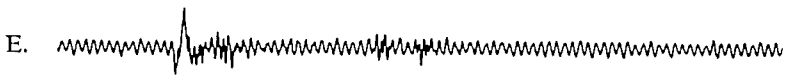
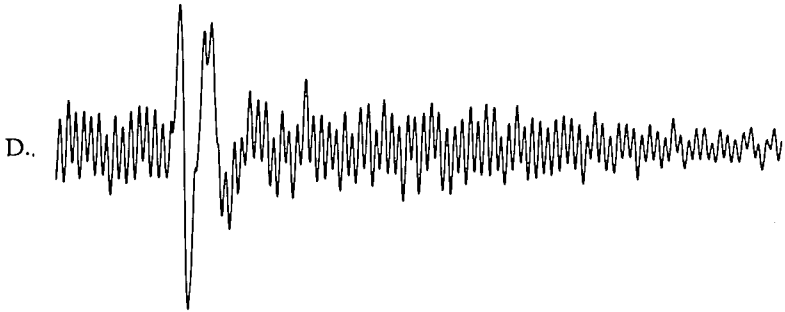
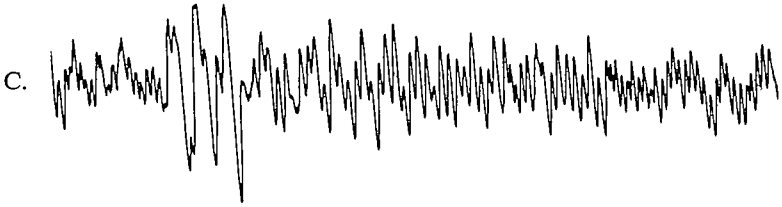
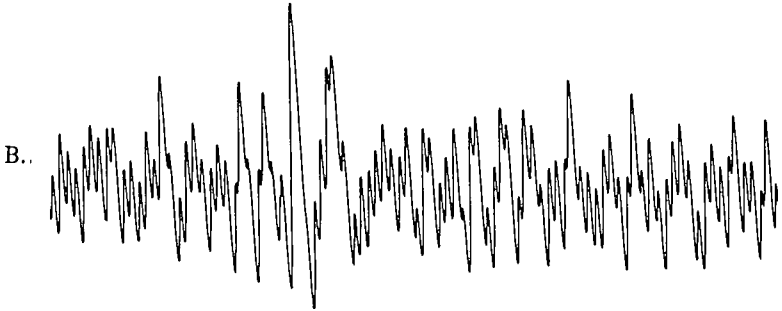
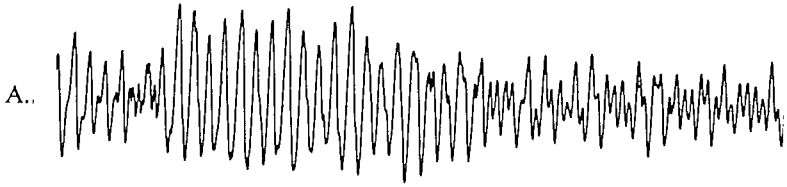
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- A. Control Rap made by experimenter by percussing the metal sheet with the fingernail with all Philip group members seated around the suspended metal plate with their hands on the surface in their usual manner. Notice the fast rise of the envelope of the sound wave and its slow decay into the background noise. Duration is at least 300 milliseconds (msec.) (0.3sec.).
- B. Philip Rap in response to Mrs. Sparrow asking, "Philip, do you want to hear my joke about Adam and Eve?" Notice the slow rise of the envelope and the rapid decay. Duration is about 180 msec.
- C. Philip Rap. Again, as in B, notice the maximum amplitude of the vibrations occurs nearer the end of the rap sound-burst in contrast to control raps.
- D. Philip Rap; another form. In this rap the sound wave form is impulse-like and lasts 80 msec. The triphasic "pulse" resembles the second derivative of a monophasic pulse with a concave top, i.e., like a neural action potential.
- E. Philip Rap similar in form to D, but in this example the low frequencies in the sound were attenuated during playback with the use of the bass tone control on the tape recorder, and the amplitude was attenuated by turning the volume control down.
- F. An example of the raps obtained in the Margaret Paul experiments. The recordings made during those sessions in 1959 were at a lower volume level compared to the Philip recordings. Sounds were analyzed from the microphone channel which recorded air borne sounds. Because the microphone used then was not in contact with the table (as it was in the Philip experiment) the low frequency low intensity table vibrations from the raps would be of lower amplitude and somewhat attenuated, as they were deliberately arranged to be for graph E from a Philip rap. All of the raps examined from the Margaret Paul experimental sessions on October 8 and 20, 1959 had the form shown in F. Graph F contains two raps separated by 320 msec. which were obtained in response to the question "Do you want us to continue our conversation?" in the October 8, 1959 session.

Figure. The 5 millimetre divisions along the abscissa are 40 milliseconds. The ordinate is proportional to voltage output from the tape recorder. The arrow indicates the onset of the rapping sounds as discernable during playback of the recording, and all graphs are aligned so that the onset of the rapping sounds coincide.



# Tape-recording of Paranormally Generated Acoustical Raps

RAYMOND BAYLESS

*ABSTRACT: A series of recent experiments is described in which the author and Mr. Wesley Frank, following a certain procedure, regularly obtained rapping sounds which, though inaudible at the time, were unambiguously heard when audiotape recordings of the sessions were played back with high amplification. Arguments are presented supporting the author's conclusion that the raps are actual acoustical phenomena.*

## 1. Introduction

Some time ago it became apparent to me that a phenomenon in some ways parallel to that of the tape-recorded voices of the kind recently made famous by Konstantin Raudive (1971) and others might well exist. This theory was confirmed in May 1975 by the discovery of low-amplitude, *acoustical*, tape-recorded raps by Mr. Wesley Frank. (Bayless, 1975) Before discussing this phenomenon, however, certain historical considerations must be reviewed.

It is generally believed that the discovery of tape-recorded voices was made by Friedrich Jurgenson in the summer of 1959 when playing back tape-recordings of bird songs (Bender, 1972). During the playbacks he heard a man's voice where non should exist. In reality this effect was first discovered by Mr. Attila von Szalay in 1956. The evening following Mr. von Szalay's discovery I joined him in experimentation and our tests continued for many years. A very brief outline of early tests was published in *J.A.S.R.* (Bayless, 1959). Mr. Jurgenson, I believe, did not announce his discovery until three months after our own publication.

## 2. The Raps

During these early experiments Mr. von Szalay and I on occasion recorded definite paranormal raps which were not capable of being heard by the unaided ear and required high amplification to be detected. Other sounds were recorded, some in the form of bell-like chimes and were also inaudible. The chimes were intelligently patterned.

In March, 1973, a number of tests were performed which for all practical purposes revealed that voices received were of an *acoustical* nature. Numerous tests were made with a microphone shielded from normal sounds. An equal number of tests were made with the microphone left unshielded, all other conditions were identical, and it was found that only when the microphone was left unshielded were voices received. In consequence, it does seem that most of Mr. von Szalay's voices are of this order, excepting a few which were created (apparently) by another mechanism. During these years our attention was primarily directed toward voice effects and as a result the raps were not further explored. The paucity of raps can be easily explained. No "sounding

board" had been provided and in consequence the agency involved was unable to rap on an appropriate surface. (I postulate at this point an "ectoplasmic" mechanism much in the order of that presented by W. J. Crawford in his classical discussions of the phenomena of Kathleen Goligher.) Of course, this obvious fact covers the great majority of rapping phenomena but it does not explain the presence of paranormal sounds such as the chimes, etc. The voices, being acoustical, must result from air vibration, a mechanism which parallels the production of voice phenomena by what can be termed the "classical" voice mediums of the past, e.g. the Moore sisters, John Sloan, Mrs. Emily French, Mrs. Elizabeth Blake, etc., and in some poltergeist situations (Bayless, 1967).

It can be maintained, I believe, that low-amplitude, *acoustical*, tape-recorded raps represent a low level of paranormal "physical" effects of wide provenance yet to be discovered. I predict, for example, a parallel telekinetic effect exists. It does seem quite probable that raps of this order occur in association with and may be as frequent or even more frequent than tape-recorded voices.

The actual number of raps recorded during sittings varies to quite a degree. Generally speaking, only a very few are recorded during each recording period, but on occasion a large number have been received, some quite loud. Even though the number of raps that are received is not very great, it has to be stressed that with Mr. Frank they have been fairly consistent; that is, no single day's test was totally devoid of raps. The degree of loudness is, of course, dependent on the recorder's amplification. With the highest amplification many raps are heard on replaying the tapes and will be heard as loud sounds. Others can be faint and many fall between these two extremes. Even with the fainter raps, there is little difficulty in hearing them when the tapes are replayed and the louder varieties are perfectly clear, decisive and obviously of paranormal origin. They cannot be attributed to tape noises, etc., and do not occur except when a deliberate test is undertaken, a fact highly significant of their paranormal origin.

The technique of recording such raps is very simple. The first requirement is the use of a good, sensitive, tape-recorder. In my case, I do not have an expensive and more ideal recorder available, but a Sony Panasonic cassette RQ-2365 machine has given good service and has proven to be of sufficient sensitivity to record very well even the very low-amplitude raps. Experiments should be done in a completely soundproofed room. Not having access to such a room, the quietest one in one's home must be used, and all outside noises including sighs, coughs, etc., must be noted. The normal sounds found with tape, and the sounds occasionally encountered with the recorder itself, must all be accounted for. However, the problem of normal sounds is not as formidable as it has been represented, and it can be dealt with in a practical manner. Generally speaking, in this field, as with all electronics, the better the equipment the better the results. Tapes which have been erased are in general safe to use, and the problem of previously recorded material "bleeding through" has been vastly exaggerated. Each tape can be played through before use and so examined for extraneous sounds. Ten-minute recording periods are best to use to avoid long and wearisome replaying sessions.

It does seem that actual contact with the table such as resting the hands on its surface does greatly increase both the number and quality of raps received, and Mr. Frank and I have used his method on frequent occasions. However, because of the thoroughly correct criticism that any slight movement of the hands either unknowingly or deliberately will create pseudo-raps, with one exception, only those phenomena received when no contact was made with



the table will be noted. I have made a number of personal tests during which I placed my hands on the table top. The first of these trials yielded over 25 raps, but I should emphasize that over years of testing I have found myself perfectly free from subconscious motions, tremors, etc. I have repeatedly verified this fact during the long period that I have been engaged in physical research. In consequence, I do take note of raps produced under such conditions, but do not insist that they be accepted as evidentially on a par with the raps that are made when there is human contact with the table.

### 3. *Our Experiments*

The experiments which are to be described were made either at my home or in Mr. Wesley Frank's apartment, and only we two experimenters performed the tests.

(i) The first experiment (really an impromptu trial) took place in May, 1975, in mid-afternoon when Mr. Frank brought his tape-recorder and tape. I brought out the small wooden table mentioned, and we placed the recorder on the floor nearby. The microphone rested on the table's surface and the table was positioned between us. The wires which led to the microphone and to an electrical outlet in the wall, as well as the recorder itself, were in full view. Mr. Frank was equally in my view and, as I kept him under continuous observation, I can affirm that he did not touch the table or the microphone, nor did he touch the recorder or the wires attached to it. Deliberate fraud was not possible. Naturally, he was in a position to watch my actions. It is true that he furnished both the tape recorder and the tape, but I have used the same recorder many times and have examined it for gadgetry. Therefore, I have concluded that it has not been altered and applied to fraudulent reception of raps. It is also true that the tape was furnished by Mr. Frank for this preliminary trial, but when the tape was used it was automatically erased as the recording proceeded. Therefore, for all practical purposes pre-recorded tape was not fraudulently used.

An extract from my original notes says:

On playing back the tape this first trial yielded a large number of loud raps, numerous faint examples and many extremely fast multiple raps. They numbered, I am sure, well over thirty examples and at times were startling in their rapidity and volume.

(ii) Another test was held on May 31, 1975 which again made use of the small table and the microphone placed on its surface. The same recorder was used and Mr. Frank furnished the tape. The following results were obtained:

Three faint raps recorded within one minute.

Two louder raps recorded within five minutes.

Within thirty seconds very faint but easily heard, fast multiple raps were recorded.

(iii) A second test made the same afternoon yielded a much larger number of raps but the conditions were not as fully controlled. Nevertheless, the sounds recorded were impressive and I am morally convinced that they were genuine. During this recording period a "human" voice of good quality was received. In all probability it said "Henrietta" — a name of some significance to me. The first part of the name was slurred, but the "etta" was very clear. After this voice had been produced a remarkably clear whisper-type voice said, "I'm going to get you."

(iv) On June 8, 1975, three ten-minute tests were undertaken; the results were definite but few. The second test utilized my tape. Mr. Frank put his

hands over the table but as in previous trials, I carefully observed his every action and can state with complete confidence that he in no way contacted the table, the recorder, or the wires with either his hands or feet. Mr. Frank was able to observe me if he wished. The light was bright and the test was held in my home. Mr. Frank's recorder was used. Only two dull, faint but obvious "thuds" were recorded.

The innocence of Mr. Frank's taps in respect of pre-recording, etc., was illustrated by a previous test the same day. Though made under equally controlled conditions it offered only one rap and another curious sound which can only be described as a loud "click".

(v) During the evening of June 14, 1975, Mr. Frank and I undertook four ten-minute recording periods. These tests were made in my home. Again, Mr. Frank and I sat about the small table and Mr. Frank was continually observed by me. He did not in any way contact the table, microphone, recorder, or wires and he in turn was able to observe my actions. His tape was used.

The first tape offered one single, faint rap and about five rapid, faint though clear examples.

The second test only offered several faint raps.

The third and fourth tests were made with our hands on the table. A few raps were taped and one faint, "human," whistling voice which *seemed* to say "No, no, no, no." Still another faint but obvious "human" voiced probably said "No."

(vi) On June 28, 1975, a number of small tests utilizing hand contact with the table were made and though unevidential, still a great number of impressive raps were recorded. However, one trial was made in a darkened room with both Mr. Frank and me sitting about ten feet from the table. In spite of the darkened conditions, I could easily see Mr. Frank and the positions of his hands, etc. He, of course, was able to see that I did not leave my chair. The microphone was placed directly on the surface of the table. The recorder and its wires were across the room by the table. During this test Mr. Frank's tape was used. Four rapid, very clear raps were recorded during the ten-minute recording period.

(vii) On July 5, 1975, with the same Sony Panasonic RQ-2365 recorder, but using my tape, a strictly controlled test was undertaken. No contact was made by Mr. Frank with the various articles used during the experiment. Again, Mr. Frank had equal opportunity to observe my actions. One rap was recorded which was very clear.

(viii) I wished to see if I could produce these raps while sitting alone and made a number of tests for this purpose. During these trials I placed by hands on the surface of the table and as I have mentioned, I possess no vestige of unconscious motions, etc. As stated, I do not claim equal evidential value for these tests due to the presence of my hands on the table top, but nevertheless I consider them of considerable interest. My tape was used. The first test of this order was made during the evening of July 7, 1975 and the first ten-minute recording period yielded at least 25 raps. Loud raps inaudible to the unaided ear were recorded as well as many light but obvious examples, and interestingly all occurred during an interval of 75 seconds. A second ten-minute trial proved perfectly negative. Subsequent tests that evening offered a few raps.

(ix) On July 11, 1975, Mr. Frank and I performed several experiments, two of which I will describe. Mr. Frank wished to fasten two copper wires to the table on which rested the trumpet and microphone and run the wires for some distance to be held by us. He hoped that the "psychic force" might be conveyed along the wires to the table and so produce raps. I complied. We sat about

seven feet from the table in the darkened room but I was at all times able to observe him carefully and adequately. The wires were coiled in several loops before reaching the table and this acted as a safeguard in case they were fraudulently pulled. The end result was that no fraudulent action could have influenced the wires and thereby the table. During this ten-minute test two faint raps were recorded.

Another test was made in strong light and with Mr. Frank's hands placed on mine. I was also able to watch his fingers closely as well as his legs and feet; the recorder, wires, etc., and confirm that fraud was not used. Mr. Frank could in return observe my actions. This trial lasted for ten minutes and my tape was used. A number of typical raps were recorded.

Extract from notes:

One faint but clear rap.  
Multiple faint raps.  
One faint rap.  
One rap.  
One faint rap.

Again, it is indicated that direct contact with the table results in increased activity.

(x) On July 14, 1975, I made a ten-minute test with my tape while sitting alone. My hands were placed on the table and the microphone within the trumpet's mouth was also on the table's surface. The room used was totally dark. The trumpet was bracketed with a case for my glasses and a paperback book. One faint rap was recorded; one light rap and another faint rap were also recorded.

(xi) During the late evening of July 18, 1975, I made a ten-minute test with my tape and a cassette recorder, a General Electric MB-4458, and received after five minutes of taping, one clear definite, light rap which had a "wooden" sound. My hands were resting lightly on the table top and as always I took extreme care to note the slightest suspicion of a finger slipping, etc. Once again, I must affirm the fact that I do not advance any tests made with hand contact for "formal" consideration, but I still admit paranormal action during such personal tests. The room was well lighted and the microphone was taped to the table's surface. I had borrowed Mr. D. Scott Rogo's recorder for the purpose of experimentation, and the reception the rap with this machine shows the independence of the rapping phenomena from the Sony recorder used in previous tests. A second ten-minute recording period offered no results. The use of small and comparatively less powerful recorders such as the General Electric machine was dictated by necessity and not choice. They can best be described as marginal for such experimentation.

#### 4. Conclusion

To conclude, I believe that these tests, simple as they have been in form, have demonstrated the existence of low-amplitude, *acoustical*, tape-recorded raps. I also insist that fraud will not provide a plausible explanation. The results, with certain exceptions, have been limited in quantity but nevertheless paranormal raps have been recorded.

As mentioned, the raps range from faint examples to rapid, multiple taps and loud, obvious raps. They do not occur except when tests are underway, and cannot be attributed to previously recorded tapes produced either deliberately or inadvertently. They do increase drastically in quantity and quality when direct contact is made with the table, but as mentioned, until new experi-

ments are devised, tests incorporating such contact are not included in this paper. Exception is made, however, regarding a number of tests which I made alone to determine if persons other than Mr. Frank can also obtain raps of this type. Many experiments have not been described but the examples offered provide an adequate picture of the results gained.

Due to a most limited budget experimentation has been restricted to simple forms and has been directed primarily at demonstrating the reality of the raps and the absence of fraud, etc. Necessity demanded the use of a small cassette recorder and there were other drawbacks; but in spite of these handicaps, the main objective has been reached, the demonstration that such raps exist!

With the existence of this new phenomenon, low-amplitude, *acoustical*, tape-recorded raps, a new potential field of paranormal activity is open for future investigation. As mentioned, I also find it logical to assume that other "low-amplitude" phenomena will be found including psychokinetic movements, etc.

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August 1, 1975

# Voice-Phenomenon Research

## T.S.P.R. VOICE-PHENOMENON GROUP

Since May 1976 a group of T.S.P.R. members has carried out a variety of experiments concerned with the occurrence of "voices" on tape. The phenomenon itself, often referred to, in certain of the literature, as "electronic communication with the dead" came to our attention after the publication of *Breakthrough* the English translation of the book by Dr. Konstantin Raudive, the Latvian psychologist and philosopher who lived and worked in Sweden and Germany. Dr. Raudive was not a specialist in electronics. However, he recorded some 72,000 of the alleged voices. He invited a number of independent opinions from highly qualified physicists and electronics engineers, who for the most part confirm that sounds resembling voices do occur on the tapes, but do not subscribe to Dr. Raudive's theory that they are voices originating from the dead.

The Toronto group consists of: Adrian Ball, an electronics engineer having considerable experience in radio frequency and audio techniques; Ann Benedek, journalist; Craig Knudsen, a radar technician; and Frank Riley, a loss control management consultant. The group duplicated all experiments referred to in *Breakthrough* and, with the expert assistance of Mr. Ball and Mr. Knudsen, devised improvements on the original Raudive apparatus as and when it seemed desirable to do so.

Four main approaches were used.

(a) *Microphone method.* The microphone is connected to the tape recorder. The tape is run in the presence of witnesses, who are permitted to ask questions or make statements provided that gaps are left for any "voices". When using this method the group inserted a pre-amplifier of the type designed by Theodore Rudolf, an engineer in high frequency techniques who collaborated with Dr. Raudive.

Both the diode and microphone methods were followed with various amounts of loading and amplification up to 70 db.

(b) *Diode method.* This employs a simple circuit resembling an early crystal radio set screened by enclosure in a small metal box which is grounded. A very short aerial (about 3 inches long) protrudes through the screen. Any signal which it receives is rectified by the diode and fed to the tape recorder input.

(c) *Auto-transmission method.* This uses a local oscillator in conjunction with a standard radio receiver.

(d) *Radio method.* (free waveband intra-frequency recording). A radio receiver is coupled to the tape recorder exactly as is done for the recording of a radio program; a blank spot between station frequencies or, preferably, a weak unmodulated carrier is selected.

The group also experimented with a goniometer method, with the pre-amplifier and microphone shielded by quarter inch plate.

Both reel-to-reel and cassette tape recorders were used. The experiments were conducted in a sound-proof recording studio. About three hours was devoted to recording every Monday evening. During listening sessions a junction box was employed connecting all four sets of earphones. An amplifier was used during playback.

From time to time it was found on playback that some rather "voice-like" sounds were on the tape. The group gave priority to ascertaining which of these sounds were "external" to the group and appeared independently on the tape (i.e., were not due to actual sounds produced inadvertently or accidentally by the group through normal means). Some of the sounds seem definitely to be "externally" caused. They will be discussed in a further report which will describe the experiments in more detail, indicating the type of "voices" received, and give the group's interpretation of them.

Toronto Society for Psychical Research

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# Metal-Bending at a Distance

WILLIAM Q. WOLFSON, M.D.

At noon on 15 June 1975, I placed a piece of paper by my bedside with an old key upon it. The paper bore the names of the following highly potent physical mediums: Ted Serios, Uri Geller, Michael (sic) Manning, and Tracy Wolfson.\*

At 3 p.m. that afternoon nothing had happened. I noticed that there was an error and corrected the "Michael" to "Matthew". Everyone went to dinner. Enclosed is the 3 p.m. photo.\*\* At 6 p.m., on returning from dinner, the key was bent as in the other photograph.\*\* This concluded the experiment.

As you know I am sceptical whether the "physical medium" *does* anything directly in psychokinetic events. That is to say does the real cause of such events reside in him or in some other entity? The happening of 15 June suggests the following question:

Who was the physical medium?

Was it Manning?

Was it Tracy, who was around but not directly involved?

Was it I?

Is it possible to tell who the physical medium is?\*\*\*

Will it ever be possible to tell until and unless the logical fallacy *post hoc ergo propter hoc* can be ruled out?

These problems are important ones. After a good deal of discussion Dr. Eisenbud finally conceded that Ted Serios was *never* 100% on target for what would be on the picture. When Tracy does psychic photography she knows 90-100% whether she will get a paranormal photo or not, but not its form or character if paranormal. Also, in Tracy's case she calls the timing and it makes no difference who handles the camera. *Who* therefore (or *what*) is it that actually "calls the tune?" Or, as Jule Eisenbud put it (1967), "Who's in the back of the store?"

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23 June 1975

\*Mrs. Tracy Wolfson, C.S.W.

\*\*Not published, but exhibiting a bend quite comparable with the best work of Geller or Manning. (Ed.)

\*\*\*For example, after students at a Detroit workshop given by A.R.G. Owen and Iris Owen had seen a videotape of Uri Geller in Toronto, several of those present found stainless steel butterknives bending in their hands. Who was the "physical medium"?

# Studies of Paranormal Healing

JOYCE GOODRICH, Ph.D.

*ABSTRACT: Two research studies of the work being done with paranormal healing by those associated with Dr. Lawrence LeShan are described. Both studies employed students of LeShan as healers. In the first study three independent judges were asked to discern synchronous from nonsynchronous distant healing using written descriptions of the healers' and healees' experiences as their data. The healers and healees were unaware that some of the healing was nonsynchronous. In the second study, the effect of variations in the quality and extent of the relationship between healer and healee, preceding and during the healing experience, was studied.*

The two studies described here represent the first of a series of investigations based on the ongoing work of Dr. Lawrence LeShan and his colleagues in research on psychic healing. LeShan's primary concern is, of course, parapsychology as a whole, and paranormal healing represents just one of his areas of interest. Being the most humanistic of the paranormal abilities, healing was chosen as the primary skill to be used in initial tests of a theory which LeShan has been developing to assist in explaining how and why paranormal events occur (LeShan, 1969, 1974).

When persons are functioning "psychically" (e.g. when experiencing clairvoyance, telepathy, precognition, or facilitating paranormal healing) we tend to think and speak of this as "paranormal" activity, because such things are not usually included among the conceptual categories recognized by the prevailing Western contemporary cultures. LeShan postulates that in terms of the true range of human capabilities, "paranormal" behavior is actually normal behavior but occurs when the person is in an altered or "other-than-usual" state of consciousness. He goes on to define an altered state of consciousness as a state of awareness in which one deeply and experientially (beyond cognition) perceives reality as structured differently from the manner in which one usually perceives it to be put together. One's experience of reality is temporarily changed in particular ways, depending on the state concerned. LeShan named the state of consciousness, which he believes is experienced by persons when they are functioning "psychically", the Clairvoyant Reality. Our everyday mode of experiencing reality and structuring it, on the other hand, he named the Sensory Reality.

Within the Clairvoyant Reality time and space function differently from our accustomed expectations of them; the primary importance of anything is its basic universality, its sameness, its oneness with everything else, and information appears to be received in ways other than through our five senses. As one test of the theory LeShan decided to try and teach a paranormal ability within the framework of the theory. He was his own first student and used training exercises drawn from mystical schools of both East and West to ease himself into the appropriate state of consciousness. He then added those activities which he believed the great spontaneous healers experienced as part of the entire process in which they involved themselves when what they did sometimes coincided with positive changes in the healee's organism. After



a time of practising and working to achieve a deepening of the altered state experience and working with people in the manner he felt was common to great natural healers while in that state of consciousness, it appeared that he had been able to teach himself the rudiments of paranormal healing and could occasionally obtain biological results when working in this way. His next students were also people who had never before knowingly had a psychic experience. Now, many of those taught are members of the various helping professions; some are people with research skills, others are from a variety of roles and occupations, all persons with a solid ethical structure and seriousness of purpose. The basic purpose of the project is research and limited numbers of people are trained in depth with the hope that they will contribute to the ongoing attempts to further understand the many aspects of the process involved. Finally, it is hoped that the skill acquired will be used integrally with other ways of working toward the betterment of people medically, psychologically, sociologically, and spiritually. This approach to healing is not conceived of as a substitute for any medical or other currently practised discipline of the healing arts, but rather, as an adjunct to them.

Both of the initial studies were of Type I healing and excluded the use of Type II, the laying-on-of-hands. The first, done as a doctoral dissertation to complete work for a Ph.D. with the Union Graduate School in Ohio, was my own. It is entitled *Psychic Healing — A Pilot Study*. Grounded in nearly four years of "anecdotal" observations (i.e. spontaneous experiences often reported under good conditions but external to a planned laboratory design or experiment) of Type I healings, it had two purposes. The first was to obtain a set of subjective descriptions of the Type I healing experience from both healers and healees. To this end, each person involved (four healers and twelve healees) was asked to describe how he or she felt physically and emotionally just before and after a healing encounter. Most of the healings were done at a distance (eight for each healer-healee pair) but two more were done face-to-face by each pair. Both groups, healers and healees, were also asked to complete an adjective checklist, and the healers were requested to assess the healing experiences in each case on a form prepared specifically for that purpose.

The second purpose of the study was to learn if three independent judges could tell when a distant healing had actually taken place. Of the eight distant healings experienced by each healer-healee pair, four were nonsynchronous (that is, they were not done when the healee expected them, but later the same day). Neither healer nor healee knew of this aspect of the study.

At the end of the data collection period, the healers' and healees' reports were coded to remove indications of chronology and any keys to the kind of healing experience (synchronous or nonsynchronous). Sets of the data were then sent to the judges, each of whom is a specialist and leader in his or her field and each of whom teaches and has the Ph.D. (One was a theologian, another a parapsychologist, and the third a biochemist.) The results of the judges' findings are highly significant statistically.  $P$  equal to 0.005, figured conservatively from their reports, indicates that only five times in a thousand could the judges have selected by chance as accurately as they did, which healings were synchronous and which were not. The material with which they were working was often subtle but they were able, at a better than chance level, to distinguish one kind of experience from the other, using only the subjective descriptions of physical and emotional states provided by healers and healees.

An unexpected pattern was revealed by tabulating the judges' levels of accuracy in relation to the chronology within which the healings had been

done. In each case the first healing was a present one, followed by four distant healings (the first two synchronous, the second two nonsynchronous). Then there was another present healing, followed by two nonsynchronous distant ones, and then two synchronous distant healings. Although the judges did not know where each of the healings fitted into this chronology from the data they received, a clear pattern of ascending accuracy immediately following the present healing is apparent. This is repeated on both of the present-distant sequences.

As the judges were ignorant of the chronology, the improvement in their accuracy as distant healings were done further in time from the present healings could only be due to something in the healer-healee interaction. My own feeling was that the present, face-to-face experience involved more ego function whereas the following distant healings were increasingly representative of an experience which was beyond the interference of ego functions, defenses, performance, expectation and similar distortions of this particular process stemming from our accustomed ways of being and relating.

The full paper is available to be read in the reserve sections of the New York University School of Nursing Library, the American Society of Psychical Research, and the archives of the Parapsychology Foundation, all in New York City. Sets of the raw data are on file at the ASPR and the Parapsychology Foundation.

The unexpected findings in my study led to a second research project, also done as a doctoral dissertation for completion of Ph.D. work at the Union Graduate School. This study is entitled *Research in Psychic Healing: A Multivariate Experiment*. In an attempt to clarify the kinds of relationships between healer and healee during Type I work the researcher, Shirley Winston, Ph.D., formulated the following question: "Is psychic healing based on a personal relationship between healer and healee, or is the healing relationship of a non-personal or transpersonal nature?" She goes on to describe her work in some detail.

"Four conditions of healing were set up, varying according to the amount of interpersonal communication and personal information exchanged between healer and healee. The experiment was designed so that each of sixteen healees was treated by each of four healers and experienced each condition. Each healer treated every healee, using each condition with four healees. Type I healing was done. Healees were required to keep a daily record of changes in their physical and mental conditions, and in their life circumstances. The records were read by four judges who gave numerical ratings according to the strength of evidence that healing actually took place.

"The judges' ratings, made independently, agreed with each other well enough (positive, significant correlations) to be regarded as reliable. They revealed a pattern which holds in most cases, although there are exceptions. The following findings are in terms of the general pattern.

"The best healings [in terms of the judges' assessments of the subjective reports] took place when the healer and healee met face-to-face but did not communicate verbally. The poorest healing took place when healers did not meet the healees, but worked from a photograph and letter. The difference between these conditions was statistically significant. Midway between these two, in terms of effectiveness, were conditions that were almost equal: in one, the healer and healee met, talked, got to know each other; in the other, the healer never met the healee and worked from a lock of the healee's hair, with no identification.

"The healers did not differ very much in effectiveness when their work over

the entire two months of the experiment was taken as a whole, but in any given two week period some healers might be functioning much more successfully than they did at other times. Questioning the healers brought out the information that during the periods when they were doing their best healing, they were experiencing disruption in their lives. Also, the condition in which they did their best healing was the one in which they felt most uncomfortable.

"The greatest response to healing was seen in the mental and emotional area, under all conditions. Physical healing was second, but was especially strong in the face-to-face, no talking condition. Changes in life circumstances (or luck) were least pronounced, but did occur.

"The healers' subjective judgment of the strength of each healing tended to be either very high or very low for their more effective healings; their least successful healings tended to be rated by the healers as mediocre."

A full report of this research is also available in the reference libraries of the Parapsychology Foundation and the American Society for Psychical Research.

It is hoped that these studies will be followed by others which approach the work of the LeShan group from the disciplines of psychology, medicine and some of the other arts and sciences. One of our problems has been the lack of medical assessment of our results in any controlled or structured way. The reason why it appeared that the effects of healing work in the second study were mainly emotional and mental may be due in part, at least, to the fact that none of the judges was medically trained, whereas all three had backgrounds in education, psychology, and parapsychology. This does not undermine the value of the findings but may point in directions for future research.

The importance of psychic healing lies both in its use as an ancillary to the profession of orthodox medicine and, perhaps of far greater importance, in that it indicates the innate capability of human beings to relate to each other in ways not presently used very much in his culture. Paranormal abilities are not reserved for the few inexplicably favored by grace but are potential in the entire human race. The importance of the study of the paranormal lies in the mostly unused capacity of human beings to relate to each other, themselves, and Nature in more fulfilled and fulfilling ways.

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24 March, 1976

# Kirlian Research

DALE SIMMONS, DIP. ENGR. TECH.

Proponents of the phenomenon known as Kirlian photography credit that process with the ability to indicate the occurrence of changes in human physical, emotional or "psychic" states. Current research in the T.S.P.R. has investigated the possibility of establishing a "normal" or standard coronal pattern for an individual or a group. It was felt that if and only if such a standard could be found, then deviations from the norm could be examined.

The Kirlian device employed was designed and constructed by the writer and, although a solid state unit, is similar in principle to the auto-ignition coil discharge type of apparatus. Gross control parameters such as pressure on the film, voltage and frequency settings, barometric pressure, humidity and fingertip moisture were taken into account. Over the course of two months the coronal patterns of 11 individuals were obtained at weekly intervals. In total, 7 standard photographs of each individual were taken.

Using the 77 resulting photographs it was impossible to establish, scientifically, a normal coronal pattern corresponding to a "normal" state of being. No two coronal patterns of any individual were exactly the same and no pattern specific to any individual could be detected. Coronal pattern fluctuations within an individual ranged from very broken to very uniform and from a few points of light to a 5 mm thickness. These fluctuations were not related to any noticeable state changes as assessed by the individuals themselves and effectively destroyed any hope of establishing a norm. The drastic variations mentioned above were seen in individuals within a time period of only a few minutes and for no apparent reason. Similarly no correlation between coronal patterns and personalities could be drawn. Although some may feel that the number of subjects and the number of photographs was too small to produce statistically significant results, the latter of these two is currently under investigation with few conclusive results appearing. In light of this work a very cautious approach to any attempts at interpreting coronal patterns must be taken.

On the positive side, the very great fluctuations found could not be accounted for by the gross control parameters and, as such, present interesting material for further research. Since a high-voltage discharge process, under even the best of conditions, is an extremely complex phenomenon it is small wonder that Kirlian research is plagued by so many technical difficulties, pitfalls and elusive findings.

Toronto Society for Psychical Research

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# An Experiment in Dermo-optical Perception

PETER W. GRIBBLE, B.SC., M.ED.

*ABSTRACT: In an experiment on finger-tip sight 64 subjects were tested. One subject scored high. The significance of this result is discussed.*

## 1. Introduction

"Finger-tip sight" appears first to have been claimed for certain blind Samoans encountered in 1722 by Roggeveen's expedition (Watson, 1974). The faculty was also claimed by the early Mesmerists for some of their subjects. About the same time Margaret McAvoy, who was born at Liverpool, England, in 1800 and became blind in 1816, attracted the attention of medical men because of an alleged ability to distinguish colours by touch (Sitwell, 1933). According to Novomeiskii (1965) the next mention of the phenomenon was by a nineteenth century Russian physician, A.I. Khovrin. He claimed to have a patient who not only could recognize colours by touch but could read ordinary printed and hand written texts in the same way. The first systematic experiments in modern times were carried out by the French novelist Jules Romains in 1920 (see Romains, 1965), who claimed that his subjects could identify colour and read print not only by contact but at a distance! Romains asserted that all the skin had this ability but the hands and feet were the most sensitive. The need to guard against fraud when investigating claimants to "eyeless vision" was pointed out by Dr. J. B. Rhine (1963) when studying a boy, Pat Marquis, who played ping-pong and pool while "securely blindfolded". Dr. Rhine, however, detected him peeking under the blindfold.

In 1950 A. N. Leontyev (see Rosenfeld, 1964) studied the responses of subjects to lights of various colours shone on the palms of their hands but this work met with little attention.

Serious interest in dermo-optical perception dates from 1962 when a Russian physician, I.M. Goldberg, came upon a young woman, Rosa Keeleshova, who, it seemed, could identify colours and read print with her finger-tips. Rosa was subsequently tested by various scientists in the Sverdlovsk region including Dr. A. Novomeiskii (1965), and then at the Biophysics Institute of the Soviet Academy of Sciences. So far as the history of experiments with Rosa can be ascertained, it seems that after a period during which quite eminent scientists certified her ability as genuine she was accused of resorting to trickery at least on occasion. However Larissa Vilenskaya, who worked with her as recently as 1970, says (1975) that Rosa could then unmistakably recognize coloured targets covered with a few layers of white paper while she was only just touching the cover, and also recognize colours and large linear shapes while holding her hand about 10 cm. away.

Since 1963 experiments with many subjects have been performed in the Soviet Union. Some of them, such as those described by Shevalev (1965) and Vilenskaya (1975), are said to have been rigorously controlled. The general tenor of Soviet reports indicates a belief that a high proportion of people (perhaps 60% or more) especially if they are children, can with practice, develop

finger-tip sight (Novomeiskii, 1965; Ostrander and Schroeder, 1970; Vilenskaya, 1975).

Of the many theories of dermo-optical perception that have been put forward we can reject that of tactile discrimination between surfaces of different texture (or in relief) as inapplicable to covered targets. The thermal hypothesis ascribes the ability to slight thermal differences between surfaces of different colours. Novomeiskii argues against this theory by citing the ability of percipients to recognize the colour of light that has been filtered and refracted. A wide range of electromagnetic wavelengths including the visible and the infrared, have been shown to penetrate mammalian skin. This is the basis for the theory that finger-tip sight results from sensitivity to electromagnetic radiation. Two other hypotheses seem to be little more than question-begging verbiage. Novomeiskii's photoreceptor hypothesis ascribes the faculty to "an increase in the sensitivity of the receptor apparatus with a widening of boundaries of perception to include photosensation and differentiation of chromatic colours." The synaesthetic hypothesis postulates a cross modality of the senses whereby sensations in one sense department carry with them sensory impressions belonging to another sense department as in "coloured hearing". This idea might, at first sight, seem to be supported by the fact that some dermo-optical percipients speak of colours as being "rough", "smooth" or "sticky"; however the connection between the fact and the theory is not a logical one but merely paralogical.

Some investigators of eyeless vision, such as Vilenskaya, believe it to be a parapsychological phenomenon — a psychic ability akin to clairvoyance — and consequently do not speculate as to physical mechanisms.

Certain critics such as Gardner (1966) assert that fraud is the most likely explanation of alleged feats of eyeless sight and draw attention to the performances of blindfolded magicians such as Kuda Bux from Kashmir. Indeed professional magicians such as Hay (1972) give hints on how to peek while blindfolded. Of course, this does not dispose of the problem of dermo-optical vision because some of the successful experiments in the U.S.S.R. were performed in total darkness. However the criticism is useful; it emphasizes the necessity to eliminate dependence on the efficiency of the blindfold.

## 2. *The Experiment*

The experiment was carried out in the period January to April 1975.

Volunteer subjects (52 in number) were recruited among Erindale College students and attended singly at the experimental room which was furnished with two chairs and a table on which there was a wooden box about 23 inches wide by 24 inches high by 30 inches long, and had an armhole giving access to its interior. To the armhole was attached a sleeve with an elastic cuff. The box had a sliding tray on the experimenter's side which was the side opposite to the armhole. This was to enable the experimenter to place the target material inside the box, and was operable by the experimenter only. At the subject's end of the sliding tray were two recessed sections, 4½ inches square, where the stimulus colours were placed. Also within the box was a 12" fluorescent light attached to the inside top of the box and which illuminated its interior. The subject was greeted at the door by the experimenter and was ushered in and seated facing the armhole side of the box; he was then told of the nature of the experiment and that he was going to receive some training which would help him in making his judgements.

The subject was then shown the two colours purple and yellow which he

would be tested on. He was told of the sensations which had been reported in the earlier studies, namely that yellow was considered to be smooth and sometimes warm, while purple was rough and sometimes cold. He was shown the method by which he was to attempt to perceive the colours, i.e. by hovering the fingertips approximately one inch over the stimulus material. The subject was told to relax and to concentrate on receiving any subtle sensations which might be felt in his finger-tips. The colour stimuli in this study were covered by  $\frac{1}{4}$  inch acrylic, thus preventing any chance tactile sensations from the colour stimulus and reducing possible temperature effects to a minimum. The subject was told that it was believed that the covering did not affect the ability. A standard perception blindfold was then put on the subject and he was asked to place his hand in the box via the elastic sleeve. He was usually given 16 training periods where he was told the location of each colour, (e.g. "Yellow to the right, purple to the left"). Upon termination of each of the periods the colours were switched with the subject's knowledge so that he would not become accustomed to them being in the same position in the box. During this time the subject was periodically asked if he felt anything. His impressions were taken down if he had anything to say. After the learning period, or when he felt he was capable of making discriminations, the testing commenced. The colours were thrown into a pillow case; the one which was drawn out was put on to the recessed section on the subject's left. This was the randomizing procedure. The subject was then asked to make his discrimination using the procedure outlined above. If he was accurate in making his discrimination in saying which colour was in what section he was told, "Very good, that's correct". If he was wrong he was told, "No, that's incorrect". The actual positions of the colours and the subject's responses were recorded for 40 trials.

Through the intermediacy of friends the co-operation of twelve totally blind persons, of various ages in the range 25 to 65 years, was obtained. These subjects were tested in their homes under less formal conditions. They were asked how they lost their sight and whether and how they had discovered that they could sense colours with their fingertips. As it was felt that blindfolding might impair the subject-experimental relationship, the colour stimuli were merely placed on a table in front of the subjects without any screening. Otherwise the procedure was the same as that followed with the sighted subjects.

### 3. Results

Of the 64 subjects only one (D.C.) scored significantly well at the 5% level. His performance will be discussed later, meanwhile it is noted that 34 subjects scored above chance (more than 20 hits), 19 subjects below chance, and 11 subjects at chance level (20 hits). A two-tailed test of statistical equality of 34 and 19 gives a critical ratio (unit normal deviate) of 1.92 which is almost significant at the 5% level ( $P = 0.05$ ). Thus there is a suggestion (though not a strong one) that some of the subjects have a tendency to score above chance. However, any such tendency is in fact exceedingly slight, because if we compare the total number of hits, 1318, scored in aggregate by the 64 subjects, with 1242, the total number of misses, the critical ratio is only 1.48, which is not at all significant ( $P = 0.13$ ). This unsensational result is not due to some subjects having very high scores which are cancelled out by other subjects low scores. Because, when the separate chi-squares testing the equality of hits and misses obtained by each of the 64 subjects are calculated and added, we obtain chi-squared (64 D.F.) = 39.00. This value is rather small so that there

is, in fact, no evidence of a tendency to score other than as chance, either above or below. In this respect the data are rather strikingly homogeneous as the low chi-squared value indicates. The contingency chi-squared (63 D.F.) is 35.77, which is not significant, a fact already implied by the smallness of the preceding chi-squared. It should be noted that, in fact, the heterogeneity is significantly *low*, i.e. the scores agree with the chance values rather better than would be expected by chance. No explanation for this anomaly suggests itself. The nature of this peculiarity is clearly not such as to furnish support for the hypothesis of dermo-optical perception or ESP.

It is legitimate, however, to ask if the best subject D.C. can be regarded as a high scorer "swamped" by a host of mediocrities. He scored 29 hits out of 40 calls. Had this constituted the whole experiment, the significance level would be less than  $0.00466 = 1/215$ . But the actual significance level is the probability of the best out of 64 subjects scoring as well as or better than D.C. and this is about 20%. Consequently D.C.'s high score does not constitute persuasive evidence that he had dermo-optical perception. On the other hand this faculty (or ESP) cannot be ruled out as a possible explanation of his high score. This is because it might be that high scorers constitute less than 1/64th of the population from which the subjects were drawn. A set of 64 subjects drawn at random would have a probability in excess of 0.35 of having no person with the faculty and a probability less than 0.37 of having exactly one such person. Thus if persons with finger-tip sight exist in the population but only at a low frequency, even a large sample will contain only a few such subjects.

D.C. distinguished himself not only by his high overall score but by the fact that in trials 25 through 30 he called out the colour (correctly) while the experimenter was still removing the stimulus from the pillow case so that it was about a yard away from D.C.'s hand, as well as being quite invisible to D.C. because of both the blindfold and the box. D.C. mentioned that the way he knew the colours was that he "saw them mentally"; only if he was unsure would he attempt dermo-optical perception. Because of his high score D.C. was given a second run two months later. In four successive runs of ten trials each he scored 3, 8, 4 and 8 hits. His total score, 23 hits in 40 trials, though above chance was not significantly so (critical ratio 0.79). For what it is worth his fluctuations in hits per decade accorded with his oscillations in mood between being tense and relaxed D.C.'s overall score, 52 hits out of 80, with critical ratio 2.57, was still significant ( $P = 0.01$ ) if considered in isolation, but clearly without further testing, it cannot be asserted that he possesses a dermo-optical faculty.

No overall difference (either in rate of scoring or in their verbally expressed reactions) was discernable between male and female subjects who participated in approximately equal numbers. Nor in fact were the blind subjects appreciably better on average than the sighted ones. All subjects except one claimed to receive certain sensations from the targets, not always the same as the ones which the experimenter had quoted to them from the literature. But many subjects claimed that the sensations came and went intermittently. The one student who reported no sensations also declared, when asked, that he did not believe in ESP. (All other subjects said *Yes* or *Maybe*. His overall score was slightly above chance.

This study was originally undertaken in the hope of finding a group of subjects capable of dermo-optical perception. Perhaps this requires more training than was given here. The Soviet literature says little concerning the



duration of the training. Methodological descriptions tend to be few and sketchy.

Future research should include controls for telepathy and clairvoyance, as well as comparisons between untrained subjects and those with various degrees of training.

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# Group Interactional Telepathy

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*ABSTRACT: A work-in progress report of a continuing experiment in telepathy with visual targets conducted in a developing group situation.*

Since January 1974 the writer has conducted an experiment in telepathy attempted in a group situation in order to ascertain whether people working as a group can "learn" telepathy or augment any telepathic ability they might have. The group from an early stage has met regularly, three or four times a month, and has consisted of a stable core of the same individuals together with a few persons who attend intermittently.

To avoid the monotony of essentially meaningless targets, it was decided to use visual material involving simple shapes but more complex than, for instance, Zener cards. Pictures from children's alphabet books were used, such as *The Ladybird ABC*. These had the additional advantage of allowing the perception of colour to be attempted. Prior to each meeting an assistant, who subsequently takes no part in the experiment, cuts out five pictures and puts them separately into five opaque envelopes which are sealed and shuffled.

The group as a whole sit together in a comfortable room while a person not participating either as agent or percipient (and called the "timer") takes at random one of the five envelopes and without opening it places it in a table in another room. The timer then returns to the group and calls for a volunteer, who goes to the second room, opens the envelope and looks at the picture. When ready to attempt transmission the volunteer calls out "Ready" and thereafter maintains a scrupulous silence. The timer after a preliminary warning to the group, which enables them to relax and settle down, then allows them three minutes to sit in silence attempting to "receive". During his period the timer sits at a third place removed from both the agent and the percipients. The subjects are asked to write down or sketch their impressions of the target picture.

At the end of three minutes the timer goes to the agent and they both return to the group. Each subject is asked in turn to state his impressions of the target, either quoting his own notes or exhibiting his sketches or formulating them verbally. It should be noted that verbal answers are permitted because sometimes the subject doesn't find it easy to put his impression into words. On other occasions a subject will think it too silly to put on paper. In many cases these verbal answers are correct, but are not scored as "hits" because, as the subjects are told, their notes or drawings have to be completed within the three minutes. The verbal answers however constitute part of the training, affording the subjects additional opportunity to learn to distinguish between true and false impressions. Only after all the group have reported are they shown the target. In the course of an evening each of the five targets is used once and then totally discarded, so that each meeting uses a different set of pictures.

In the earlier meetings the participants were reticent about putting down their answers. This was overcome by inducing a cordial atmosphere in which

the group, now relaxed, developed a good rapport with one another, constituting a kind of "family". The participants also spontaneously developed the habit of putting themselves into a state somewhat like meditation before attempting to receive the pictures, and this seemed to work well. The occasional introduction of strangers tended to break up the family atmosphere; group members were apt to become "uptight" and self-conscious in front of the visitors. Sometimes there was overt friction between the visitors and some of the regular participants and results were poor.

Agents differed considerably in their methods. Some of them said that the picture immediately made an impact on them and they felt they had to "send" it straight away. Others said that unless they attempted forthwith to transmit the image their thoughts would wander. However some agents found that it took time to settle down and fix the picture in their minds. These subjects, unlike the instant senders, who seemed to be sending emotional impressions, would mentally survey the picture, detail by detail, also sometimes tracing it with their fingers. The two different methods of sending seemed to be equally effective as judged by the percipient's scores. Originally solid objects were used but discarded in favour of pictures, because it was learned that the guests would rotate the objects which seemed to result in the transmission at best of confused images only.

Some of the subjects would receive instantly and complained that longer periods produced other thoughts sometimes obscuring their earlier impressions. This seems to be confirmed by the answer sheets which show that the majority of "hits" obtained by these percipients were first impressions. Other subjects required longer periods; up to ten minutes or more. The time allotment of three minutes was therefore arrived at as a kind of average between the extremes.

As stated, nursery pictures were used; sometimes rather abstract and unsensational but sometimes quite dramatic even though simple in form. Only low scores were obtained on extremely simple forms, especially when the subjects were told in advance that the targets would be simple shapes rather like Zener cards. Colours were very important. Pictures with pastel or very light shades were not received well, but strong colours were conducive to good scoring. However good results were obtained with pictures in black and white if they were dramatic ones. In the case of frightening pictures (e.g. spiders, skeletons, killings) the percipients often felt relevant emotions.

In nearly every experiment there would be some spontaneous occurrences not related to the current intended targets. Occasionally there was apparent precognitive reception of pictures later in the set of sealed envelopes. There was also clairvoyance as follows: sometimes there was on the back of the target a second picture which had been hidden from the agent by pasting over with opaque paper, but which some subjects perceived. Frequently there seemed to be telepathy between the percipients, so that messages unrelated to the target seemed to pass without conscious intention among members of the group, often involving four or more people. On one occasion it seemed that some of them received impressions relating to an episode occurring outside of the experiment and of the group. During the attempted transmission of the image of a brown bear, unknown to the experimenter, the agent or the percipients, a passerby had rung the doorbell in order to get help for an elderly man who had collapsed nearby. On telephoning to his home it was ascertained that he was in a state of severe, emotional shock, having attended his brother's funeral. Three percipients reported an insistent impression of "death"; one of them

spoke of a feeling of "claustrophobia" and of being "trapped", and another of "interference here, telephone, and lightning".

In an unmediated experiment, the group members, when in a particularly happy and relaxed mood, spontaneously elected to try to tell each other through telepathy various exciting episodes in their lives. Although this type of experiment does not lend itself to statistical rating, the results were interesting. Some of the subjects picked up entire stories. In addition some complete stories were accurately reconstructed from separate items received by different percipients.

The experimenter hopes to continue this study. Results to date seem to indicate that it will be desirable to record more data concerning emotional and psychological factors as influencing the subjects' performance. Weather and moon phases appear to have little influence. There is however a hint that effectiveness in receiving follows a rhythmic cycle which reaches a peak every five weeks.

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# Hypnotic Time Regression and Reincarnation Memories\*

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*ABSTRACT: A hypnotic age regression study was performed in order to assess whether hypnosis is an appropriate research tool to examine such memories. It was concluded that there are several technical and philosophical issues that need further investigation before hypnotic age regression can be advocated generally for the study of reincarnation.*

*Certain precautions which should be included in the conduct of age regression experiments are outlined and discussed.*

Reincarnation is a theory that states there is a non-material part of us, usually called the Soul, that enters the physical human body at birth with the first breath, and at the death of that body the soul leaves, in what is called "transition," to wait somewhere until it can re-enter (at birth) a new human body. The cycle repeats over and over again. The soul in its cycle of incarnations slowly acquires a personality which is a composite from the many experiences and characters it has while incarnate. Also the soul-personality acquires debts, both good and bad, as a consequence of its actions while incarnate, and these debts accordingly are received or discharged in subsequent experiences or lives; these debts are usually referred to as Karma.

Several eminent thinkers have written about reincarnation (see Head and Cranston, 1968). Other than in this somewhat philosophical type of literature the theory of reincarnation has been little investigated or debated, almost as if it had been deemed unworthy of scientific study or had actually been disproved. Although (even in western culture) the idea is widely known and talked about with numerous anecdotes, only a few scientific studies of the soul or of reincarnation have been attempted (e.g. Reyers, 1970; Stevenson, 1966, 1975). Interestingly, references suggesting reincarnation appear in the New Testament (Rauscher, 1975; Lewis, 1956). For a detailed discussion of the theory, purpose and significance of reincarnation and what is believed to occur between incarnative experiences, the reader may be referred to *Mansions of the Soul* by H. Spencer Lewis (1956).

Hypnosis has probably been practised for thousands of years and has been the subject of research for two hundred years beginning with Franz Anton Mesmer in 1774 and his theory of "magnetic currents." By about 1880 hypnosis became recognized as primarily psychological in nature, largely through the work and experiments of Jean-Martin Charcot and his students. (See Owen, 1971, for a fascinating description of this pioneering research in hypnosis.) The literature of hypnotism is now vast, and hypnosis is accepted as a valid research instrument for studying mental disorders, mental processes and memory. (Excellent anthologies and monographs of hypnosis research and techniques

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include those by Gordon, 1976; Wolberg, 1967; Fromm and Shor, 1972; Moss, 1967; Reiff and Scheerer, 1970.) Exactly what hypnosis is has been vigorously debated for many years. At the present time hypnosis is usually regarded as a phenomenon of unconscious mental functioning involving, amongst other things, the learning of the cognitive skill of increasing one's capacity for control over thinking and memory.

In the last 20 years there has been renewed interest in studying reincarnation memories using hypnotic age regression. This technique involves selecting a suitable subject who is deeply hypnotizable, and then imparting active suggestions for age regression which permit the subject to experience and recount early childhood memories and what are often regarded as memories from past lives. There have been several reports of this sort including Bernstein's study of "Bridey Murphy" (1965), and *The Search for the Girl with the Blue Eyes* (1968), and *The Search for a Soul* (1973) by Jess Stearn. These give long and detailed accounts of hypnotic sessions wherein the subjects were able to recount what purported to be experiences of past lives, and where possible, of subsequent research by the investigators into names and dates. There are numerous shorter accounts of investigations of this kind (Rainville and Rainville, 1973; Chalmes, 1974; Holzer, 1970).

Perhaps the "Bridey Murphy" case served to popularize the subject of hypnosis and reincarnation memories more than any other single instance; that case first appeared in 1954. Yet at no time previously or in the subsequent two decades has the use of hypnosis in studying the reincarnation theory been analyzed. The validity, reliability, advantages and disadvantages of hypnosis as an appropriate research tool in investigating reincarnation have not been examined.

In 1973 the Medical Committee of the Toronto Society for Psychological Research decided to undertake a preliminary study of hypnosis and reincarnation memories in an attempt to answer some of those questions. This paper is an interim report of certain aspects of that study. So as not to unnecessarily burden this report with repetitive qualifying phrases such as hypothesized, supposed, putative, etc., when using words such as reincarnation, incarnation, and past lives, their use will be assumed.

Careful consideration was given in selecting a subject from among many volunteers to undergo hypnotic age regression in an attempt to remember past lives. Very deep trance states can only be achieved by a few people; generally such people tend to be nonconforming, adventurous, creative and have a definite dissociative capacity. Most important is the ability to tolerate confusion and ambiguity. A further requirement was for the subject not to have conscious awareness of any of the results unless the investigators deemed it appropriate or necessary; this required considerable patience and perseverance from the subject as the investigation was planned to last a year (as it did) and resulted in over 100 hours of sessions. About half were hypnotic sessions and were tape-recorded; the other half were analytic control sessions to monitor the subject's personality structure, dreams, feelings and experiences during the study.

A further year of periodic assessment was done to monitor any subsequent change in the subject. Such precautions were in consideration of the possibility of the reincarnation theory being true. For the subject the consequences of the theory being true might be very serious. Were it true, then the subject's psyche would suffer the intrusion of previously unknown memories and experiences coming during hypnosis from the soul-personality. Time would be needed for these intrusive memories and effects to be integrated within the unconscious

memories already present. A rapid influx of past personalities, memories and experiences might impose an excessive stress upon mental mechanism only well adapted for this life's memories.

Indeed after sessions wherein much new information was acquired ostensibly from past lives, the subject's nocturnal dreams for a night or two and sometimes as long as a week later would contain elements of those "new" experiences in such a manner as to suggest a transient imbalance and rearrangement. The dream content was unique to the hypnotic session and the work of the dream was similar to that of a file clerk filing a paper and checking all its associations in order to file it correctly. As post-hypnotic amnesia was operative, there was no need to be concerned more than usual about present life memories, as what was already repressed was left so. This is an ethical consideration. To use hypnosis as a psycho-therapeutic technique in the context of therapy with a patient is quite different to using hypnosis merely as a technique to allow the investigator access to the past experience of a subject. Unless the experimenter is prepared to be also a therapist, these memories should not be made conscious. The same is true for the details of past lives; the mask of amnesia for past incarnations is probably wise on an individual basis and should not be lifted unless there is a specific therapeutic or evolutionary goal to actively so interfere.

Indeed if some doctrines concerning reincarnation are true, there are further reasons for caution; there may be an intricate web of karma relating several persons known in the present life with the subject; for all he knows the hypnotist may be one of them! Now, this poses a problem for the experimenter for in reporting the details of past lives as were recorded during hypnotic sessions, the subject expectedly may read the report. A teacher of Yoga and a mystic expressed it as, "Perhaps the experimenter is too much a meddler in the karma of the subject." If traditional doctrines of reincarnation are, in fact, true then they imply practical and philosophical issues that need further investigation before active and powerful techniques such as hypnotic age regression can be advocated generally for the study of reincarnation.

Another risk is the induction of secondary or multiple characters in the subject with these appendage characters having traits and behaviours similar to those in past lives. This should be a constant concern during any hypnotic regression into past lives; unless the hypnotist is obsessively aware at all times where the subject is in memory, a technical error may result in the subject being brought back to the present with two personalities confused and simultaneously resident. The solution to this difficulty is promptly to take the subject back to a known personality or epoch and then work slowly forwards in time to the present again.

Even if, on the other hand, all reincarnation beliefs are false, it is still desirable to exercise the precautions advocated here. This is in order to avoid possibly deleterious effects resulting from the intrusion of previously forgotten, and therefore perhaps repressed, material into consciousness. As is well known, at least to medical psychologists, it is the reality of this danger that justifies the traditional warnings, issued by Charcot and others, against stage hypnosis or any other frivolous use of hypnosis.

In the hypnotic session and at all other times it is necessary for the investigators not to influence consciously or unconsciously the subject to produce specific material. For example, it is worthless to say to a subject under hypnosis, "Go back to the time of Egypt," or "Did you have an incarnation at the time of the Pharaohs?" Such statements merely open the door to fantasy. These, of course, are strong leads to give, but even the most indirect sugges-

tion, too subtle to be noticed by the investigators, is not without influence and effect on a deeply hypnotized subject. A more useful technique is to say, for example, "Go back in time until you become aware of something and then tell me about it," or a similar phrase appropriate to the subject but without suggesting content.

Related to this is the need for the hypnotist not to become involved in the memories of the subject. In one of the referenced published accounts cited above a subject attacks the hypnotist and accuses him of being a spy for a foreign country: the session has degenerated to pure fantasy and the hypnotist and the subject are no longer objective observers of the memory traces. It indicates either a serious technical mistake by the hypnotist or that the subject was not suitable for such investigation, or both.

As the investigation proceeds, slowly tracing memories back into previous lives, it can be expected that the subject will encounter many unpleasant memories, including those of death. It is not necessary for the subject to be forced to tarry overlong in the vividness of the acute experience. It seems that the perception of the whole experience by the subject is almost immediate. Consequently when such an unpleasant experience is encountered a simple suggestion to go forwards or backwards in time so as to view the experience from a distance will greatly aid the subject; indeed the suggestion can usefully be prearranged.

Perception of past experiences by the subject appears to be very rapid; the current subject, when moving forwards from a time several hundreds of years past to the present, would only take two or three seconds to do so. Yet during those few seconds, her entire millenium of experience would flash clearly before her in chronological order. This is very similar to the reports of persons anticipating imminent death and having their life's experience flash before them.

In addition to the philosophical and technical considerations involved in regressive hypnotic investigations, the experiments raise two further issues.

First, can the reincarnation theory be proved in the context of hypnosis experiments? The mere fact of recounting plausible and coherent sets of memories is not proof; equally good and often more dramatic stories are written for the fiction market interested in reincarnation and karma. Thorough (and expensive) research in verifying names and dates arising out of hypnotic sessions is highly suggestive but not proof, as an equally valid explanation could involve phenomena like telepathy (with living persons who may be aware of the details of the historical incident in question) or clairvoyancy (as to what the researcher will find.) This last point of telepathy has also been discussed by Watson (1975). Foreign languages of which the subject claims no prior knowledge but are first spoken under hypnosis in a past life, are also taken by some as proof of reincarnation; however the incredible photographic and auralgraphic abilities of the unconscious mind should not be overlooked or underestimated. Perhaps the first to describe the later phenomenon was Charcot (reported in Meerloo, 1964) who described the case of a maid servant who in a disassociated state spoke the ancient language of Biblical Aramaic. At first this was considered proof of a former life by some, but Charcot proved that years previously she used to clean and dust the study of a minister who at that time was preparing himself for an examination in Aramaic by reciting aloud.

The second issue is decidedly more speculative at present and involves the consequences of having memories of putative past incarnations accessible in the unconscious. During an analysis of fantasy material or interpretation of dreams this question would be, "Is the content 'infantile' and acquired in the present lifetime or is the content 'screen memories' from past lives?" Not too



infrequently in the current subject a fusion of memories occurred wherein certain present-day acquaintances had associated with them in the subject's unconscious memory qualities that belonged to people the subject had known in past lives. The association may be a result of 'continuous' unconscious (c.f. Jung's collective unconscious). Kelsey believes this second issue is not merely speculative and indicates a possible use in psychotherapy when there is no relevant episode in the patient's memory of this life to adequately explain a particular symptom (Kelsey and Grant, 1972.)

The following is a short summary of the incarnations recorded during the hypnotic sessions with the subject in this investigation. They are in reverse order, starting with the present life:

1. Born September 30, 1932, in Ontario, Canada.
2. 'Martha Paine', born in Maryland, aged 14 in 1822, and died before her 15th birthday. Possibly a distant relative of Thomas Paine of the American Revolution.
3. 'Margaret Campbell', lived near Quebec City, and was 17 in 1707. Was a housekeeper, and later married a fur trapper named Arsenault.
4. 'Sister Augusta Cecilia', spent most of her life in Portugal near the border with Spain as a nun working in an orphanage. Was 34 in 1241. Name was Marguerite before entering the convent.
5. 'Telma', as a young sister of a leader of a tribe in Mongolia under Ghengis Kahn (or Temujin as he was known to her). Age about 16 'summers' when she was killed in a battle.
6. A slave girl (age a few 'seasons') given the name 'Lea', in a temple of Isis at Memphis in Egypt.
7. A short life of a few weeks as a female baby who was thrown off a cliff (for unknown reasons, in a country that cannot be identified).

There are more, but so far there are insufficient details to locate place or persons. Of interest, all were female, similar to Taylor Caldwell's experiences (Stearn, 1973), where all her past lives (as recorded) were female.

In conclusion, there are several difficult technical problems that require careful planning and consideration when using hypnotic age regression to study reincarnation memories. As well, there are philosophical issues that are not adequately resolved. And, there is no reason as yet to suspect that hypnosis will successfully carry the burden of proof of reincarnation. The memories obtained under hypnosis from the current subject are confirmed; their origin is a mystery. Believers in reincarnation will insist that the memories are true and relate to past lives, disbelievers will insist the memories are fantasy. To disbelieve is, of course, not to disprove, and to believe is not to prove. On the one hand "memories" which their recipients refer to past lives are of such frequent occurrence under age-regression hypnosis and in other contexts as to constitute a *prima facie* case for reincarnation. On the other hand the production of such memories, especially in the parlour game type of hypnotism, occurs in so facile a manner as to suggest that the whole thing is too easy and that perhaps "reincarnation memories" derive from a source other than experience of past lives.

It has to be admitted that we have not as yet discovered methods to differentiate the source, if indeed two sources exist. It is important to note that complex abstract creation can be performed entirely in a dissociated state. An example is a book of excellent poetry written by De Silaghi (1975) entirely by automatic handwriting while in a deep trance. It is thus possible that a coherent interwoven story of past lives can be elegantly created while in deep hypnosis.

Unless or until such a possibility can be set aside, the results of age regression hypnosis studies cannot be regarded as unequivocal proofs of reincarnation. Whatever the true explanation of "reincarnation memories" may be, the facility with which, on only slight provocation, the human mind produces these varied and often well integrated narratives, certainly presents a fascinating problem to psychologists.

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# Report on the Toronto Premonitions Bureau

IRIS M. OWEN

*ABSTRACT: The author considers the nature of precognition in the light of five years' experience with the T.S.P.R. Premonitions Bureau.*

The Toronto Society for Psychical Research has been running a Premonitions Bureau for five years, and it would seem an appropriate time to look at the results. We started the Bureau in an attempt to evaluate the premonitions that some people have in regard to future events, and to try and understand whether this ability is confined to certain people, and under what conditions it manifests. For some time a Premonitions Bureau has been in operation in New York, run by Robert Nelson of the *New York Times*. A similar organization was set up in Britain a few years ago following the Aberfan disaster in which more than one hundred school children were killed when a coal tip turned into liquid mud during severe rain, and slid down a mountainside engulfing a school. It was discovered afterwards that many people had had premonitions or warning dreams of one sort or another which indicated that particular event.

When we started the Toronto Society for Psychical Research a number of people came to us expressing the hope that we could help them to deal with the fact that from time to time they were aware of disasters that were about to happen to immediate family or friends. Sometimes these took the form of premonitory dreams, sometimes they were only apparent as momentary flashes of knowledge. The people who experienced these things were apt to say that they only experienced foreknowledge of disasters — usually deaths. Some of these personal experiences related to us appeared so striking that they could not be explained in any other way than that the person concerned was having a glimpse of the future. So we decided to set up a Premonitions Bureau and collect all the information we could in order to arrive at some understanding of the phenomenon.

The Bureau has been operating as follows. We ask anyone who has had a premonitory experience of any kind to send us details of this as soon after the experience as possible. Information received is kept confidential; regular contributors are allotted a number, and the details are subsequently checked. We have encouraged personal information rather than that of a general nature, although we have received a great deal of information of this latter kind. If information is of a general nature we ask that it be as detailed as possible, especially in regard to dates or locations. For instance, earthquakes, tornadoes, air crashes, droughts, train wrecks and many other forms of disaster happen much more frequently than most people perhaps realize, and to foretell these happenings without being able to give some idea of place or time, even although it may well be a true prediction, does not greatly assist us in our search for information. As much could be said by someone who reads the newspapers regularly. By the same token, predictions of a political or social nature, unless very specific, are of little value in understanding the nature of precognition, even when they are accurate. In point of fact, we have found that the majority of predictions are no more accurate than might be made by a well-read member

of the general public without any psychic help. A great many of the professional psychics issue so many predictions that some of them are certain to come true, and these are the ones that are remembered and make the headlines. The others are conveniently forgotten. But these are not the predictions that we are interested in; these are not going to help us understand the phenomenon.

During this past five years we have had a few interesting predictions that have been very specific, very personal, and that have indeed happened as it was stated they would. Some others have been presented in such a way that the meaning became obvious only after the event had taken place, even though it was clearly a prediction of future events. The best example of this was the prediction that we published in our very first Journal (Zmenak, 1972). Briefly the circumstances were these — the person who had the dream begged her husband not to go out that night. She had had a dream in which the police called her and said her husband would not be home for a while. Somebody had been killed, and she had a mental picture of a body without legs. She did not know what the dream meant; she did not think that it was her husband who would die, but felt that as a consequence of his going out someone would be killed. He took no notice and went out. On the way home his car failed electrically and came to a standstill; he walked to a telephone to ask his wife to pick him up. A police car stopped to ask what he was doing, and as he was explaining, another car drew up on the other side of the road, and the driver, who was lost, crossed over to ask his way. The police gave him directions, and as this driver went back to get into his car he walked into the path of another car and was killed instantly. His legs were doubled up underneath him, they looked as if they were cut off. The police telephoned Mrs. Zmenak, the lady who had had the dream, and told her that indeed her husband would not be returning home yet because a man had been killed and her husband was needed to make a statement as a witness. This is a very typical premonitory dream. Enough detail is given for the dreamer to understand the message and recognize that it is a glimpse of future events, but not sufficient detail to enable action to be taken to alter those events.

Perhaps at this juncture one should make some definitions. We often have reported to us dreams that a person has had *at the precise moment* a particular event has occurred — perhaps many miles away. Many dreams of this type were reported during the last war, and we have them told to us from time to time. A typical example would be that a mother, or wife, would dream that her loved one had been killed or injured, and in her dream she would perhaps receive some sort of message from him. On awakening she would be convinced the event had occurred and that indeed her husband or son was dead. When subsequently the news is brought that he had been killed or injured exactly as in the dream, the dream has been regarded as a premonitory one. On investigation these dreams usually prove to have been experienced at the exact moment of the event occurring. We believe therefore that at the moment of crisis mental telepathy has occurred between the person in crisis and the dreamer. As is well known in such situations the form of the person undergoing the crisis often appears to friends or relatives that are not asleep but fully conscious. We call this phenomenon "crisis telepathy" and refer to the appearance of the person as a "crisis apparition". This is a strange and wonderful thing, but there is an explanation, and it does not alter our philosophical concepts because the event is actually happening at the time that the dreamer sees it. However it is important to recognize this type of experience and make a very clear distinction between crisis experiences, or experiences due

to telepathy, and those experiences which relate to *future* events not yet experienced, and which cannot *rationally* be expected to occur.

This latter type of event is the one which we are especially interested in when researching into premonitions. It is a much more rare occurrence than crisis telepathy, and it bears no relation to this. If an event has yet to occur, then nobody living can have 'sent out' so to speak, the thought waves for someone to pick up. Where does the knowledge originate? And what does this do to our philosophical concepts of free will? If the future is mapped out for any one individual, or in relation to any particular episode, is it completely mapped out for all of us? And if so, do we then have any choices in life? Can we alter the future, or must we go blindly along a path already laid down for us? For many people it is a frightening and depressing thought that we might have no choice in our own future; to some it can be a consolation. It is therefore most important that any evidence which seems to point towards this philosophy must be examined very carefully, very critically, and very painstakingly. While, in some ways, it could be considered fun to know what is going to happen in a certain situation in the immediate future (especially events of the gypsy-fortune-telling variety) *if it is in fact true* that the future can be foretold, then this is a very important fact indeed, and holds enormous implications for all of us. It is difficult to believe that the future only exists, *if it does*, in scraps, or bits and pieces. Events are caused by what has gone before, decisions are made in the light of experience. What I am saying is, that if an event is predicted to happen, say, next week, then the chain of events leading up to that particular happening is also in "existence" so to speak, in the future, even if the person making the prediction is not aware of them. It would be totally illogical to assume that only isolated bits of the future are determined. It has to be an "all or nothing" thing. This was very clearly demonstrated in the dream which Carol Zmenak had; "If you go out tonight a man will be killed, and the police will come to the door and tell me". She could not foresee the chain of events *leading* to the accident, but they had to be as much in existence in the future as the actual accident. As I said previously this is a frightening concept, and needs very careful examination indeed before we accept it as truth.

We have been working in the field of research into parapsychology for some twenty years, and have made a serious effort in the last five years to collect premonitions. However during all the time we have been interested in this field we have collected a great number of accounts of people's unusual experiences, poltergeist happenings, ghost experiences, telepathy, crisis apparitions, and a few premonitions. Statistically, in a field where most of these experiences are rare by normal standards, premonitions are the most rare. Here I am talking about real premonitions, not the rationalized political or social events of the day, not the event that has been related after the dream and then 'twisted' to fit the events, but the real specific piece of information that could not be foreseen, that could not be expected, and for which there is no obvious accounting. The number of premonitions of that nature which we have received during the past twenty years could probably be counted on the fingers of both hands, probably of one. I am specifying a single, specific event, unusual and unexpected, related and recorded before the event occurred, and then subsequently the prophecy becoming fulfilled in such a way that there was no doubt that this was the event to which it was related.

I would like to explain somewhat further. The British Premonitions Bureau, as mentioned previously, was set up following the Aberfan disaster. The stories that were printed in the British Press after the event concerning people who

had premonitions of the disaster were extremely striking. These stimulated the interest of the Science Correspondent of the *Evening Standard*, the Psycho-physical Research Unit at Oxford, and Dr. J. C. Barker. Following widespread newspaper appeals for persons having foreknowledge of that event, some 60 came forward, and confirmation that the percipient's experience had been told to someone else was forthcoming in 24 cases. By far the majority of these were dream experiences, and most of these were in the period of time just before the disaster. This is one of the best documented and well publicised reports of "mass premonitions" to study (Barker, 1967). It will not, of course, solve the problem.

Some points however can be looked at. Following the disaster, and during the time that the members of the public were asking questions as to just how such an event can occur out of the blue, various articles were published in the newspapers commenting on the fact that there had been concern about many of these colliery tips in Wales, that they were prone to 'move' and that in fact specific concern had been voiced about the one above Aberfan during the previous few years. (For the information of those readers not familiar with the term, a colliery 'tip' in Wales is a mountain of shale, rubble, dirt, etc., that is what is left when the coal has been brought up from underground and washed and extracted.) It has been the practice of colliery owners since the last century to allow all this rubbish to accumulate as a mountain or "tip" at the colliery head. It will not grow vegetation and remains a black ugly blot on the landscape. But it is also unstable — heavy rain can turn it into a mass of liquid mud, and it can slide (precisely what happened at Aberfan). The period before the disaster had been an exceptionally wet one, and on the days immediately preceding the slip it had rained solidly and heavily. Certainly within the immediate area, and probably in many other mining areas such as Scotland and Yorkshire, there must have been some subconscious anxiety in the minds of people aware of the possibility of danger. The rain was heaviest in that part of Wales, and it is possible that local people unconsciously noticed physical signs which increased their underlying anxiety, and which could have pointed out the possibility of disaster. Were the dreams of those people who thought they had experienced premonitions of the event *in actual fact* a telepathic reception of the subconscious anxiety of those people who were suffering from this underlying anxiety? Of course we shall never know, but I think in an assessment of whether premonitions exist or not we have to examine very carefully every possible explanation. Certainly the phenomenon of telepathy in dreams exists. We have over the years had numerous demonstrations of this. Telepathy in this circumstance between people who know each other is very common; we once had a group within the Toronto Society for Psychical Research who trained themselves in this way, and on occasion five or six members would experience the same dream, and record it separately in their various homes, and it would be demonstrably the same. Many people with "psychic" ability and telepathic ability remark that they are aware of the thoughts of strangers, and feel that often in their dreams the experiences do not belong to them, but they "are picking up someone else's dreams". This is a phrase that has often been used to me. This seems to me a more plausible explanation of some of these kinds of experience that I am discussing than that they are in fact glimpses of the future.

Some people explain premonitions as the "tapping of the pool of the unconscious" or ascribe the information to the spirits of the dead. The source of the information does not concern me in this philosophical argument. *Wherever* the information comes from, *if it is true information* then we have

to radically alter our codes of philosophy. We have to accept that we do not have any choice in our own future; we have no free will; it is all laid down and unalterable. Therefore, before we can begin to accept this radical change, I repeat, we must make absolutely sure that it is true, that there is no other explanation. In spite of the few very convincing cases that we have had reported to us, I am reluctant to believe, as yet, that there is a future mapped out already for each and everyone of us. We all dream, continuously and every night. We often do not remember our dreams until something jogs our memory during the day. It has been said that if you gave enough monkeys sufficient typewriters, sooner or later over a few thousand years, one of them would reproduce the works of Shakespeare! Could the few striking premonitions I have collected be of that order of statistical significance? I leave the question open, and I shall continue to collect people's dreams and premonitions in the hope that one day I shall understand the subject more.

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Toronto Society for Psychical Research

February 10, 1976

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# EDITORIAL

After seven years of the New Horizons Research Foundation, and in the eighth issue of its Journal, which is now happily receiving a considerable measure of international recognition (see NEWS AND VIEWS) it is pleasant and appropriate to print as a keynote paper the article *Human Typology and the Autonomy of Mind* by the Founder and chief patron of the New Horizons Research Foundation, its President, Donald C. Webster, who provided the principal and original inspiration for the aims of the institute and is a prime architect of its philosophy.

Mr. Webster's paper is a welcome corrective to the simplistic descriptions of Man and his behaviour, whether private, economic, or political, that have been handed down to us in their original naivety from the eighteenth and nineteenth centuries. The many strands that Mr. Webster has drawn together in an illuminating way fall, as he says, into two principal areas. One is the autonomy and efficacy of mind—the ability of the mind to affect other minds and to operate on matter *via* what are as yet, hidden channels. Exploration of this aspect of reality is perhaps the form of research for which the Foundation and its Journal have become best known internationally, but it is not the only one to which the Foundation attaches importance, or to which it devotes effort.

No one who wishes to understand our world (let alone *improve* it) whether from an economic, political, or social point of view, may safely (as our ancestors were apt to do) ignore the fact that people differ from one another in their modes of perceiving, thinking and doing. Once this has been noted, it is easy to acknowledge its truth and practical relevance to all fields of human activity, unless one is unfortunate enough to be constrained in one's thinking by a totalitarian or a behaviourist brand of philosophy. To uncover precise causes of human variations—genetic, congenital, environmental, cultural or educational—is, of course, no easy task. However, although governmental, industrial, and university laboratories, well endowed with scientific personnel and finance, are engaged in this quest, there is always room for the small institute or voluntary worker to make a discovery, and the reader will find, even in this single issue of *New Horizons*, several papers (Whitton, Gribble, Simmons), which seek to analyze various cyclic or anomalous factors in human life.

As we have chosen this to be a moment appropriate for historical evaluation, it may not be out of place to say that, back in 1970 at the inception of the New Horizons Foundation, the ideas on human variation and typology outlined in Mr. Webster's paper played an important and ultimately decisive role in designing the strategy adopted by the Foundation's Directors in order to solve the rather difficult problem of how a small institute could produce results sufficient to make an impact on the modern world.

The solution, which now seems to be showing itself to be a sound one, consisted in what would appear to be a new organizational form—a symbiotic relationship between an institute (the New Horizons Foundation proper), and an entirely voluntary association, the Toronto Society for Psychical Research. In this way people with different types of creativity can be brought together for cooperative and complementary thought and action, as described by Donald Webster.

A very interesting outcome has been the remarkable stamina and cohesion and inventiveness of some of the self-selected research teams. For example,

the present paper "Philip's Fourth Year" registers the fact that the Philip research is now one of the longest experiments ever performed (in any branch of science) with something like 200 sessions, each of two hours duration, which makes one wish that there was a word stronger than "repeatable", once considered the ultimate goal for parapsychological methodology. Another example of patience rewarded is Frank Riley's paper on "electronic voices". It is important to stress, as Mr. Riley does, that the recorded "voices" did *not* occur spontaneously "out of the blue" but in a methodologically immaculate situation set up to test one precise hypothesis—namely that the Philip group, if they set their minds to it, could produce an "electronic voice" phenomenon. The background to the experiments reported (themselves fifteen sessions and 30 hours!) is several years of work, not only by the Philip group, but by Mr. Riley, the "Lilith" group, and its successor, the Voice-Phenomenon Research Group. It is a pleasure to publish simultaneously another paper on psychokinetic production of taped sound, including some voices, by our respected friend Raymond Bayless of Los Angeles, one of the earliest pioneers of the electronic voice phenomenon, whose work is, in our view, characterized by its care, patience, and experimental insight.

The papers mentioned are exciting because they point to the existence of powers of the human mind. However, like Nehemiah of old, we believe it is as much our duty to tear down as to build up. We think therefore that Ruth Flynn's paper, which on the basis of *actual experiment* negatives the new claim as to the growth-promoting power of pyramids, is important as any other in our Journal. It should be noted that the peddlers of pyramids have the custom that whenever any of their claims disproved experimentally they invent new ones—when they lose a round, they change the rules of the game! It should be noted also that an award at the Ontario Science Fair, open to all the schools of a Province of eight million, is not lightly given. Competitors have to survive eliminating rounds; at the Final they are each quizzed for 30 to 60 minutes by five professional scientists as to the scientific method they have applied. The award is based on the soundness of their *methods*, not on the particular results obtained. Would that every "pyramidologist" and hawker of amulets might be subject to a like examination!

Besides "Pyramidology" there is currently another form of pseudo-scientific commercialism which consists in the marketing of biorhythm charts and calculators and treatises on their use. As will be seen from Dr. Whitton's review of the literature it is clear that most of the claims are rather fanciful and are based on practically no serious investigation. To remedy this we undertook our own research. Though only a pilot experiment it was somewhat laborious but worthwhile in that it shows that some people have *no* detectable rhythms, while the considerable proportion who *do* show rhythms have different and almost individual cyclicities.

It is pleasing to have an antiquarian paper once again. On balance, it seems to the editor that Professor Archbold's diagrams represent an entirely new type of literary cryptogram, perhaps motivated by the extraordinary reverence shown in the ancient world to the closely intertwined subjects of mathematics, geometry and star-worship, as his next paper will indicate.

Three papers have been held over for lack of space: "The Problem of UFO Reports" by Iris M. Owen, "Can Humans Detect Weak Magnetic Fields?" by Joel L. Whitton and Stephen A. Cook, and "Xenoglossia and Xenography: a Case Study" by Joel L. Whitton. Photo copies will however be supplied post free on receipt of a payment of one dollar per paper.

# NEWS AND VIEWS

## *Award to New Horizons Editor*

In the course of its General Assembly in the Hall of the University of Berne on 22 February 1977, the Swiss Association for Parapsychology (President Dr. T. Locher) resolved to award to Professor A. R. G. Owen, the First Prize 1977, amounting to 1500 francs, in honour of his research on hauntings, his investigation of the phenomena of Matthew Manning, his authorship of the book *Hysteria, Hypnosis and Healing*,<sup>1</sup> and his editorship of the journal, *New Horizons*. This award was made on the recommendation of an international jury of five members.

In 1963 Dr. Owen received the Treatise Award of the Parapsychology Foundation on the recommendation of an international panel (also of five members).

In 1965 he received the William McDougall Award for Distinguished Work in Parapsychology in recognition of "an outstanding publication in parapsychological research", his book, *Can We Explain the Poltergeist?*,<sup>2</sup> on the recommendation of the staff of the Parapsychology Laboratory at Duke University.

Dr. Owen was formerly a member of the Council of the Society for Psychical Research, President of the Cambridge University Society for Psychical Research, and Secretary of the Perrott-Warrick Committee for Psychical Research, Trinity College, Cambridge, England.

## *Views*

Under CANADA, in "Reports from other Countries" the commentator (George Zorab) in the Journal of the Society for Psychical Research (Vol. 49, No. 771, March 1977), taking as his point of departure the paper "Paramorphic Table Rappings: Acoustic Analysis" by Dr. Joel J. Whitton (the present Chairman of Research, formerly Chairman of the Executive Council, T.S.P.R.) said:

It must be admitted that the Toronto Society for Psychical Research . . . is at the moment in various ways in the forefront of modern parapsychological investigation, especially in its use of old-time techniques combined with the most modern registering apparatus. This combination has brought about a number of very important discoveries in our field. The latest one is the establishment of the "paramorphic" nature of raps, distinguishing the authentic, paranormal rappings, so characteristic of last century's spiritualistic period, from fraudulently produced normal ones.

Mr. Zorab then discussed various aspects of paramorphic raps and "Philip" type phenomena.

<sup>1</sup> Garrett Publications, New York, and Dobson, London, 1971.

<sup>2</sup> Garrett Publications, New York, 1964.

## Research by Professor J. B. Hasted

The Directors of the New Horizons Research Foundation are pleased to announce the award of a grant to Professor John B. Hasted, M.A., D.Phil. (Oxon), Head of the Department of Physics, Birkbeck College, University of London, England, for expenses to be incurred during the present year in a program of research on metal-bending by British and European subjects. Professor Hasted writes:

A program of regular observations of the metal-bending phenomena produced by about a dozen subjects has been undertaken; most of the sessions take place in the homes of the subjects, to which portable equipment is carried. It has proved possible to observe strain pulses at gauges embedded in metal specimens not being touched by the subjects. These observations give clues as to the distribution of the bending forces, and also as to their spectrum in the time domain. Attention is also being paid to the paramorphic aspects of the phenomenon—softening of the metal and structural changes.

Although most of the subjects are children, whose ability may only be temporary, there are emerging in Britain a small number of young adults who are motivated to develop by conscious application any talents they may possess. The experiments designed for the children are being offered to these subjects also. For completeness of phenomenological description spontaneously occurring phenomena such as ostensible P.K., teleportation, electric fields, luminosities, and any subjective experiences of the persons concerned, will be logged. As a rule such happenings, because they do not represent the specific hypotheses under test (which relate to metal-bending), will be placed in the record for their heuristic value to future research.

Professor Hasted is a scientist of exceptional distinction having published 140 papers in physics, chemistry, geophysics and biochemistry. He has recently turned his attention to phenomena of the Geller type and has published the following papers:

1. (with Bohm, Bastin and O'Regan) 1975. Experiments on Psychokinetic Phenomena, *Nature*, Vol. 254, April 10, also in *The Geller Papers*, 1976 (ed. C. Panati) Houghton Mifflin, Boston.
2. 1976. My Geller Notebooks, in *The Geller Papers*.
3. 1976. An Experimental Study of the Validity of Metal-Bending Phenomena, *J.S.P.R.* Vol. 48, No. 770, December, 365-383.

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*Note re the paper Human Typology, pages 5-10 this Journal.*

With regard to the equinoctial precession, curiously  $25,920 = 72 \times 360$ . The factor 72 is near to the traditional estimate of the human lifespan as "three score years and ten." The factor 360 enumerates the degrees in a complete circle as introduced by the Babylonians. It may derive from the fact noted by Gerald Hawkins in *Beyond Stonehenge* that 720, i.e. twice 360, diameters of the rising or setting sun fit into the complete circumference of the horizon.

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# Human Typology and the Autonomy of Mind

DONALD C. WEBSTER

There are two developments in the world, which, although not really new, have become the object of a recent resurgence of interest. These two ideas weigh heavily on the side of determinism in the age old conundrum of free will versus determinism as the guiding force in human affairs. They both imply that we are less free totally to control our own lives than modern educators and psychologists would have us believe.

One area is the whole field of human typology, that is, the possibility that individuals may be actually born with a predisposition to a particular character and personality slot. The other area is the growing mood that mind and brain may indeed be separate entities; that the mind may be able to interact with other minds; that it may be able to provide a navigational fix on the future and that it may be able to dominate and materially affect animate and inanimate matter. To do this, it may shift in some unknown way into another dimension which appears to exist side by side with the one directly perceived by our senses in which we feel we exist.

Typology, as an assessment or category of human nature, has had a long history, and it is difficult not to pick up a book or newspaper without finding allusions to it. Collective typologies are well known. In politics there are Whigs and Tories, left and right; even nations seem to have broad typological labels: Germany (teutonic), Britain (reasonable), France (intellectual), Japan (ritualistic), Italy (emotional). Aldous Huxley's final novel, *Island*, deals in an amusing way with two contrasting societies exemplifying the two main sides of human nature. In Florence during the time of the Medici, there were three clearly defined groups. The Bigi (Greys) who were stolid Medici establishment people, the Arrabiata (Crazies) the Terrorist interlopers backed by the Duke of Milan, and the Piagoni (Whiners) the followers of the messianic Savonarola. The German military men recognized different types of people and invented the use of line and staff classifications to utilize the different types more effectively. They then proceeded to set up a "General Staff" unheard of before in military affairs, which allowed them to run rampant over their neighbours three times in three generations. Subsequently, this use of line and staff has been copied by most large business organizations.

Different types of people display different attitudes, and in our world of institutions and organizations such institutions are directed by differing kinds of authority, moral authority, sapiential authority, charismatic authority, persuasive authority (charm), and structural authority (that is, the man who has actually been placed in charge whether by election, appointment or birth) come into play, depending on the nature of the man. These varieties of authority were first explored in T. T. Paterson's book *Management Theory*, published ten years ago. It was one of the few books dealing with business education which really looked at the organization from the human point of view. Complementary types work best in a management group, and often the strong outward-going sales oriented manager or president will choose an introverted meticulous man for his Number Two. Thus the strange and



often unsettling cycle in organizations when the top man retires and his Number Two, an entirely different personality type, takes over.

The viewpoint of the "behaviourists" in psychology is generally considered to be waning. In an indirect way this enhances the concept of typology. Arthur Koestler has catalogued behaviourism as one of the "four pillars of unwisdom". The interpretation of man as an automaton, malleable by environment, mentally unable to overrule his external programming, is losing its lustre. Like Freud's followers the behaviourists have taken a valid but small aspect of Man and enlarged it to such an extent that Man's real and complex nature has been eclipsed by these two simplistic schools of thought. As the tide of behaviourism ebbs, hitherto little known books on the important role of instinct are being taken seriously. One example is *A Stroll Through the Worlds of Animals and Men* by Jakob Von Uexkull. Also, books by well-known authors such as Konrad Lorenz, Robert Ardrey and Nicholas Tinbergen are being reprinted and reread.

There have been some unusual attempts at trying to fathom the basis of typology by relating it to astrology and to heredity. Plato in his *New Republic* mentions that conception at different phases of the moon creates different categories such as soldiers, statesmen and sophists. Michael Gauquelin in his book *The Scientific Basis of Astrology* tells how he collected the details on births (time and place) and careers of 25,000 people in Europe. He found that executives, soldiers and athletes were somewhat more likely to be born at the rise or zenith of Mars than at other times. The birth of actors, journalists, playwrights or ministers tended, however, to be associated with the rising of Jupiter. But writers, politicians and prime-ministers were more likely to be born at Moonrise. The births of scientists and doctors were favoured by the rise of Saturn and also by the rise or zenith of Mars but were not related to Jupiter or the Moon. Dr. Jonas of Czechoslovakia in his career as a writer and practising gynaecologist has been able to relate the sex of the child to the phase of the moon at conception.

In *The Lonely Crowd* David Reisman's "inner directed" and "other directed" men probably sprung from Carl Jung's typology of extrovert and introvert. However, Jung went considerably further when, mandala-like, he subdivided Man into four general, not mutually exclusive, categories. His emotional, sensation, intuitive, and thinking classification has led to some exciting work by Humphry Osmond collaborating with John Osmundsen and Jerome Agel in a book *Understanding Understanding* published in 1974. In this book Osmond begins by talking about people having different worlds or different modes of perception and how perception is changed by drugs, madness, hypnosis as well as elation, fear and many other moods. Two people who hear or see exactly the same thing often cannot agree afterwards. Osmond believes that he and his associates were the first to adopt Van Uexkull's idea of the "umwelt" to psychiatry. That is, the proposition that the self-worlds or experiential worlds (umwelts) of most creatures are different. Utilizing Jung's four basic types, Osmond has gone further and clearly defined 16 separate types. Only a limited number of these 16 sets of characteristics seem to be allocated to any one person at birth. There is always room for self-improvement and development of the non-dominant characteristic, but in times of crises or need, the early traits come to the fore and maintain their primary function. The basic types are: thinking, sensation, intuition and feeling which in turn are made up into eight: thinking/sensation, sensation/thinking, thinking/intuition, intuition/thinking, feeling/sensation, sensation/

feeling and feeling/intuition, intuition/feeling. When these eight are subdivided into extrovert or introvert, 16 categories result.

The supposition is also expressed that perhaps we humans can be divided into time zones just as we are distinct in spatial terms (tall, short, fat) and have varying spatial needs (Latins like talking nose to nose, while Northerners need an interval of a foot or more). The feeling man would have his roots in the past, sees the present in terms of the past, values human emotions and is usually a collector of anything from old match boxes to Impressionistic art. The sensation man, standing firmly astride the present, is hyperacute, a marvellous manipulator of men, a good administrator but doesn't really know where he came from or where he is going. The intuitive is frozen in the future, forgets his raincoat in airports, seems usually to be aloof or detached, but has a sound feel for the shape of things to come; his hunches are more often right than wrong. The thinking man is not a victim of any one time zone and having only a slight appreciation of any zone is forced to use logic and rational arguments to maintain his place in the world.

If we begin to think of people as being different and with labels of thinking/sensation, thinking/intuition, feeling/sensation and feeling/intuition and so on, then it becomes easier to enter into each other's "umwelt" and understand the other point of view. Perhaps, cadres of 4 to 8 to 16 people could be set up which would function in a non-overlapping way where all points of view could be brought to bear on a set of problems.

It doesn't seem too far fetched to believe that we are born with broadly forged psychological characteristics (with room for free will) just as we have brown or blue eyes and red, brown, black, white or yellow skin.

Knowing oneself is no doubt something that man has yet to accomplish in any degree, but knowing one's neighbour would usher in an era of harmony from which the world might never recover!

The other gradual movement to a more harmonious behaviour of man could come about with better exercising of the powers of the mind. Even a one level quantum jump in understanding the mind could provoke a blossoming of interdependence hitherto only seen in the world for short-term periods and usually on a geographically limited basis.

Very little is actually known about the mind. Scientists and medically aware thinkers have been pointing this out for a long time. However, evidence is appearing suggesting that (a) mind and brain are two distinct entities, (b) mind may be able to dominate matter or at least relegate matter to its rightful place, as shown by modern physics, of impermanence, (c) mind may even have preceded brain in the evolution of the species. If this is so, then Darwinian evolution as a comprehensive theory would have to be moved aside in the same manner as Newtonian mechanics has been moved aside to make room for a more all-encompassing theory.

Dr. Wilder Penfield, the great Montreal neurosurgeon, in his book *The Mystery of the Mind* published in 1975, examines the activity of the brain as gleaned from his several thousand neurosurgical operations. In particular, he examines his last 1132 patients and analyzes the results of his operations which were carried out with the patient fully conscious and able to comment on what he saw, heard and felt. Penfield concludes that mind and brain are most probably separate and that all his medical evidence leads to such a remarkable conclusion. While the brain is the hardware, the mind is the software or even the programmer! He feels, as Hippocrates said, "The brain is messenger to consciousness", or in fact that the brain connects the body to

the mind. He cautions that the final answer must await the resolution of the question of the type of energy which causes the mind to function. Although it is not yet detected, he challenges, "But the mind has energy. The form of that energy is different from that of the neuronal potentials that travel the axone pathways". That is, not an energy which we can at this time comprehend or measure.

Penfield suggests that during one's lifetime, while the three billion brain cells slowly wink out and the body gradually becomes brittle, loses resilience and decays, the mind on the other hand seems to expand. Possibly this phenomenon has even led Penfield to write this book where his ideas have taken a radically new turn. Ten years ago, Penfield believed in a mechanistic view of the mind/brain and even refused to consider or examine hypnosis, LSD effects and other altered states of consciousness.

It would be interesting to examine the efforts of artists, poets and writers in their later years. They may well have something in common if in fact the mind does continue to expand and more strongly influence the brain. The paintings of Turner's late period were, at the time, said to be unfinished and blurred, and now they are considered mystical. Shakespeare's last work, *The Tempest*, is rife with omens, precognition, and a wide variety of occult happenings. Balzac alluded more and more to astral travel, ectoplasm, psychometry and telepathy in his later novels, and Melville's *Pierre*, his second to last book, portrays the symbiosis of insanity and mysticism.

For thousands of years, what are known as "the martial arts" have made use of unexplained mental capacities to achieve their ends, and mind over matter is a natural course of events. Aikido combines the practice of psychokinesis to disarm or destroy opponents; Karate endows parts of the body with protective force fields for striking; and Chinese boxing allows the practitioner to transmit resonance to the third brick in a pile, so that it breaks while the upper two remain whole. Training in the martial arts includes meditation, study of the occult, long periods of concentration so that unusual or seldom visible aspects of the mind are brought into use.

The reappearance of interest in psychic phenomena, brought about by masses of people experimenting with altered states of consciousness (ASC), by the eruption of dozens of young men and boys who can bend metal objects at will in the fashion of Uri Geller, and by the prevailing state of disarray of the world of physics, demonstrates an awareness of the importance of the mind function and a willingness to grapple with it. "Noetics" is the new name for the study of mind sciences. Arthur Koestler's *Ghost in the Machine* is now being taken seriously. There are so many methods to achieve ASC, that an interested person can usually either find a practitioner close at hand and choose a method which is suitable to him. In the West, it was LSD and related hallucinogens that started everything off but now a vast compendium is available. Biofeedback of alpha and theta brain waves, sitting and swinging in a modern version of a witch's cradle. Yoga, martial arts, mantras and meditation, sensory deprivation, stroboscopic lights and the Sufi dances of the whirling dervishes are some of the more formidable.

The most unexpected turn of events is the appearance of such people as Uri Geller in New York, Matthew Manning in the U.K. and Jean-Paul Girard in Paris, who can bend and structurally affect metals, and move objects about in the presence of experienced and reliable witnesses. Professor John Hasted, Head of the Department of Physics at Birkbeck College in London University, has been carefully experimenting with a handful of young English

schoolboys and schoolgirls, who can, to a lesser extent, do the same things. Three years of work have shown that the forces act in an extraordinary way. There appears to be a sort of invisible arm travelling about the room, and providing stress pulses to whatever it encounters, often two or three instruments at the same time. With some children, the arm acts as though it was rotating, twisting wires together and sometimes forming a metal strip into a twist or a helix.

Hasted believes that the forces are likely to be explained by an interaction of the unconscious mind with the way in which quantum theory, the cornerstone of physics, is formulated to account for the properties of the metal (but plastics can also be bent!) There is even a formulation in terms of "simultaneous universes", each occupying an identical portion of Hilbert space, and each differing slightly from the others, and without mutual physical interaction. The unconscious mind passes from one to the next, and the metal bends in a series of tiny jerks.

Other physicists, who have observed metal bending and related occurrences, have been active in propounding explanations. Professor David Bohm has proposed that all matter is a form of thought. This has its roots in Werner Heisenberg's idea that the observer by simply observing plays a strong role in the experiment. Professor Brian Josephson, F.R.S., the Nobel Laureate in Physics from Cambridge, has been fascinated by Carlos Casteneda's writings on Don Juan and has leaned on them in his examination of the problem. Casteneda writes about his apprenticeship with the Mexican sorcerer, Don Juan, during which time appearances and material reality became separate. Don Juan implied that there were separate simultaneous existences which is what Josephson feels is scientifically credible. In a paper given in Toronto, he stated that it was quite possible that mind could dominate matter and in fact mind may even have preceded matter in the world as we know it. The "exclusion principle" enunciated by the quantum physicist Wolfgang Pauli states that only one electron can occupy a single orbit about the nucleus of an atom at the same time. This mathematical symmetry implies a sense of order in the very small, just as the 25,920 year cycle of the heavens suggests a recurrent pattern in the very large. If mind is an independent faculty of man and if it can alter matter, then it can quite possibly be in touch with the very small and the very large. In this way, it could be part of an overall pattern so complex that freedom of action would be exercisable but amongst a rather loose weave of interacting patterns, cycles and immutable laws.

The interest that Carl Jung had in such a loose weave of inter-connections was so great that he devoted a book and many articles to his novel principle of "synchronicity". In his foreword to the Richard Wilhelm version of the *I Ching* he held forth against causality and in favour of influence of mind over matter and vice-versa: ". . . a curious principle that I have termed synchronicity, a concept that formulates a point of view diametrically opposed to that of causality. Since the latter is merely a working hypothesis of how events evolve one out of another whereas synchronicity takes the coincidence of events in space and time as meaning something more than mere chance. namely, a peculiar interdependence of objective events among themselves as well as with the subjective (psychic) states of the observer or observers".

In early 1977 Francis Crick (the well-known Nobel prize winner for his work on the structure of the DNA) along with three scientific associates Brenner, Klug and Piczenick published a startling idea in the journal *Origin of Life*. They suggested that the process of natural selection as defined by

Darwin takes place at the molecular level long before organisms develop and begin reacting to their environment. Such an idea would have to be explained by a theory of evolution of the mind or mind-energy field, which not only was directing the physical evolution of the species, but anticipating this evolution in advance of the need, even according to a certain plan. Furthermore, these DNA sequences in an organism resist outside efforts to recode them suggesting a set prearranged blueprint of evolution.

Luck and chance are defined in Webster's dictionary (1975) as "events happening by mere chance not as the result of effort or merit". Nevertheless, such events may be not as random as one would think. Napoleon always proclaimed he would rather have lucky generals than good generals. The continued success of some wildcat oil drillers in Texas defies reasonable cause and effect. If synchronicity is invoked, then luck may come to an individual who is extraordinarily sensitive to both the seen and unseen world about him. In the days when mind/brain was considered only a productive appendage of Man, stewing up a cauldron of new ideas and new juxtapositions, Aldous Huxley always had the healthy doubt that perhaps mind/brain was really transmissive; that it really acted not as a chemical factory but rather as a radio set. Andre Malraux came to the same conclusion that mind/brain was to a degree transmissive in *The Voices of Silence*, his exhaustive comparison of the repeated similarities of artistic works throughout the Ages.

Superstitions of the past may constitute the science of the future; perhaps today this process is being speeded up, and we are entering a new stage of advancement of knowledge. This advancement is prodded by the realization that the intellect utilizing cause and effect is not the only method which can push back the haze of unknowing. Stuart Holroyd's latest book *Psi and Consciousness Explosion* talks about the new dimensions to be emphasized and quotes a study by Stanford Research Institute in which scientists and scholars together suggest the climate of the future: "an emphasis on cooperation over competition, ecological interdependence over exploitation, psychological-spiritual growth over material acquisition and an integration of intuitive knowledge processes with more rational modes". It is these intuitive knowledge processes, stirred up by examination of the inner self, that may result in a major jump in understanding.

If, in the years to come, evidence keeps accumulating that mind is in fact separate from the brain and emits a peculiar field of influence over solid matter, then the idea that mind preceded matter and is supreme as an arbiter of this terrestrial species known as Man, will come more into focus. It will allow all thinkers to again advance towards the frontiers of knowledge on a broader front. Science and intellect will be moved off the centre of the stage and will become the backdrop instead of the essence of a new modern form of alchemy interacting with consciousness. Western medicine will undergo a transformation akin to the practice in China today where the ancient medicines of moxibustion, herbs and acupuncture exist side by side with X-rays, drugs and surgery. Paranormal healing, psychic surgery, prayer and colour therapy might all be part of the medical curriculum for new doctors.

It is quite possible that in the future, the world and matter will become less finite and will form a part of consciousness. It may be that Salvador Dali was correct when, in answer to a question about the future of the world, he said, "il sera mou et poilu". Also it may be necessary to invert Jean Jacques Rousseau's famous tenet and say instead, "Man is in chains but everywhere is deluded into thinking he is free."

# “Philip’s” Fourth Year

IRIS M. OWEN

*ABSTRACT: The most recent developments in the “Philip” type research are described.*

The first report of the ‘Philip’ experiment appeared in *New Horizons*, Vol. 1, No. 3 (January 1974). It was the preliminary report on what has turned out to be a long and complicated experiment, which is still ongoing. The experiment started in September 1972, but results were not obtained until the summer of 1973, when raps and table movements were obtained for the first time. The members of the group have shown remarkable tenacity and dedication, for in the course of four and a half years they have rarely missed meeting one Thursday evening for the purpose of the experiment. The group still consists of the original eight people who first invented ‘Philip’.

In our last report (*New Horizons*, Vol. 2, No. 2., June 1976), we told of the visit to the Physics Department at Kent State University, and the experiments done there with Professor Wilbur Franklin. We also reported that we were able to produce other ‘personalities’ than Philip, and that the raps produced by the different personalities varied in ‘character’; they were distinguishable from each other. Perhaps a good method of bringing our readers up-to-date would be to quote from the notes which are carefully made after each meeting.

On June 11th, 1976, I wrote, “Proceedings were recorded. Visitors from Waterloo-Wellington group who are attempting to reproduce experiment. These people joined the Philip group, (only five of Philip group present). We started with knocks in the card table, and later transferred to the metal sheet. Attempted to teach Philip to increase volume of raps on demand, saying ‘louder’ and then ‘louder still’ as the volume of noise increased. We had many good loud raps both in the table and metal. Waterloo-Wellington people all asked questions and obtained responses under their own hands”.

On July 8th, 1976, the report reads, “A visitor from Massachusetts — Ben Green — a lively and interesting visitor. Three members of Philip group were away on holiday. Robin Owen joined the group, as did the visitor. As well as Philip we recorded Charles II, who gave rolling raps for laughs, and beat time to the singing.”

On July 22nd we had two visitors from Cincinnati, and Dr. Whitton was present. On this night much table movement and good definitive raps.

On September 23rd I recorded, “We had an ‘open evening’ for various visitors and new members of the SPR. Some 15 visitors were present altogether, and at times all had an opportunity to join the group and receive raps under their own hands in answer to their questions. On this occasion for the first time Philip beat out a whole tune by himself, unaccompanied by the group.”

In October Professor and Mrs. Josephson from Cambridge, England, joined the group, as did also Dr. Osis from New York, and Alex Tanous. By now Philip would perform a tune by himself on request.

In November the group agreed to do a television performance for the

Larry Solway show. This was at the request of the publishers of the book, *Conjuring up Philip*. Generally speaking the group do not like to take part in television shows, and will only consent to do so if a purpose is to be served, if the programme is educational, or if they wish to obtain a visual recording for themselves. This show lent itself to these purposes, a videotape was made of Philip playing his own tunes, and the program was properly and fairly presented. The host, Larry Solway, was a well informed person and, although sceptical, was fairminded. Incidentally we felt that he was nervous about the show. We did not meet him prior to being on camera, and were kept waiting some little time beforehand; this had the effect of irritating the members of the group who had given up valuable time for this event. As it turned out, the performance that 'Philip' put on was superb, including the beating out of the special tune. Larry Solway was obviously very startled, when he was asked to come and say "Hello" and, on doing so, a very loud rap was heard and felt under his hand. His sudden conversion from a previous scepticism, was very obvious. A footnote to the show was that, as the group were preparing to leave, Larry Solway emerged from his dressing room, where he had gone to change, saying, with some surprise and dismay, that he was covered with a rash, which indeed he was! He said that he had never had rashes or skin trouble, and he seemed quite disturbed about it. We wondered if his tension beforehand followed by the dramatic encounter with a paranormal physical phenomenon had precipitated this reaction.

About that time it was suggested that the Philip group take part in the experiments that were being done by other members of the TSPR on the 'Raudive Voice' effect. The group conducting this experiment, though they had been very regular and attentive to the research, had had little success so far, and were at this time trying out experiments with different people present. They wondered if the presence of the Philip group might produce results, or if 'Philip' could be persuaded to 'speak' on tape instead of rapping on the table. It seemed an interesting experiment and the group agreed to try. On this occasion the visitors were two members of the Raudive experimental group. Frank Riley, and Craig Knudsen, also Dr. Whitton. Mr. Charles Winter (a writer for the CBC educational programmes, who was collecting material for a program on parapsychology) and for part of the evening Mr. Willi Scharnholz, who had come with an introduction from Dr. Jule Eisenbud. Mr. Scharnholz had a reputation for being a psychic photographer, and was a friend of Ted Serios. He also claimed that, on occasion, he had himself produced the 'Raudive voice' effect, having heard the voice of his daughter, who was then in Germany appear on a tape. Microphones were hung above the table, and attached to the overhead pipes.

The Philip group entered the room, and sat around the table. A glass ashtray was on the table, and Sid removed this, remarking that 'Philip' does not like ashtrays on his table. He leaned over and placed it on the floor behind Sue's chair. All the visitors were on the other side of the table, Dr. Whitton putting on earphones to monitor the recording, and Mr. Riley and Mr. Knudsen fixing up the tape-recorder. Charles Winter was arranging his own tape recorder, and Mr. Scharnholz had joined the group at the table, sitting opposite to Sue. Just as the group started to 'speak' to Philip, this ashtray suddenly fell, from a point apparently in mid-air and landed immediately behind Frank Riley, just hitting the corner of his chair as it landed. It tangled in the wires from which the microphones were hanging and brought them down from the pipes. It was not observed leaving the floor as nobody

happened to be looking in that direction, but Dr. Whiltton saw it actually falling, as it crossed his immediate line of vision. The noise of the fall was heard by everyone, of course, and recorded. Certainly nobody picked it up and threw it, the room was fully lighted, Sue or Sidney would have had to turn around and lean down to pick it up, and this they certainly did not do, as the hands of everyone in the group were on the table. The visitors were at the opposite end of the room.

Subsequently, when the taped recordings of that evening were monitored it did indeed seem that there was a possibility that the group had captured the Raudive Voice phenomenon. Whispers were heard in response to questions put to Philip, especially questions put by Iris, who frequently acts as the main questioner. The whispers appeared to come in place of raps, although at times they coincided with raps. Mostly they were very brief, consisting of one or two words only, and mostly were not easily understood. However, a few of them were more distinct, on one occasion when Iris responded to a question by Charles Winter the whisper said clearly, "You'd be surprised". The content of the whispers appeared to be similar to the content of 'Philip's' replies. Naturally the group were pleased at what appeared to be a positive result but they also realised that this could only be regarded as a pilot experiment, and that a lot of discipline would need to be imposed on the group before it could be regarded as a reliable finding. For further details of this experiment and later results see the accompanying paper by Frank Riley and Dr. Joel Whitton.

Philip also continued during this period to play and beat time to various tunes, and his repertoire was increased considerably. Also, during February many of the answers came from metal objects in the room, and on one occasion a large number of 'pings' were made in a tin tray which had been rested on the overhead pipes. Pings also came from the metal edging of the table and from under the seats of the sitters' metal chairs.

In March 1977 the group had a very interesting and fun evening. A number of researchers from Montreal had been attempting to reproduce the Philip experiment with a very good degree of success. Three different groups had been formed, two in a high school, and one in a college. Some members of each of these groups decided to visit Toronto and the Philip group, and eight people arrived altogether. The characters invented by the members of these groups had histories as colourful as that of Philip himself. The first one, invented by the school team, had been allowed to lapse, so to speak. "He" was an ancestor they had invented for their teacher. They had replaced him by "Sebastian", an alchemist in the Middle Ages, who had discovered how to turn base metal into gold. Unfortunately he had met with an untimely end before he was able to write down his secret, and so now he was attempting to return and reveal the knowledge. The other character, named Axel, was a man from the future, who had discovered the secret of a wonderful cure for illness, but had been killed in an accident on his way to impart the news to his fiancée, and was now returning to this period of time to reveal the secret. Needless to say, Axel is French, as are our Montreal friends, and Axel responded to French songs and jokes. Until that evening Axel, although causing vibrations and movements in the table, had not answered questions by means of definitive raps. When the Philip and Axel groups joined together round the table both Philip and Axel responded to questions, each to their own members, and each in response to questions in their own language. Axel learned to tap out response to French tunes, as did Philip. One of the French



members knew several languages and Axel gave the correct response to questions put in Russian, Greek, and Roumanian, as well as in French. When the French students returned to Montreal they continued to get raps under their hands individually in response to questions, just as does the Philip group. The whole of that evening's proceedings were videotaped and tape-recorded. After using the table for some time the two groups (Philip and Axel) moved to using the metal sheet; very good 'pings' were obtained in response to questions and comments. It was very interesting that the 'personalities' of the two characters were so distinct to the two groups, each one immediately recognising which character, Philip or Axel, was answering. One of the most interesting aspects of this experiment is the fact that in some inexplicable way each personality seems to have his own characteristic way of rapping and answering questions.

On another occasion in March, with a young visitor, Philip demonstrated his ability to count — counting off the required number when requested to do so by this visitor.

The above, together with the paper (Riley, this Journal) concerning the Raudive Voice section of the research is a brief report on the actual experiment as it stands to date. In some ways we have learnt more from what we have done, but the main question still remains unanswered. We have not yet been able to ascertain how the raps occur in a physical sense; we have acquired more skill in controlling them, we can play tunes, count ahead, produce remote raps in the metal and furniture around, but we still do not understand how it is done. At Christmas time Mr. Colin Brookes-Smith generously sent us a piece of apparatus to try out, which may hopefully take us a step further, and we are currently studying this and beginning to use it, and maybe in the next report we will have something to tell about this.

The experiment has aroused great interest in the parapsychological world, we have had many enquiries, and many visitors. (More than 40 visitors from abroad have had an opportunity during this last year to see for themselves at first hand, as well as many local friends). At least five books\* published on parapsychological subjects during the last year have each devoted some pages to the Philip research, and many other groups have attempted the experiment. Some of them with great success. As well as the groups from Montreal and Waterloo-Wellington already mentioned, a telephone call from a friend in Sarnia (who takes a class in parapsychology at a Community College there) revealed that a group that she had started was also getting results. However, she complained to me, "Our raps are not very good, we get a lot of table movements, and we can dim the lights on request, but the raps are not always very loud", and she asked to come and visit us and share an evening with Philip.

Unfortunately, as we have said previously, without understanding of the physical nature of the raps it is difficult to sustain interest in the research. Enjoyable as the experiment is for a while, it is frustrating not to be able to

\*M. H. Brown, *P.K.*, Steinerbooks, N.Y.

William R. Corliss, *Strange Minds*, Science Book Project, Glen Arm, Md. 21057.

D. Greenburg, *Something's There*, Doubleday, N.Y.

L. LeShan, *Alternate Realities*, Evans, N.Y.C.

J. Mishlove, *The Roots of Consciousness*, Random House, N.Y.C.

L. Watson, *Gifts of Unknown Things*, Hodder and Staughton, London.

Also an extended review by Frank Spedding, in the *Journal of the Society for Physical Research*, March 1977, Vol. 49, No. 771, 460-464, London, U.K.

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take it further. It does seem that it is not difficult to produce the raps, we clearly understand and have proved that there is no 'spirit' behind the communications, the messages are from the group subconscious, but it is the physical force that we need to know more about.

Toronto Society for Physical Research

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# Production of "Electronic Voices" by a Group Practised in Psychokinesis

FRANK J. RILEY

*ABSTRACT: The author describes a continuing experiment which has been explicitly designed to test the specific hypothesis that a group already practised in the production of audible actual acoustic sounds by psychokinesis can also intentionally produce "electronic voices" recorded on audiotape.*

*At each of a series of fifteen sittings, including one in a soundproofed electrically shielded room, a variety of sounds were recorded ranging from raps to spoken words, even though precautions were taken to obviate unrecorded inadvertent speech by the group. This is regarded merely as a pilot experiment, because it has not yet been ascertained whether the phenomenon is paranormal or instead is due to obscure but normal causes. Research continues.*

## 1. Introduction

The "electronic voice" phenomenon was noted by Attila von Szalay in 1956 and first announced by Bayless in 1959. Later in 1959 Jurgenson announced his own (apparently independent) discovery of tape-recorded sounds (see Bayless, 1976; Smith 1977) which he called "electronic voices". Subsequently they have often been referred to as "Jurgenson voices" or "Raudive voices" in reference to the two best-known of the very large number of investigators who have researched the phenomenon. Several theories have been advanced as to the nature of these sounds, and may be listed as follows:

- (a) normal causes, such as selection with wishful thinking directed to stray pickup and random "electronic" noise; radio pickup in unshielded conditions; acoustic pickup due to lack of soundproofing; unnoticed inadvertent speaking or whispering by persons present;
- (b) paranormal communications from the dead;
- (c) psychokinesis by persons present.

It is fair to say that the majority of writers who have considered the problem subscribe either to (a) or to (b). Only a few have suggested (c) as a serious possibility. In respect of (c) the term *psychokinesis* is used in a broad and non-committal sense as comprehending any of a number of abstract possibilities such as the production of actual acoustic sounds of low amplitude audible to the tape-recorder but not to the ears (see Bayless, 1976, and this Journal), direct electrical effects on the taperecorder, electronic circuits, and direct magnetic effects on the tape.

Several members of the T.S.P.R. were sufficiently stimulated by the controversy surrounding the "voices" (see Ellis, 1974) to commence their own research in May 1974. The first phase of their work was reported in 1976 (T.S.P.R. Voice-Phenomenon Group), when the group described the protocol and technical aspects of the recording and playback. All the methods previously reported in the "electronic-voice" literature were tried in a sound-proofed recording studio, "A". The results were quantitatively meagre in the

sense that in a total of some 200 hours experimentation only an extremely small number of voice-like sounds were found on the tapes at playback that were inexplicable in terms of actual noises produced inadvertently by the experimenters during their (essentially silent) sittings. However the residuum of unexplained "voices" provided a challenge which the writer and his T.S.P.R. colleagues felt should be faced up to.

## 2. *Choice of a Hypothesis for Experimental Test*

After discussion amongst ourselves and with the Research Committee of the T.S.P.R. it was decided as a consciously adopted policy to concentrate on examining one particular source for electronic voices, namely, (c) psychokinesis.

It should be said in parenthesis that in October 1976, as a partial test of the specific hypothesis that a person of "mediumistic" abilities, i.e. a "psychic sensitive," was necessary and adequate as a catalyst or intermediary for production of voices, an experiment was specially performed with a sensitive "X" who has various paranormal talents, and who was visiting the T.S.P.R.. The Voice-Phenomenon Group and "X" and Dr. Joel Whitton had a one-hour sitting in a soundproofed and electrically shielded room "B" (to be described later). As a control, the taperecorder was kept running for two further hours in the empty and totally isolated room. Both tapes were completely blank on replay. As it is well known that the particular spectrum of attributes possessed by any individual psychic sensitive is highly individual, indeed "idiosyncratic" in the biological sense of that term, we do not clam any particular implication for this result. However it is worth recording for two reasons; the complete nullity of outcome in physically immaculate conditions provided a good control for the experiments subsequently carried out and which constitute the principal subject of this report; secondly, psychic sensitivity, however developed and authenticated, is not *per se* adequate for the production of "electronic voices". Indeed this finding so far from being a disappointing one, is instead methodologically useful in the present context, because, as the reader will perceive in the sequel, it provided an exceptionally firm control for the experiments that followed.

It was decided, as a result of the discussions that have been mentioned, to work with the "Philip" group (see Owen, this Journal) because of their, now proven, psychokinetic ability as a group. To be quite explicit, the hypothesis under test was that some electronic voices that manifest themselves on tape are psychokinetically induced. Equally we could say that the hypothesis to be tested was that a group of living persons can also by conscious intention produce electronic tape-recorded voices. (Clearly, while this is a test of theory (c) — psychokinetic production of electronic voices by a group — it would not automatically negate (a), the possibility of honest error, or (b) the possibility of the action of disembodied minds as opposed to embodied minds, as being perhaps correct explanations for electronic voices in other contexts).

The hypothesis under test was clearly defined and understood to be as follows: that the "Philip" group could by conscious intention produce "electronic voices" on the tape either instead of, or in addition to, the acoustical raps which hitherto had represented "Philip's" replies to questions.

## 3. *The Experiments*

Although rather full discussions had taken place in the fall of 1976, owing to various adventitious circumstances the first experiment of the series was

not conducted until 20 January 1977. At the time of writing fifteen sessions have been held. The tape-recorder "T" (the gift of a generous patron) was used throughout. It is a Philips Hi-Fi Stereo N.4450. Reels of 26.5 diameter were used, mostly at the speed of 4.75 cm, though speeds of 9.5 and 19 cm were used occasionally. For simplicity only the open microphone method was employed. The sessions, which were almost all held in the room at the New Horizons Foundation where the Philip group regularly meet, were conducted as normal Philip sessions, often with the now (almost customary) visitors. The only new feature was that the group agreed to attempt so far as possible to replace or supplement acoustic raps on the table by voices on the tape. In order that any such voices should not be overlaid by normal recordings they were asked to pause in their conversation after each statement or question that was put to "Philip". The first session of 20 January, interestingly enough, was relatively meagre in normal "Philip" acoustic raps. The group, who seemed to have forgotten the original injunction, dispersed in a comparatively subdued and dispirited mood. However, on 24 January the writer, assisted by Professor A. R. G. Owen, and Mrs. Iris Owen, listened to the taping of the 20th. We were most interested to find that in about twenty places there were additional sounds on the tape, some of them resembling actual words spoken by human voices. It is worth remarking that during the previous three years numerous recordings on various tape-recorders, including "T", had been made of Philip group sessions without a single obtrusive sound being recorded additional to the acoustic noises observed by those present during the actual sessions — a fact which would seem to provide another useful control.

In the event, on playback every one of the fifteen sessions produced taped voices or voice-like sounds (unaccounted for, as we shall see, by actual acoustic happenings contemporaneously noted during the sessions). The "voices" ranged from faint unintelligible whispers through loud intelligible whispers and faintly spoken words or phrases to loud and distinct enunciations. In the interpretation of this result considerable weight has to be given to the fact that about 46% of the recorded "voices" respond directly by meaning and immediately in time to a statement or question put to "Philip" by a member or members of the group.

Admittedly, some of the recorded voices, such as sighs and moans were puzzling. However, all the voices seem to be in English, the mother tongue of every person present. Also pickup from television, radio and citizen and other communication bands can be ruled out because (a) they are recognizable by their semantic content and subject matter, also by the normality of speed, rhythm and accent, (b) the fact, already noted in the last paragraph, that the voice phenomenon usually appears immediately following on the final word of a Philip group question or statement, and (c) that such voice recordings have a characteristic rhythm different from recorded actual acoustic voices of Philip group members.

The self-imposed group discipline was good in respect of minimising incidental sounds such as those resulting from "fidgiting" or inadvertent movements, collision with table legs, coughing, etc., etc. Any breach of this regime is usually recognised immediately and recorded. It is worth remarking that, in the process of registering the events of a session, continuous monitoring was done by earphones was done by the writer, and very often by Dr. Joel Whitton, Chairman of the Research Committee of the T.S.P.R. After some practice in monitoring it was noted that sometimes a faint "noise" occurs

during the Philip group's voluntarily imposed silence or pause after a statement or question. The location of this "noise" is noted on the revolution counter. Upon playback, an intelligible word or sentence is heard. In the writer's view this is suggestive of causal relation between the occurrence of a consensus inspired thought in the Philip group and the manifestation of that thought on the tape, albeit in a (usually) somewhat incomplete form.

We cannot at this stage assess whether it is significant that, as appears to be the case, 52% of the "voices" occur immediately subsequent to the asking a question of "Philip" by a particular member "Y" of the group. Other group members record lesser percentages of voice response, but in the absence of a complete statistical analysis of the tapes, it is not yet clear whether or not the "voice" response is proportional to the amount of vocal participation of the group member speaking before the pause. Of course it should be said that recognition of the words, though unambiguous in a high proportion of cases, remains an element in some degree subjective. It is hoped that this problem will be diminished as a result of further practising by the group.

#### 4. Results

The following is a sample of the "voices".

The preceding statement or question by a group member is printed in *Italic*. The tape recorded "voice" is printed in capital letters. This is exemplified in specimen I.

1. Group Member: *Come on Philip!*  
"Voice" DON'T WASTE THESE.
2. *Did it go bom-bom or da-da?*  
HE'S NOT LIKE THAT.
3. *You'd be surprised!*  
THE HELL WITH THE PLACE.
4. *Are the curtains moving?*  
NO: NO: YAH.
5. *Was that you Philip?*  
NO (Note: Table response was: two knocks signifying NO!).
6. *Never.*  
NO
7. *I don't suppose that the Mississippi river was even named when the (Philip) was around.*  
NO.
8. *Philip, do you feel lonely since we left you?*  
NO.
9. *. . . the sign on the road when you're going by it.*  
SEVENTEEN.
10. *Concentrate on saying Hello to Joel.*  
I CAN'T.
11. (Said by the writer at the beginning of a session)  
*The group will pause between questions.*  
AND PLAY
12. *Philip, why don't you scratch on the table?*  
WHY?

On some occasions a "voice" has been found on the tape which seems

to have some logical connection or similarity with a group member's remark spoken shortly afterwards as if the "voice" is in response to an unspoken thought. (This bears a slight resemblance to "Philip's" habit of sometimes giving "his" reply in acoustic raps before the group have finished speaking their question.) Thus

13. A loud babylike "voice": BUT WHY?

Three seconds later a group member said: Why?

The above constitutes only a small selection of the "voices" found on playback, which average something like fifteen per session. Specimens 1, 2, 9, 10 and 12 have been listened to only by the writer, and the interpretation is his alone, but that of the others is agreed by several listeners.

From the beginning the writer and Dr. Whitton, while monitoring the recording through earphones, also carefully watched the group from a distance of only five or six feet in full light for any indication of low amplitude comments by group members, such as lip movements. No such indications have been seen at any time. Not has anything corresponding to a "voice" been heard.

On 7 April 1977 the experiment was carried out in a special room "B" — an IAC, quadruply shielded electromagnetically with powerlines isolated and the ballasts from the fluorescent lights externalised. It is in the interior of a large modern building of steel and concrete construction in the University of Toronto and is suspended on springs to make it vibration-proof. In addition it is extremely thoroughly sound-proofed because its normal use is for acoustical experiments.

Only the group and the writer and Dr. Whitton were present in the room, which is very small, so that direct observation of vocalisations by the group members was facilitated. The observers in fact noted nothing in addition to the conventional type of Philip group conversation which, on playback, seemed normal enough. But a number of "voices" were found on playback.

In addition a special experiment was conducted as follows. The group were asked to choose a word unknown to the observers and to think about it for two minutes in total silence. This was done; the observers can both confirm that silence was absolute within the limits of human perception; nor were there any lip movements. The group told neither the observers, nor anyone else, the word they had chosen until two weeks later. Soon after the session the writer discovered on playback that during the two-minute interval a "voice" had been recorded on the tape. It was a faint whisper in a sing-song type of rhythm. The writer had no clue of any kind as to what the group had chosen to think of. His identification of the words, after many auditions, was BERNIES HAT. Only after he had formally minuted this was he told that the actual word which was thought about was BANANAS. The writer feels that it is remarkable (a) that there should be a "voice" on the tape at that point, (b) that the "target" and the "voice" should have so close a resemblance.

### 5. *General Comments*

Our future experimental research will include the application of the following techniques and provisions:

- (i) increased physical control of the group,
- (ii) use of soundproofed screened rooms,
- (iii) determination of the best type speed for clarity,
- (iv) simultaneous use of two tape-recorders,
- (v) use of tape-recorders without microphones,

- (vi) use of a diode on one channel and an open microphone on another,
- (vii) further experiments with group concentration on target words,
- (viii) analysis by voice prints.

The writer regards the experiments described only as pilot ones. He does not wish to draw any final conclusion from the results to date. Though suggestive and tantalizing they are as yet far from conclusive in respect of the very large issues under consideration. It is certainly impressive that the results should be consistent with the specific hypothesis that the experiments were explicitly designed to test! It would be very important if eventually it could be proved that human thoughts can manifest themselves as voices on tape. Consequently it would seem to be imperative to look at the group electronic voice phenomenon from every possible angle; the origin of the "voices" thoroughly deserves continued investigation.

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Toronto Society for Psychical Research

2 May, 1977



# Tape-Recorded, Low-Amplitude Psychokinesis

RAYMOND BAYLESS

*ABSTRACT: Further experiments on the production of acousical tape-recorded raps by the author and Mr. Wesley Frank are described, which show that the raps are independent of the tape-recorders used, and can be produced in a variety of solid objects with corresponding variability of tone, quality, etc.*

*In addition human voices have been successfully recorded, as well as other noises such as whistlings.*

*The experimental precautions taken, which are described, would seem to preclude any normal explanation for the sounds, which are therefore concluded to be psychokinetic and paranormal.*

## 1. Introduction

The field of what can be termed low-amplitude, tape-recorded phenomena offers a variety of effects which have just begun to be explored. Historically, this new dimension of experimentation began in 1956 when the tape-recorded voice-phenomenon was discovered by Mr. Attila von Szalay (Bayless, 1959). The evening following this discovery I joined him in the first of a series of experiments that lasted for many years. During these early experiments occasional whistles were received as well as definite, indisputable raps. On occasion, the voices were heard as audible faint whistlings which were resolved into "human" speech played back at high amplification. However, the main thrust of experimentation was toward the development of the voice-phenomenon itself. Except for remarking that other sounds including raps were received, no special effort was made toward exploring the rappings.

Some years ago my interest in the possibility of obtaining tape-recorded raps inaudible to the unaided ear but revealed by high amplification and the use of tape-recorders was aroused and (having for all practical purposes forgotten the raps of earlier years) I hypothesized that such parallel phenomena to tape-recorded voices should exist.

During a new series of experiments with Mr. Wesley Frank raps were successfully taped as well as occasional "human" voices. This fact shows clearly the interwoven relationship of low-amplitude voice and psychokinetic phenomena. I will add that the same dual nature of the tape-recorded phenomena is also displayed, though much less obviously, in my personal experiments.

On June 7, 1965, I began a series of personal experiments designed to record low-amplitude raps, but before discussing them will briefly outline the experimental techniques used. First, a quiet environment is obviously required. A sound-proof room, of course, would be ideal but I unfortunately do not have access to such a room. A reasonably sensitive tape-recorder must be employed. The microphone is placed on a resonant "sounding surface" such as the small wooden table that I habitually use and the recorder is turned to its highest amplification. The experimenter or experimenters must sit absolutely quietly with no bodily movements, etc., and the slightest sound inadvertently made must be immediately noted on the tape. Any external sounds must also be immediately noted on the tape. Short periods of recording are

most practical and obviate the rigors of long replay and strained attention. I normally record for five minute intervals. No less than four such recording periods for each experiment is suggested.

For formal experimentation new tape which has been tested for the presence of normal sounds can be employed, but for continued practical testing tapes which have been re-recorded are acceptable. As mentioned, when a tape passes through the recording head it is automatically erased and when a tape from a prior negative test is used, free from raps, etc., then it is perfectly acceptable. I frequently erase and test tape for one or more tests and then, after these tests are completed, I rewind it for continued tape-recording. The tape-recorder is always kept by my side and never emits any sound which can even remotely be confused with the raps and is constantly monitored for this theoretical possibility.

Various recorders have been used, all with success, thus demonstrating the independence of the phenomena from the machines. Various "sounding surfaces" including a drum and a piano stool as well as the usual wooden table have also been successfully utilized.

The degree of light apparently does not influence the phenomenon. The phenomenon does vary, however, according to the individual experimenter and this principle hold true for the voice effect as well.

All evidence to date indicates that the raps and accompanying effects are acoustical in nature and confirm my experiments performed in March, 1973 which demonstrated that Mr. von Szalay's taped voices were the result of an acoustical process rather than the result of an unknown electromagnetic phenomenon (Bayless, 1975 a, b, 1976 a,b).

To return to the inception of my personal experiments, on July 7, 1975, sitting in a slightly dimmed room with the microphone from a Panasonic RQ-2365 tape-recorder resting on the surface of the small wooden table in front of me, I succeeded in recording probably more than 25 to 30 raps of varying intensity and pattern. These raps were recorded during the first ten-minute recording period; a second recording of equal length was blank. During this test I rested my hands lightly on the surface of the table but other than noting that I am devoid of subconscious motions, I do not advance this trial as anything more than a preliminary experiment of a very successful nature. It did demonstrate to me that I was capable of receiving low-amplitude raps inaudible to the unaided ear and only revealed when the tapes are replayed. Experimentation continued and from Dec. 30, 1975 the policy of no physical contact with the table was maintained. In defence of the light hand contact, it was used to encourage the quick development of the phenomena.

## 2. *New Experiments*

I will outline a number of sample experiments in order to illustrate the various forms of tests made and the results which confirmed the reality of the paranormal nature of the raps and occasional accompanying phenomena. As noted all following experiments maintained a policy of no hand contact.

During a six-minute test on July 30, 1974, utilizing a tape rewound from a previously erased and recorded tape which was devoid of results, three obvious, fast raps were taped. A Panasonic RQ-2365 recorder was used. I sat, as usual, 2½ feet from the microphone and table.

On August 2, 1976, two five-minute tests were undertaken and the first provided two "medium" clear raps. A Sony TC-100 recorder and a new tape which had also been erased and tested for normal sounds was used.

On August 4, 1976, a ten-minute recording offered six quite faint but easily heard raps. Again the Sony TC-100 recorder was used. In this case the tape had been rewound from a previous blank recording. Therefore, the raps received could not have resulted from the previous taping.

August 16, 1976 offered a mixed fare. The Sony TC-100 was employed, as well as a tape which had been rewound from a previous blank test. A single faint but "very definite" rap was recorded followed by a clear, loud, tonal man's voice which said "Friday." This voice has been played for numerous hearers, some without being previously told what the voice said, and all easily understood what it said.

The same recorder and a new but untested tape were used on August 17, 1976. One faint but clear rap was received. A following test which utilized the same tape, erased, tested and found free from normal sounds, proved blank but the third and last recording rewound from the blank tape offered one faint rap.

Typical of many less successful experiments was a five-minute test made on 8 October, 1976. Only one rap was recorded. However, it occurred on a tape which had been properly erased, tested and found free from normal sounds. This experiment marked the beginning of a short series of tests in a darkened room but the lack of light did not influence the intensity of the phenomena to any discoverable degree. After the series was finished, tests in darkness were discontinued.

Periodic tests are made with tapes that have been erased and tested and raps are frequently received during such experiments. By this means a continual "check" is kept, verifying the continued reception of raps with control tapes.

On occasion raps are received in comparatively large numbers. For example, during five five-minute tests made on November 7, 1976, sixteen individual raps were recorded. The Sony TC-100 recorder was used.

To test the possibility of obtaining raps on surfaces other than the usual table, the microphone from the Sony TC-100 recorder was placed on the surface of a small drum. Good artificial light prevailed. A new but untested tape was used; however, the first two five-minute tests proved negative. The third test, using the tape rewound from the last blank recording, provided a fairly loud and very obvious rap on the drum. As my original notes state, "The rap was very resonant and typical of the drum's tone."

On another occasion two raps were received when the microphone had been placed on the surface of a piano stool hurriedly pressed into service.

As seen, successful results have been obtained with various tape recorders including the Sony TC-100, Sony TC-343, Panasonic RQ-2365, General Electric NB-4458 and Hitachi TRQ-340.

Illustrative of the independence of the phenomena from individual recorders, I called at the home of Mr. William Welch, noted investigator of taped voice-phenomena (Welch, 1975) and respected friend, and placed the microphone from his Sony TC-353 on a nearby wooden book shelf. No normal contact was made with recorder, microphone, wires, shelf, etc. Numerous faint voices were recorded as well as one extremely loud rap.

In view of the reception of tape-recorded raps with various recorders and on different surfaces, I will state with confidence that the phenomena is completely independent of individual machines and surfaces.

As previously mentioned, other effects than raps are occasionally received.

They too are inaudible to the unaided ear and must be revealed by the use of high amplification and tape recorders.

For example, on August 1, 1976, using the Panasonic RQ-2365 recorder and a tape rewound from a previous five minute test, fourteen clearly heard short whistles were recorded as well as a preceding series of faint whistles which were not counted.

Voice effects are very occasionally received, as mentioned, but in much lesser number than are the raps. As a result it can be suggested that raps will be recorded with much greater ease than will be voices.

Another consistent effect which sounded much like "scrapings" or "blowings" into the microphone was recorded but dramatically came to an end during the end of November, 1976. In consequence a new series of experiments was launched on Nov. 27, 1976, but the phenomena now received consists almost entirely of raps. The first experiment of the new series provided only one rap and eight faint examples of the "scraping" effect which was arbitrarily titled "contact sounds" for the sake of convenience. The seventh experiment offered only two faint examples and one unintelligible voice. No further "contact sounds" have been recorded.

Thirty-one experiments have taken place since Nov. 27, 1976 but since their inception, the phenomena have taken place on a reduced scale. However, even though the raps have been fewer in number and lesser in intensity, they are gradually building back up to their previous number.

On Jan. 18, 1977, the first of four "negative" experiments was undertaken to demonstrate the dependence of the raps on the presence of the table. For each experiment, consisting in total of 18 five-minute tests, the microphone was placed on a pile of four pillows. Unless the table was rapped obviously no sound was transmitted through the pillows into the microphone. No raps were recorded. At the conclusion of this series of special experiments the pillows were removed; the microphone placed in its usual position lying directly on the surface of the wooden table and all procedure returned to normal.

Prior to the beginning of the "negative" tests twelve experiments had been conducted, for example, and ten had offered positive results. After the finish of the "negative" experiments four consecutive experiments again gave positive results. Therefore, it has been indicated strongly that the raps are directly dependent on the presence of a "sounding surface."

We then carried out a series of experiments made to determine whether Mr. Frank could influence from a distance a small metal bell within a stout wooden box containing the microphone. When the tapes were played back they had on them a variety of sounds, including a number that were distinct "tings" and bell-like, as well as "whisperings" and tonal voices, some of which formed distinguishable words. However a detail account of this research will be given in a subsequent paper.

### 3. Discussion

The discovery of low-amplitude, tape-recorded, acoustical raps, bell ringing and associated sounds has added a new chapter to low-amplitude, tape-recorded phenomena and in all probability points to an entire range of low-amplitude effects. The raps, etc., are clearly accompanying phenomena to tape-recorded voices, and it is suggested that the raps will be found to occur in much greater proportion than do the voices. It is also suggested that they will be found to be comparatively widespread and capable of being received by many ex-

perimenters. It is also expected that many other sound effects such as the occasional whistles I have encountered will be obtained.

In my opinion the ability to produce low-amplitude phenomena varies from individual to individual just as does the ability to receive tape-recorded voices. Contrary to what has been said by many in the past, my years of experimentation with the voice-phenomenon has led me to accept this opinion as fact. I recently received a letter from Mr. Richard K. Sheargold in which he confirms my observation. In the case of Mr. Sheargold's voice effects, they are of the non-acoustical type showing that the variance of ability holds true for both types (Sheargold, 1973).

I consider myself a rather poor subject for the reception of low-amplitude phenomenon and am quite sure that others will be found with far greater ability.

It does seem that low-amplitude, tape-recorded psychokinesis should offer an excellent laboratory tool. The actual technique for the reception of such phenomena is essentially very simple, particularly in the preliminary stages, and does not require vast amounts of thoroughly expensive equipment. A particular advantage of low-amplitude psychokinesis is that it provides an objective phenomenon, hopefully in quantity, which can be studied from a quantitative approach as well as that of a qualitative nature.

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# The Cult of Pyramid Power

RUTH M. FLYNN

*ABSTRACT: A description of experiments carried out at Sarnia, Ontario, for the Ontario Schools Science Fair in 1976 on the claims for pyramid power on plant growth. This work was awarded Second Place at the Fair.*

The Toronto Society for Psychical Research reported experiments done on the subject of pyramid power in *New Horizons*, Vol. 1, No. 2, Summer 1973. At the time of those experiments, two major claims only were being made for the alleged power of pyramid shapes, namely; that food would not spoil if kept within a pyramid and at a certain level, and that razor blades would not become dull if kept within a pyramid. The members of the Society carrying out experiments on these two claims disproved them to their own and the Society's satisfaction. Immediately following publication of this report, however, claims were being made that plants placed within a pyramid shape grew taller, stronger, and produced more fruit and flowers than if grown normally.

Subsequently the whole question of pyramid power has become a 'cult' and various entrepreneurs have joined in, and now one can buy "personalised" pyramids in which to sit or sleep to improve one's health, or mind; pendants, charms jewellery of all types in the shape of pyramids are sold, as good luck charms. Pyramids for plant growth, or for improving water, cigarettes, food, etc., have a very large sale. The cult has invaded the field of architecture and pyramid shaped houses are being built, and every conceivable claim is made, quite indiscriminately for this mysterious pyramid power. Many books have been written and many newspaper and magazine articles published. In all this mass of literature there are practically no detailed reports of any experiments done to test the truth of the statements made, and even when the 'power' clearly and publicly fails, as it did last year when the Toronto Maple Leafs hockey team took pyramids to the playoffs to help them win, and lost instead. Believers in the pyramids quickly forgot this; the demand for pyramids and the extravagant claims made for them were in no way diminished. However, a few voices have been raised in the name of sanity and common sense. Robert Forrest (1977) reports a series of experiments that he carried out with different-shaped boxes, including pyramids, on the dehydration of potato bits, and could not find that the pyramid shape had a different effect than the other boxes. Professor Herman Tiessen of Guelph University carried out experiments on tomatoes, lettuce, cauliflowers, asparagus, and muskmelons, and after three independent studies were done reported that "Pyramids won't make seeds sprout faster, or seedlings grow stronger, or flowers bloom . . . our investigations failed to find any supportive evidence" (1976). Rene Vincens, President of the Cercle Parapsychologique de Marseille, in a private letter, indicated that experiments carried out by them in France had failed to produce any evidence for the power of pyramid shapes. Unfortunately the experiments that disprove the theory have had very little publicity, while the wild claims continue to receive attention.

With the help of Professor A. R. G. Owen of the Toronto Society for

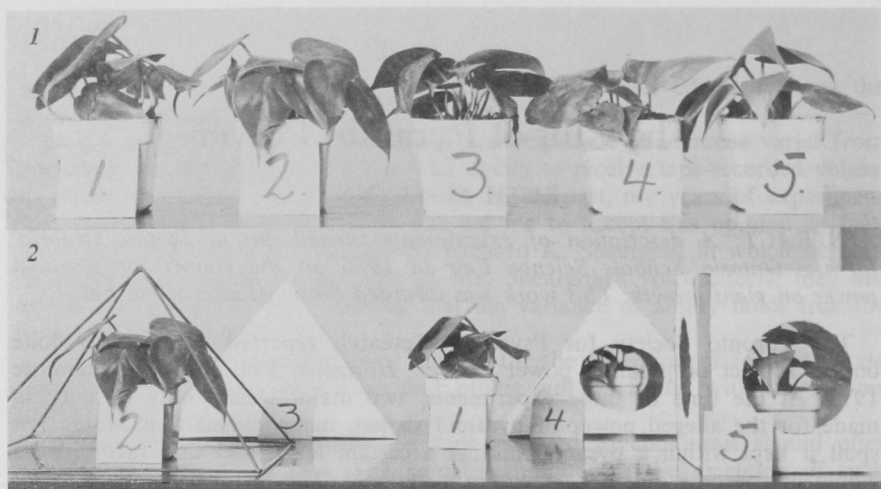


Figure 3: 1



Figure 3: 2



Figure 1: Plants at start of the experiment, 11th March, 1976.

Figure 2: Plants in their containers, 11th March, 1976.

Figure 3: Plants on 1 April, 1976.

Figure 3: 3

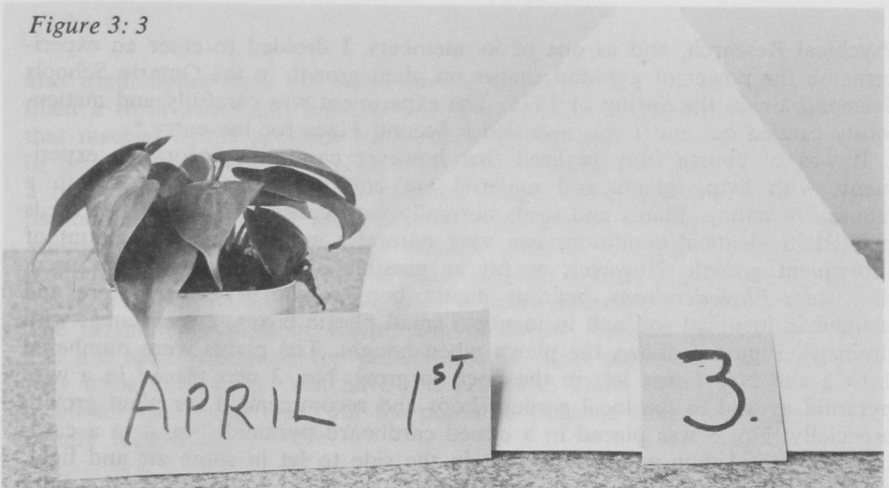


Figure 3: 4

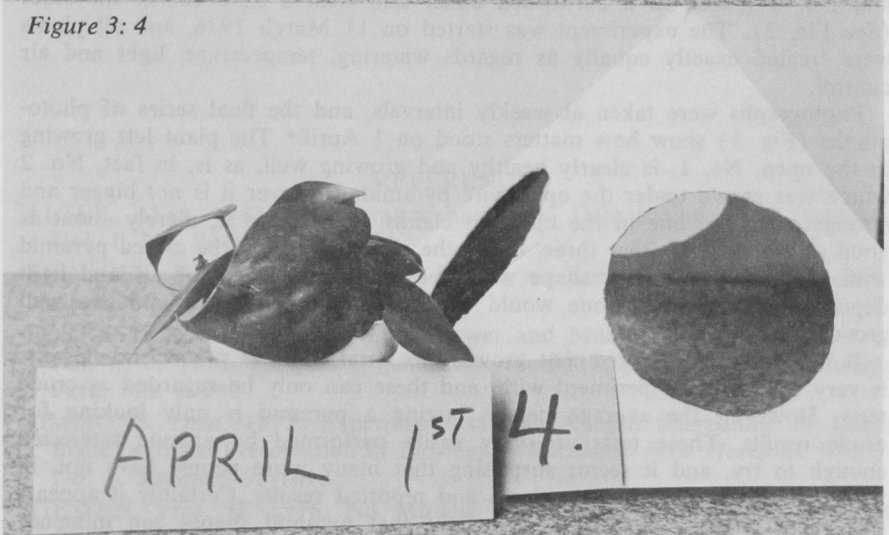
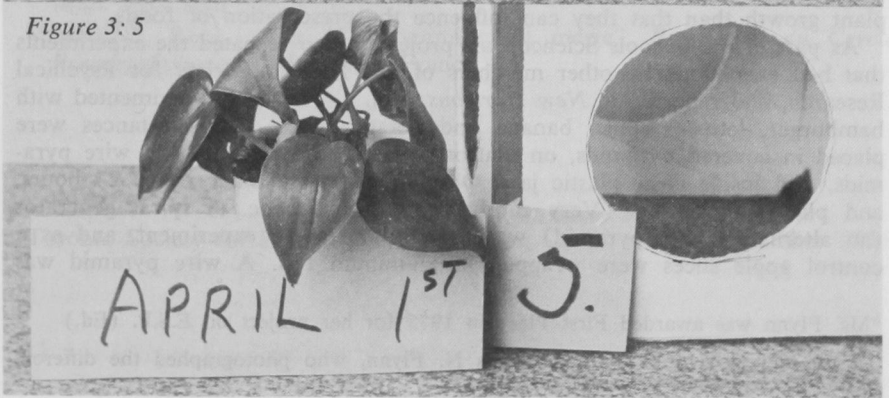


Figure 3: 5





Psychical Research, and as one of its members, I decided to enter an experiment on the power of pyramid shapes on plant growth in the Ontario Schools Science Fair, in the Spring of 1976. The experiment was carefully and meticulously carried out and I was awarded a Second Place for the entry.\*

It was of course fully realized that however carefully performed, experiments with living plants and material are only properly carried out in a laboratory setting. Plants and seeds normally vary considerably, and two seeds planted in identical conditions can vary naturally in the rate and amount of subsequent growth. However, as far as possible identical plants were used, they were *Phylodendrons*, bedding plants, bought from a grocery store and planted in identical soil and in identical small plastic boxes, 2 inch cubes with drainage. Figure 1 shows the plants when bought. The plants were numbered 1 to 5 and No. 1 was left in the open to grow; No. 2 was placed in a wire pyramid as sold in the local garden shops and recommended for plant growth especially; No. 3 was placed in a closed cardboard pyramid, No. 4 in a cardboard pyramid with round holes cut in the side to let in some air and light, and No. 5 placed in a cardboard cube, also with a hole cut in the sides (See Fig. 2). The experiment was started on 11 March 1976, and all plants were treated exactly equally as regards watering, temperature, light and air control.

Photographs were taken at weekly intervals, and the final series of photographs (Fig. 3) show how matters stood on 1 April.\* The plant left growing in the open, No. 1, is clearly healthy and growing well, as is, in fact, No. 2 which was grown under the open wire pyramid. However it is *not* bigger and stronger than the one in the open, as claims would have it, merely about as good as No. 1. The other three, under the closed pyramid, the closed pyramid with holes, and the cube shape with holes show the effect of air and light deprivation and are, as one would expect, somewhat stunted and less well grown than the other two.

It has to be emphasized that growing material, such as plants and flowers, is very difficult to experiment with, and these can only be regarded as crude tests. However, the average person buying a pyramid is only looking for crude results. These tests are very easily performed by anyone interested enough to try, and it seems surprising that many more people have not, in fact, experimented with their plants and reported results. Certainly it appears that there is no more reason to believe that pyramid shapes can influence plant growth than that they can influence the preservation of foods.

As part of the Schools Science Fair project, I also repeated the experiments that had been done by other members of the Toronto Society for Psychical Research, and reported in *New Horizons*, Vol. 1, No. 2. I experimented with hamburger, lettuce, apple, banana and potato pieces. The substances were placed in covered pyramids, on platforms inside the pyramids, in wire pyramids, and inside clear plastic jars. Observations were made every 24 hours, and photographs taken. Very careful notes were made. A spiral generator (an alternative to a pyramid) was used in the apple experiment, and as a control apple slices were wrapped in aluminum foil. A wire pyramid was

\*Ms. Flynn was awarded First Place in 1975 for her project on E.S.P. (Ed.)

I am indebted to my father, James N. Flynn, who photographed the different of all the experiments for me (R.M.F.).

The experiment has in fact been continued and the plants are the same now (15 June 1977) as on 1 April 1976 (Ed.).

also used. Space does not allow me to report all the results obtained; they filled a thick notebook; but the overall conclusion reached was the same as that reached in the previous experiments by the Society. Food was preserved or deteriorated according to the well-known 'cookie jar' principle and not as a result of being placed in a pyramid shape. Some foods such as egg and hamburger, dry out and are preserved when placed so that air can circulate around them. (Incidentally, for anyone wishing to repeat this experiment, hamburger mixture bought in the shops contains a great deal of preservative—for proper results freshly ground meat with no preservative added is essential). The original pyramids of Egypt, are, of course, located in a desert region, and are ideal containers for preservation of meat naturally—whatever shape they were, they would still have this property! There seems in fact no basis at all for the claims made for the power of pyramid shapes; it appears to be merely superstition.

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Toronto Society for Psychical Research.

1 September 1976.

# An Empirical Study of Biorhythm in Humans

JOEL L. WHITTON, M.D.

*ABSTRACT: Self-reports of health, hours slept, mood and cognition were minuted at the same time daily by eighteen subjects for a minimum of 320 days to determine if there are rhythms in their behaviour. Significant rhythms were found in more than half of the subjects' reports. The cycles tended to be long with a majority in the interval 3 to 8 weeks.*

## 1. Introduction

It is usual for biological functions to fluctuate or oscillate between two limits in a rhythmic fashion. Daily variations in man's biochemical and hormonal systems are known to occur and are called circadian rhythms. Longer cycles also occur, for example the 28-day female hormone cycle. Little is yet known however, about periodicities in the more subjective behaviours such as mood and thinking.

At the turn of the century, a psychologist at the University of Vienna, Professor Hermann Swoboda, began to study rhythmic changes in mental states. His observations (1917) indicated that there was a 23-day cycle relating to the physical body, and a 28-day emotional-sensitivity cycle.

Wilhelm Flies (1923), a physician and president of the German Academy of Science, independently found the same 23- and 28-day cycles.

A 33-day intellectual rhythm was added in the 1920s by Dr. Alfred Teltscher (Thomen, 1973). Recently 38-, 43-, and 48-day cycles have also been suggested relating respectively to compassion, aesthetic perception and self-awareness (Bulezta, 1976).

Based on a study of ancient manuscripts, Dr. H. Spencer Lewis (1929) proposed an ordered progression of cycles: a seven-year rhythm of life growth, a 52-day cycle of intuitive influences, a 28-day cycle divided into four seven-day active and passive phases, and a tide cycle of 12 hours. The Lewis system and the Swoboda-Flies-Teltscher system are fixed to the birthdate, at which time all the proposed cycles commence.

Only infrequently in the past 50 years however, have such biorhythms been scientifically studied. Occasionally individuals with precisely timed episodes of manic-depressive mood swings have been reported (Jenner et al, 1967; Gjessing and Gjessing, 1961). Daily mood assessments of workers in a large public utility demonstrated that over a year, emotional cycles were present with periods ranging from 18 to 67 days (Hersey, 1931). Dorland and Brinker (1973) found in a subject's mood significant rhythms of 2.4, 3.7, 5.5, 7.0, and 18.0 days with the 7-day rhythm prominent. A rhythm of 38 days was found by Sothorn (1974) in a male subject. Nelson (1971) reported mood changes in students that were reliably present and varied with the demands of the school year.

Anecdotally, reports of mood fluctuations, variations in hours slept and in other variables, are often alleged. For some individuals these reports are impressive and suggest that such rhythms may be valid.

In 1973 the Toronto Society for Psychical Research began a year-long pilot study of biorhythms. The preliminary results supported the hypothesis

that there are persisting cycles in certain of man's physical and emotional behaviours. A larger study was therefore undertaken to address the question: "Do individuals exhibit sustained periodicities in their self-reports of health, hours slept, thinking and mood variables?"

## 2. Method

Eighty-five individuals were approached and agreed to participate in a year-long study of biorhythms. Each was given a list of questions comprising six factors that were to be answered at the same time each day.

Detailed instructions were personally given as to what each question meant, how to perform self-ratings and how to score each question. To minimize clerical errors, the responses were recorded directly by each subject onto keypunch forms. The six factors were:

- (1) A subjective assessment of physical health.
- (2) The number of hours slept the preceding night.
- (3) General level of anxiety.
- (4) Clearness of thinking, creativity.
- (5) Mood.
- (6) This factor was chosen uniquely for each subject and was a variable (different from the other five); one that the subject believed to be periodic in himself or herself.

Except for question 2, the ratings were made from 1 to 9 with 1 low and 9 high.

Self-ratings are necessarily subjective and are thus susceptible to problems of reliability and validity (Wittenborn, 1972). For this reason careful instruction is required. After a training period, it can be expected that each subject is measuring some index peculiar to themselves for each factor. For example, the experience of anxiety may be different for each person, but once a person learns to recognize his or her unique experience, then it can at least be said that an aspect or interpretation of the variable is being measured. Strobel (1974) has used self-ratings for life events and mood evaluations with good results.

A difficulty with the factors being assessed in this study is their susceptibility to influence by external causes. Even the persistent and precise cycles of psychosis studied by Gjessing have been demonstrated to be quickly modified by external events (Jenner et al, 1968). It can be expected that sleep will show at least a seven-day rhythm in those individuals who sleep longer on one day of the weekend, a culturally determined rhythm.

The data, considered as a time-series, demonstrated several periodicities in a background of noise. This suggested the application of spectral analysis (Otnes and Enochson, 1972; Jenkins and Watts, 1968). Each raw time-series was completed with zeroes at each end (as necessary) to construct a 512-point series, means were removed, and then transformation to the frequency domain was performed using a fast Fourier transform. The spectra estimators were smoothed with weights ( $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ) resulting in a bandwidth of approximately 0.00586 cycles/day (cpd) and a nyquist frequency of 0.5 cycles/day. The period of a cycle varies inversely with its frequency and therefore, given a bandwidth, there is less resolution for longer periods. For example, with a bandwidth of 0.005859 cpd, the periods 26 to 31 days are within the bandwidth of the closest cycle to 28 days. Each period was expressed as the central period for its appropriate bandwidth interval. Thus, periods from 26.74 days to 31.059 days were all expressed as 28 days. The

central frequency for this bandwidth is 0.03515625 cpd which is 28 days to the nearest day.

Power spectra were performed on each complete time-series and on the first and second half of each series. A peak in the power spectrum was considered statistically significant if its 95% confidence limit did not include the expected value for Gaussian noise, and if the same peak was significant in power spectra on both the first and second halves of the time-series and in the spectrum of the complete time-series. This requirement excluded cycles that were not significantly present throughout the study.

A further requirement was that if a small but significant peak was near the noise limit and the spectrum had evidence of broad-band noise (smaller non-significant peaks all across the spectrum), that peak was rejected. Also rejected were peaks representing very long periods, i.e. over 85 days, as it could not be definitely established whether such long periods were artificial trends in the time-series due to slowly changing rating criteria or were indeed valid cycles.

### 3. Results

Eighteen subjects successfully completed the daily ratings for 320 days or more. The other subjects dropped out of the study after from between 26 and 126 days for reasons such as inability to rate at the same time each day, forgetting to rate for several days, or lack of continuing interest.

Results from the 18 subjects are summarized in the table.

Only one subject (S130) did not exhibit periodicities in the reported data. Eleven subjects (61%) had significant cycles in three or more factors. Of the 108 time-series, 59 or 54.6% contained significant cycles. There was no significant difference with respect to sex (chi-squared) or age (two-tailed student's T) at the 5% level between subjects who had three or less significant periodicities versus subjects who had four or more. Age and sex as well did not differentiate subjects who had significant periodicities in factor 6.

The distribution of the periods was very skewed towards the longer periods as 56.1% of the periods were 21 to 57 days or 3 to 8 weeks long; 32.3% were between 1 and 3 weeks; 6.2% were 1 week long, and 5.4% were less than 1 week in duration. A 5% level chi-squared was used for the following period distribution analysis. The skewed distribution as grouped above was significant for all subjects, for females and for males. The only significant difference between males and females was that males exhibited more significant periodicities in their reports of hours slept. There was a non-significant tendency for females to have more periodicities in their self-reports of physical health and anxiety levels. There was also a non-significant tendency for females to have longer cycles than males.

Factor six was chosen by each subject as a variable that the subject believed was periodic. In only 8 subjects (44.4%) was this variable in fact significantly periodic over the entire sample time.

### 4. Discussion

This study has found that a substantial proportion of normal (non-patient) individuals do exhibit significant and sustained periodicities in their self-reports of health, mood, hours slept, and cognition. However, the data as summarized in the table suggest three related questions.

First, for most subjects, some factors have similar cycles. For example in S100 the 34-day period occurs in factors 1, 2, 4 and 5, and the 43-day

period occurs in factors 1, 3, 5 and 6. This suggests either that there may be common mechanisms subtending some of the variables assessed in this study or that the self-report instrument was not adequate to extract independent subjective factors. There is in the periods no consistent pattern enabling this issue to be resolved as yet.

The second question is, why are the periodicities significant in only 54.6% of the time-series? Factor 3 in S115 demonstrated a significant period of 17 days for the full time-series and for the first half, but was not significant in the last half of the time-series. This cycle was therefore not included in the results. Equally common were subjects having no cycle intense enough to rise above the level of noise. The latter case is straightforward in that the time-series is simply not periodic. The first case suggests local periodicities which arise but are not sustained.

The third related question is, why do periodicities in the measured variables occur at all? Are they endogenously driven by hormone or biogenic amine systems? Female menstrual cycles are known to correlate with psychiatric symptoms (Jacobs and Charles, 1970), lower academic examination performance (Dolton, 1968) and mood (Reynolds, 1969; May 1976). In the current study cycles *circa* 28 days were found in both sexes. Central nervous system status will affect other rhythms such as absolute pitch (Wynn, 1973a, 1973b) and the ultradian rhythms of the critical flicker-fusion (Lovett Doust, 1975). Biogenic amines are suspected of having a circadian rhythm (Akerstedt, 1976; Hery et al, 1972) but long time-series studies are lacking except, for example, biochemical studies in psychosis Takahashi and Gjessing, 1974; Hatotani, 1974).

At the present time one can only speculate on the possible origin of these periodicities. Sollberger (1965) briefly reviews exogenous potential synchronizers relating to geophysical and astronomical factors. Ravitz (1962) has suggested mental events may be susceptible to magnetic fields. The earth's magnetic field has slight periodicities believed to be influenced by solar changes. These minor cycles are at 27-29, 13 and 9 days. If there is some external synchronizer for biorhythms in mood and other mental events, there then is no essential objection to having a fixed rhythm commencing at birth.

TABLE: LENGTHS OF PERIODS EXHIBITED BY SUBJECTS\*

S	(1) Health	(2) Sleep	(3) Anxiety	(4) Thought	(5) Mood	(6) Of Choice	Sex
100	43,34,21,14	7,34,16,4	28,17,43,16	57,34,12,17	21,34,17,43	43,57,24,14	M
115	—	—	—	—	—	57,34,11	M
103	57,34,19	7,3½	43,7,17,16	17,2½	34,19,17	34,24,19	F
160	—	—	43	43	43	43,19	F
152	14	—	13,6	—	—	—	F
137	16	—	9	9	9	57	M
141	—	7,16,57	43	—	—	—	M
143	24,34,19,12	—	57,9,43,24	21,14,13,34	21,34, 57,9	43,19,11,21	F
123	57	57	57	—	—	—	F
130	—	—	—	—	—	—	F
116	—	7,57,43,28	8	—	—	—	M
136	—	—	34,14	28	—	43,28	F
147	34,28,17	7	43	34,28,12	19,28,43	34,28	F
183	—	57,28,7,21	—	21	—	—	M
185	—	34,13,57	21	—	—	—	F
198	57	—	34	7	—	—	F
142	43,19	3	43	—	43	—	F
153	—	24,3,17,19	10	—	6	—	M

\*Periods are in days and listed in descending order of amplitude (i.e., height of peak). A dash (—) indicates that there were no significant periodicities.

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# Are More Babies Born at the Full Moon?

PETER W. GRIBBLE, B.SC., M.ED.

*ABSTRACT: Data collected to test whether more births occur near full Moon did not support that particular hypothesis. However, there was a statistically significant excess of births in the moon's last quarter.*

## 1. Method

The purpose of this study was to test whether the frequency of births was related to the phases of the moon. The specific hypothesis chosen for examination postulated that births occurred more frequently when the moon was near the full.

Data were collected from the Infant and Maternity Statistics of the South Peel Hospital in Cooksville, Ontario. These statistics listed each birth with its particular such as anaesthetist, scrub nurse, type, time and date of delivery, etc. All types of birth and delivery including prematures, stillbirths, later natural abortions and caesarians, were counted with the exception of early or induced abortions, and listed for each day of the calendar year 1971. In order to increase the sample it was supplemented with similar data for the period 1 January 1968 through to the new moon of May 1969.

The dates of the phases of the synodic lunar month in the relevant eras were obtained with the aid of the simplified *Scientific Ephemeris* published by the Rosicrucian Fellowship. Now, as is well-known, a lunation or lunar month (synodic period) which is the interval between consecutive new moons, is 29 days 12 hours and 44 minutes, i.e. 29.53 days. It was convenient therefore to truncate the lunation at both ends, sacrificing 1.53 calendric days. The method adopted was to label any day which the *Ephemeris* designated as a full moon as the fifteenth day of that synodic period. The preceding fourteen and the subsequent thirteen calendric days were included so as to constitute a month of 28 calendric days centred approximately (i.e. to within a part of one calendric day) on full moon. Only the births in these conventionalized but moon-related "months" were analysed, the residue being neglected.

## 2. Statistical features of the data

There were 17 conventionalized months for the 1968-69 era and 11 for the 1971 era. When the 28 months for the two eras were aggregated per day of lunation as defined above, the total numbers of births were as tabulated, according to day and the moon's quarter. The total number was 4031 representing (over  $28 \times 28 = 784$  days) a mean frequency of 5.142 births per calendric day.

First quarter		Second quarter		Third quarter		Last quarter	
Day	Total births	Day	Total births	Day	Total births	Day	Total births
1	136	8	125	15	162	22	159
2	137	9	132	16	117	23	153
3	146	10	118	17	148	24	187
4	135	11	146	18	132	25	164
5	134	12	131	19	142	26	158
6	128	13	152	20	145	27	148
7	164	14	149	21	146	28	142
Total	980		953		992		1106
68-69	555		535		544		615
1971	425		418		448		491

It is immediately obvious that in neither era (1968-69 and 1971) nor in both combined, is there any serious difference in the number of births during the first three quarters of the moon. This impression is fully confirmed by calculation of chi-squareds (2 D.F.) for equality which are: era 1968-69, 0.36; era 1971, 7.14; combined 0.82; and thus quite insignificant. This effectively disposes of the hypothesis under test. It has to be said that in the South Peel Hospital in 1968-69 and 1971 births were *not* more frequent during the middle of the lunar month. This finding is reinforced by the following tabulation.

Days	Births	Days	Births	Days	Births
1-4	551	13-16	580	17-20	567
5-8	551			21-24	645
9-12	527			25-28	612

Statistically speaking, the 580 births recorded for the middle four days is almost exactly equal to one-seventh of the total 4031 of births, namely 575.86. The corresponding chi-squared (1 D.F.) is 0.035, which is negligible.

However the incidence of births in the South Peel Hospital was *not* uniform over the lunar month in the eras in question. In the last quarters of the lunations in the 1968-69 era there were 615 births, which is considerably in excess of 544.7, the number expected on the hypothesis of uniformity. Chi-squared (1 D.F.) is 6.60, and is significant almost at the 1% level. The corresponding figure for 1971 era is 491 as compared with 430.3 expected. Chi-squared (1 D.F.) 17.86, which is significant at less than 0.01%. For the combined data, 1106 births in the last quarter exceeds the expectation of 1007.75 with chi-squared (1 D.F.) equal to 42.04 which is very highly significant. Correction for trend, which strictly should be applied, will not, in fact effect things very much. Significance levels should be multiplied by four since the hypothesis differs from the one originally under test.

The two eras 1968-69 and 1971 were mutually consistent, the proportion of last quarter births being 27.35% for, 1968-69, and 27.55% for 1971. The heterogeneity chi-squared (1 D.F.) is 0.012 and therefore negligible. The overall frequency of last quarter births is 27.44%. It should be noticed that although the excess of last quarter births is statistically significant it is not in fact numerically very large.

### 3. Discussion

This study was motivated by a desire to ascertain whether a finding reported for New York municipal hospitals would apply in a different place and era. A statistical examination of the birth dates of more than 250,000 children showed the birthrate to be highest during the three days around full moon (Palmer, 1970). This result was also given a behavioural interpretation in terms of the social consequences of moonlight, and on the assumption that the average period of gestation in humans is almost exactly nine lunations.

The present study would seem clearly to show that neither the New York result nor any behaviour inferred from it can be regarded as being valid for all populations. Its interest however extends somewhat beyond a mere failure to verify the hypothesis. The South Peel births exhibit a statistically significant tendency to occur more frequently during the moon's last quarter than in any other phase. It would be inadequate therefore to say merely that the hypothesis is rejected. It would moreover be definitely wrong (i.e., illogical) to say that there is *no* evidence for a causal relationship between the moon and the frequency of births. Indeed the situation is that we have *two* sets of evidence, each of which suggests a connection of some sort with the moon without, of course, being conclusive. Our problem is that the form of the apparent relationship differs in the two cases. This situation, though frustrating, is not in fact at all uncommon for biological or sociological data, which often show statistically significant but different (indeed sometimes *opposite*) trends in different populations.

All that can reasonably be done at this stage is to list the logical possibilities as follows.

- (i) Both results are statistical flukes. (This *must* happen sometimes!)
- (ii) One result corresponds to a valid empirical fact, but the other is a statistical fluke.
- (iii) Both results are valid empirical facts, but the connection of at least one with the moon is spurious (i.e. some kind of false correlation).
- (iv) The moon through physical, physiological, psychological or sociological influences, *does* affect conception or birth or both, but the precise effect differs between populations in consequence of biological, or behavioural, or geographical differences, or all of them.

Only data on other populations and repetitions for New York and Peel County can afford insight as to which is the true situation.

### 4. Acknowledgements

I am grateful for the statistical help of Professor David F. Andrews of the Department of Mathematics, and Professor A. R. G. Owen of the Department of Preventive Medicine and Biostatistics, University of Toronto.

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# Quantitative Fluctuations in Kirlian Fingertip Coronas

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*ABSTRACT: Quantitative measures, S, A, and C, are applied to Kirlian fingertip coronas, and their statistical variation studied within an individual. It is shown that the corona can exhibit very large fluctuations for which as yet no cause can be reliably assigned. Correlations with biorhythmic variables representing physical or emotional wellbeing are, so far as this experiment goes, absent or negative.*

## 1. Introduction

Research in the T.S.P.R. investigating the possibility of establishing a "normal" or standard Kirlian finger-tip coronal pattern for an individual or group was reported by the writer (June 1976) as follows:

The Kirlian device employed was designed and constructed by the writer and, although a solid state unit, is similar in principle to the auto-ignition coil discharge type of apparatus. Gross control parameters such as pressure on the film, voltage and frequency settings, barometric pressure, humidity and fingertip moisture were taken into account. Over the course of two months the coronal patterns of 11 individuals were obtained at weekly intervals. In total, 7 standard photographs of each individual were taken.

Using the 77 resulting photographs it was impossible to establish, scientifically, a normal coronal pattern corresponding to a "normal" state of being. No two coronal patterns of any individual were exactly the same and no pattern specific to any individual could be detected. Coronal pattern fluctuations within an individual ranged from very broken to very uniform and from a few points of light to a 5 mm thickness. These fluctuations were not related to any noticeable state changes as assessed by the individuals themselves and effectively destroyed any hope of establishing a norm. The drastic variations mentioned above were seen in individuals within a time period of only a few minutes and for no apparent reason. Similarly no correlation between coronal patterns and personalities could be drawn.

In October 1976 subsequent to the publication of my paper in June 1976, Pehek, Kyler, and Faust, reporting on their work at Drexel University, Philadelphia, also noted the variability in the intensity of Kirlian fingertip coronas. They say:

For comparable experimental conditions the photographic images of streamer activity (corona) of fingers of relaxed subjects taken randomly over a period of time varied from a condition where no streamer activity was recorded to one in which streamers were produced uniformly about fingers. Such extreme variations have even occurred within several hours with the same subject.

In view of our own results, the writer and his colleagues certainly accept the validity of the last sentence relating to the fluctuations in the corona, but would regard it as being something of an understatement. In consequence we feel that considerable reserve has to be exercised in accepting the validity of any alleged correlations between the size and brightness of the corona and various parameters, other than those originating from variant forms of the photographic process itself (see Dobervich, 1974). In our opinion this would certainly apply to correlations with meditative states as asserted in the literature

and with "before" and "after" states in "healers", also with mental concentration or relaxation. As regards correlations with physiological parameters, in the light of our experience as well as that of Pehek, Kyler, and Faust, we feel that it cannot be over-emphasized that, even with the best *techniques*, results may be at the mercy of experimental *design* which perhaps in all Kirlian research ought to be adapted *ab initio* to look for changes in the *averages* of quantities that are subject to large inherent fluctuations.

In our own work we could not establish any correlation between recent rubbing of the skin with alcohol, or with vigorous washing with either soap suds or tap water, or with anointing with skin cream, or with prior cooling or heating of the fingers with icy or boiling water. But we do not dispute Pehek, Kyler and Faust's findings that the corona is modified by the presence of a Mylar strip, by drenching in water or wetting with water or saline. These treatments, so far as the writer can tell from the published account, seem (a) to be rather more extreme than any used in Toronto, or (b) to count as major modifications of the *photographic process itself* rather than as normal causes of variability within or between persons.

However the writer feels that considerable interest attaches to Pehek, Kyler and Faust's finding that there is a relationship between the corona and palmar sweating even though, of necessity, the latter has to be measured somewhat indirectly. Thus subjects' coronas tend to be reduced after "hyperventilation". Hyperventilation is the phenomenon of "overbreathing" — an increase in the depth and rapidity of respiration (Noyes and Kolb, 1958), which can lead to reduction in the alveolar air, and in the arterial blood carbon dioxide tension with a fall in the blood bicarbonate. The consequences of hyperventilation are extremely diverse, as can be ascertained from the literature. It may be the case, as is said by Pehek, Kyler and Faust, that a concomitant is an initial increase in palmar sweating. However it is fair to say that the physiological effects of overbreathing are so diverse that any particular correlation may be hard to identify without ambiguity. The identification with palmar sweating might therefore seem to possess somewhat of a degree of arbitrariness, though the writer grants that, being (literally) a superficial characteristic, sweating could well, by prior reasoning, be important for Kirlian coronas. However, it is certainly interesting that a corona reduction occurred under hyperventilation with all five of the subjects observed by Pehek, Kyler and Faust.

It should also be stressed that these investigators did find a correlation between corona size and GSR (galvanic skin response). (The latter variable is negatively correlated with sweating activity). In addition they were able to make "sweat counts" on their subjects using the method of Sutarman and Thomson, and to study the effect of an immersion in water (or saline) at various temperatures on the coronas of subjects with high and low sweat counts. As a result, Pehek, Kyler and Faust have, in the writer's opinion, presented a strong case for supposing that moisture, in the form either of sweat or water, tends to repress the Kirlian corona. In particular their research suggests that acute stress (by encouraging sweating) will tend to diminish the corona. To what extent this prediction may be empirically verified, or how it relates to results of the kind discussed by Moss and Johnson (1976) concerning effects of sympathectomy or of xylocaine, lies outside the writer's present intention which is to describe a relatively simple series of observations, inspired by commonsense reasoning, but animated by a desire to improve the scientific quality of Kirlian studies through the substitution of quantitative methods for the qualitative ones that have hitherto dominated research in this field.

## 2. The Observations

Subsequent to the research by the writer and his T.S.P.R. colleagues which has been mentioned, but prior to the knowledge of the Drexel University research, it was decided, in discussion, that it might be useful to follow a single subject over many days. For convenience the writer selected himself, and photographed his middle fingertip Kirlian corona as nearly as possible at a definitely prescribed time on each of 45 days, within the period from 17 February through 15 April 1976. He also recorded his subjective scores, H and E, for physical and emotional wellbeing on the scale used in the biorhythm experiment (Whitton, this Journal) for the variables (1) Physical health, H, and (5) Mood, E. By subsequent inspection and measurement of the photographs of his fingertip coronas two measures of coronal developmental, namely: S, the maximum "streamer length" (in millimetres) and A, an estimate for the total "luminous area" of the corona were ascertained. Naturally, A is rather difficult to assess and its value is admittedly somewhat subject to measurement error. Also, coronas of very different shapes can have the same value of A, which is essentially integrated "streamer density" as defined by Peher, et al.

The variable H and E are measured on an integer scale, possible values 0, 1, . . . 9, the subject aiming at representing his modal, normal, or average level as 5.0. The variables H and E each fluctuated between the values 3 as minimum and 7 as maximum. Reassuringly the 45 day means were

$$E = 5.10000 \pm 0.12472 \quad \text{and} \quad H = 4.87778 \pm 0.15089,$$

the second ( $\pm$ ) figure in each case being the standard error of the mean, the S.E.s of H and E being 1.01217 and 0.83666 respectively. The means themselves are close to the ideal values of 5.0, suggesting that the writer's subjective estimates of his own norms are reasonably accurate. The correlation between H and E was 0.38378, which is reasonably high for biological variables. (If they are bivariate normal, this correlation would be significant on 43 D.F. at the 1% but not at the 0.1% level).

The correlation between S, the streamer length (mean  $S = 2.04222 \pm 0.17143$ ), and "luminous area" (mean  $A = 1.49444 \pm 0.16967$ ), was notably high, being 0.68797, showing rather distinctly that the extent and the "bulk" of the corona are both very characteristic of coronal conspicuity and almost interchangeable as measures thereof within a single individual. In the units employed for S and A, it so happens that their S.E.s respectively 1.15000 and 1.13819, are not significantly unequal. It follows therefore from standard reasoning in principal component analysis that the single variable,  $C = S + A$ , may reliably be used as an effective measure of the total conspicuity of a Kirlian fingertip corona, valid without re-scaling for the same finger of a single individual.

## 3. The Absence of Correlations

When the squared correlations between the personal "state" variables H and E and the coronal measurements S and A were calculated they turned out to be rather small, suggesting that S and A were, in fact, *not* related to H and E. The correlations themselves in fact had negative values, which, if they had been statistically significant would have indicated an *antagonism* between physical or emotional "highs" and conspicuity of the corona. However none of the four correlations was significant at the 5% level. Necessarily therefore the writer is obliged perforce to register the conclusion that there

is no evidence of a positive relationship between the "state" variables H and E and the coronal features S, A, or S + A (i.e., C). The actual values of the correlations are

$$\begin{array}{ll} r(H,S) = -0.272, & r(H,A) = -0.262, \\ r(E,S) = -0.205, & r(E,A) = -0.177. \end{array}$$

The correlations of the state variables H and E with coronal conspicuity C are

$$r(H,C) = -0.251. \quad r(E,C) = -0.208,$$

and not significant at the 5% level, the 5% point being greater than 0.29. If desired, H and E can be replaced by the single "principal component"  $V = H + E$ , representing general "vitality" or "verve".

The correlation with C is  $r(V,C) = -0.27731$ , again not significant.

The writer would like to emphasize that at no time when he photographed his fingertip corona was he in an exceptional physical or mental state distinguished by real stress, agitation, or anxiety, violent feelings, sweating, hyperventilation, depression, etc. His subjective H and E values represented variations within his normal range of physiological and emotional states. Consequently he is inclined to doubt whether the pronounced fluctuations in his corona can be explained in terms of moisture alone.

#### 4. Conclusions

Although a single series of observations on one person cannot be expected to be very informative, the results would none the less seem to be useful. It shows that, in some individuals, there is either no relationship between conspicuity of the corona and feelings of wellbeing, or that if there is a relationship it may be a negative one. It shows also that the corona can exhibit very large scale fluctuations for which as yet no cause can be assigned with any degree of reliance. The writer feels also that this study has successfully indicated how, by use of the measures, streamer length S, and luminous area A, and their summation, the "conspicuity" C, this field of research can be brought into the domain of the quantitative sciences, which will render the various generalizations that are propounded more susceptible to actual testing.

#### 5. Acknowledgements

I am grateful for the help of Professor A. R. G. Owen of the Department of Preventive Medicine and Biostatistics, University of Toronto, with the statistical analysis.

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# Geometrical-Statistical Patterning in the Field of Authorship

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*ABSTRACT: A statistical analysis through the use of the computer of the style in the History written by the Roman historian Ammianus Marcellinus has revealed such pervasive patterning at a variety of levels of composition that there is doubt as to whether or not the manner of writing was cognitive.*

The primary purpose in the use of a computer as an aid in research was its employment in the production of a concordance to the *History* of the Roman historian Ammianus Marcellinus. Ammianus was a Greek by birth who spent the early part of his life in Syrian Antioch. While the dates of his birth and death are unknown, his life fell within the period from about 325 to approximately 400. He served in the Roman army and then became a private citizen soon after the Emperor Julian's death in 363 probably to write.

The *History* contained an account of events in the Roman Empire from 96 to 378. The work was divided into 31 books of which there are extant books 14 to 31. These surviving 18 books deal with the events from 353 to 378, a period of 25 years.

As soon as the first draft of the concordance had been produced attention was addressed to a stylistic analysis of our author's writing. The data provided by the computer brought to light results which were unexpected. Specifically the statistics relative to the following levels of style were furnished by the computer: the number of words in each book, the number of sentences in each book, the mean sentence length in each book, the pre-dominance within each book of sentences of a specific number of words, the number of short sentences used in creating gaps between long sentences, the alphabetical frequency in the use of initial letters, and repetition in the employment of joint vocabulary.

The first set of data examined was that which related to the number of words used in each of the extant 18 books. The graph which resulted from the plotting of the data is shown on Figure 1. The statistics regarding the number of words each book contains are presented on the left. The horizontal axis at the bottom of the graph has the extant 18 books arranged in numerical order. It was only after careful consideration that this arrangement was determined upon. The reasons are these. First, Book 14 covers the chronological period 353-354 A.D.; Book 15, 354-355; Book 16, 356-357; and so on to Book 31 which embraces the period from 375 to 378. Secondly, it would appear that the books were written in sequence in that at the beginning of Book 15 Ammianus writes as follows:

So far as I could investigate the truth, I have, after putting the various events in clear order, related what I myself was allowed to witness in the course of my life, or to learn by meticulous questioning of those directly concerned. The rest, which the text to follow will disclose, we shall set forth to the best of our ability. . . .

Then Book 26 opens with this statement:



Having narrated the course of events with the strictest care up to the bounds of the present epoch, . . . let us hasten to continue our narrative.

Thirdly, there are dotted throughout the books, to a significant total, references, such as the following, taken from Book 23, chapter 6:

There are also many thousand tigers, and numerous other wild beasts, and by what kind of devices they are usually taken I recall that I gave an account long ago.

This reference must be to one of the missing 13 books. Other references often occur which relate to content in earlier extant books. Finally, evidence with regard to an aspect of style which cannot be presented by means of a graph seems to support arrangement of the books in their numerical order. As a result of assignment of the symbol "A" to books in which the largest number of sentences contain 10 to 20 words, the symbol "B" to books in which the largest number of sentences contain 20 to 30 words, and the symbol "C" to books in which the largest number of sentences contain 30 to 40 words a clear pattern emerges in that Books 15, 23 and 31 are "A" Books. Between Books 15 and 23 are 7 "B" books, between Books 23 and 31 are 5 "B" books and 2 "C" books. Book 14, it would appear, belongs to the patterning in the missing 13 books. In any event, analysis of the statistical data relevant to other levels of style reveals that Book 23 not infrequently is a pivotal book in the patterning insofar as it occupies in the numerical order a central position just as is true when a graph was not used. This latter piece of evidence together with the clear progression in chronology with respect to the events recorded, the statements that introduce Books 15 and 26, and the references to matter discussed in books earlier in the numerical order, determined that the books be arranged as is shown on this graph. The scale (about 260 words vertical to one book horizontal) was chosen merely to satisfy the normal desideratum that the vertical extent of the figure be comparable to its horizontal one, and is irrelevant to the particular finding that emerged.

The first observation that caught the eye with regard to Figure 1 was that the line from Book 22 to Book 31 was parallel to the line drawn from Book 18 to Book 30. The second aspect was the presence of what at first sight seemed to be a parallelogram; indeed, on the scale used, it was almost a square. Closer inspection, however, revealed that whereas the difference between Point A (Book 22) and Point B (Book 29) was 1,109 words, the difference between Point D (Book 17) and Point C (Book 24) was 1,236 words. By the same token A to D comprises a difference of 1,788 words and B to C, 1,915 words. In both situations the operative number is 127 in that 127 added to 1,109 gives 1,236 (D to C) and 127 added to 1,788 gives 1,915 (A to B).

The presence in this graph of these findings led to analysis of the data pertinent to other levels of style. One peculiarity of Ammianus' writing is the repetition of clumps of words. For example, in Book 14, chapter 7, occur these words: *Iamque lituis cladum concrepantibus internarum*. Exactly the same words in the same order occur in Book 28, chapter 1. This characteristic is present in all the 18 extant books. Thus, it seemed deserving of analysis.

With respect to the graphs that follow and their vertical axes, Figures 5 and 6 are very similar to Figure 1. The only difference is that Figures 5 and 6 list on the left the number of sentences in the books at intervals of 5 sentences.

Figure 1: Books arranged in numerical order and plotted according to the number of words in each.

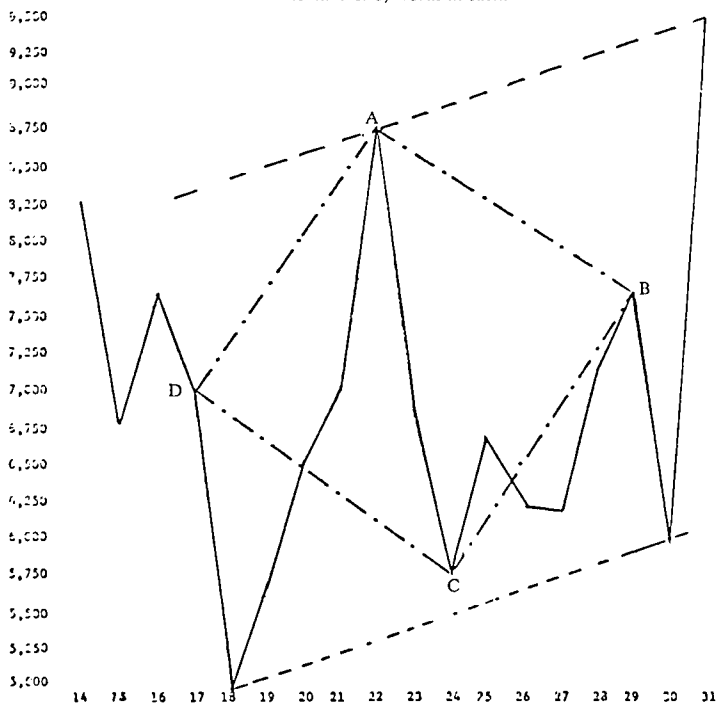
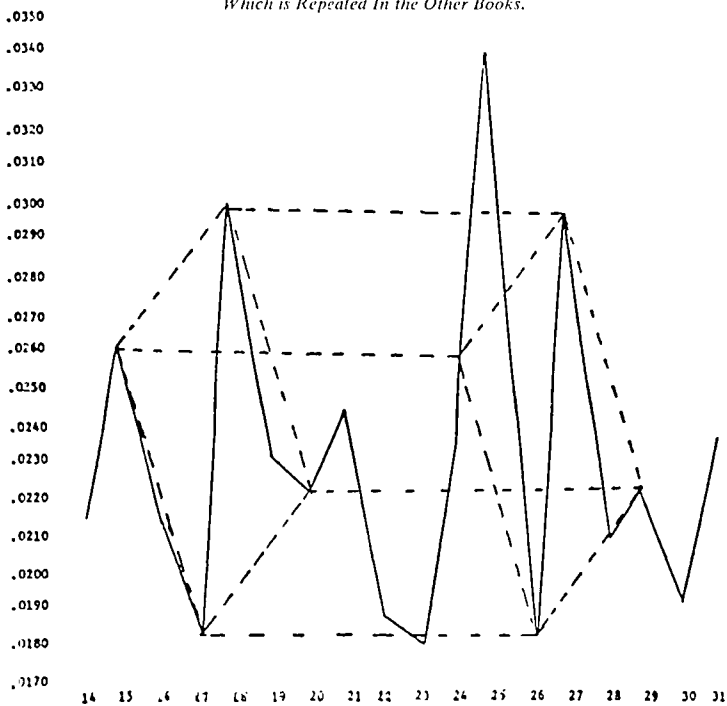


Figure 2: The Percentage of Joint Vocabulary Within Each of the Books Which is Repeated In the Other Books.



The data presented on Figure 4 involve the use of the decimal point. The vertical axis lists the mean sentence lengths in the books. Because it was found that the mean sentence length, for instance, in Book 15 was 28.5 words, that in Book 24 was 28.6 and that in Book 21 was 28.7, the vertical axis shows the data listed at intervals of 0.5 words.

Figures 2, 7, and 8 provide on the vertical axis data which had to be computed to four decimal places. Figure 2, for example, presents the percentage of joint vocabulary in each of the books which is repeated in other books. Of the total number of words in Book 14 0.0216% consists of joint vocabulary that is to be found in one or more of the other books. Here the most appropriate methods of organizing the statistics seemed to be to list the figures at intervals of 0.001%.

The vertical axes on Figures 7 and 8 are similar except that, because the percentage of the vocabulary in each of the books from Book 15 to Book 31 which is repetition of joint vocabulary present in Book 14 is smaller, the figures on the axes are given at intervals of 0.0005%.

Finally, the graph which is Figure 3 shows the employment (as an initial letter) of the letter C, expressed in percentages relative to the total number of words in each of the books. So little difference is there amongst the 18 books that the vertical axis lists the data at intervals of 0.1%.

Figure 2 is the graph on the same scale as Figure 1 which presents the data with regard to the percentages of joint vocabulary within each of the books which is repeated in the other books. The lines joining Books 17 and 26, Books 20 and 29, Books 18 and 27 are almost exactly parallel as is true of the lines joining Books 15 and 17, Books 18 and 20, Books 27 and 29. The statistics have a 1, 2, 3 relationship in that the difference between Books 17 and 20 (.0183 and .0222) is .0039; the difference between Books 18 and 20 (.0300 and .0222) is .0078; and the difference between Books 17 and 18 (.0183 and .0300) is .0117.

The solid lines on the graph shown in Figure 3 (scale 0.010% vertical to one book horizontal) illustrate the use in the employment (as an initial letter) of C (expressed in percentages) in the 18 books. The lines which have been drawn with a single dot between dashes form the sides of the figure not provided by solid lines. These lines, for instance, link Books 16 and 17, Books 16 and 24, and Books 24 and 30. In addition, this sort of line was also used in the lower section of the figure, such as the line drawn from Book 15 to Book 16 and extended to the point of intersection with the line drawn from Book 29 to Book 27 and extended to the point of intersection. The latter type of line, since it does not form a side of the figure, has two dots between dashes. Analysis of the statistical data shows that there are two basic relationships. The vertical lines which form four of the sides of the figure have statistical differences of 1.1; that is, Book 16 (9.4) and Book 15 (8.3); Book 16 (9.4) and Book 22 (8.3); Book 24 (9.6) and Book 23 (8.5); Book 24 (9.6) and Book 30 (8.5). The horizontal lines, on the other hand, have statistical differences of 0.2; for example, Book 24 (9.6) and Book 16 (9.4).

Because figures similar to those found to be inherent in the graphs illustrated in Figures 1, 2, and 3 were discovered to be present in graphs relative to other levels of style, a search was undertaken to find out whether or not there was a consistency within all the graphs. The vertical distance on the next graph (Figure 4) provides the figures relative to the mean number of words in the sentences in each of the books. Book 23 (25.6) contains on the

Figure 3: The employment (as an initial letter) of C (expressed in percentages) in the 18 books.

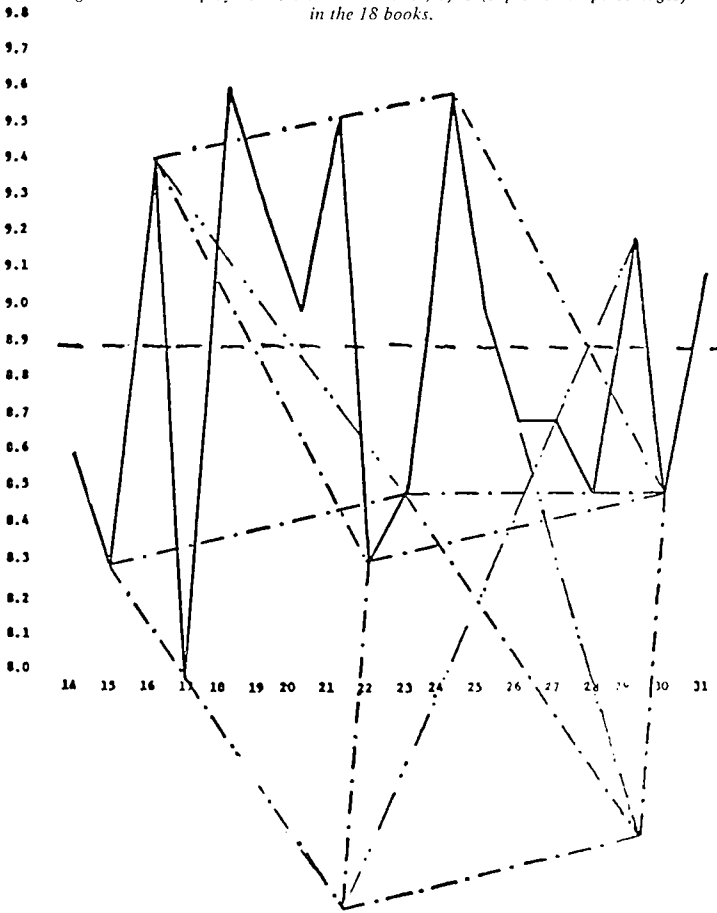
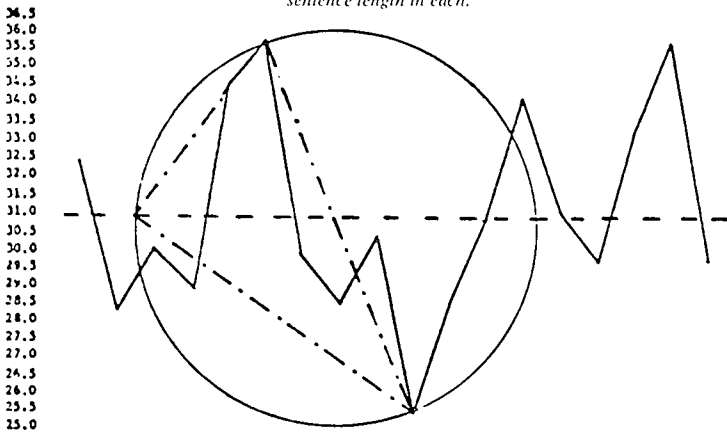


Figure 4: Books arranged in numerical order and plotted according to the mean sentence length in each.



average the shortest sentences while Books 19 and 30 (35.8) contain overall the longest. What came to light was again unexpected. It was found that, as is shown on Figure 4 (scale 20 words vertical to one book horizontal), if Book 23 were joined by a line with another book (Book 19 on Figure 4) and that line is taken to be the diameter of a circle, then when the line is drawn from Book 23 to the circumference at the point where it is intersected by the horizontal broken line indicating the average and that point is linked to the other book, the figure is of course, by Euclid Book 3, Proposition 31, a right-angled triangle. However, if the same scale is used the other angles are invariably close to  $60^\circ$  and  $30^\circ$ .

With respect to this triangle, the difference between Book 19 (35.8) and the line of the average (31.1) is 4.7. The difference between the line of the average (31.1) and Book 23 (25.6) is 5.5. These two differences when added together come to 10.2. This total is equal to the difference between Book 19 (35.8) and Book 23 (25.6). There is no consistency amongst the graphs with regard to which book it is that when joined to Book 23 provides the line to be diameter of the necessary circle. From the viewpoint of the statistical data it was found that the difference between Book 19 (35.8) and the line of the average (31.1), or the figure 4.7, was the same as the difference between Book 18 (34.7) and Book 20 (30.0) and that between Book 29 (33.3) and Book 24 (28.6). Of greater significance in analysis of the statistical data however is the figure .7, a difference in which a total of 6 of the 18 books are involved.

Because investigation had shown that there was a factor which was consistently to be found in all the graphs and that this constant involved a circle, the research next proceeded along a different path. The objective was to find out whether or not the circle had relation to the plotting of the books on the graphs. Figure 5 (scale 10 sentences vertical to one book horizontal) provides an example of the sort of result arising out of the quest. The ordinates (vertical scale) of Figures 5 and 6 indicate the number of sentences in each of the books. Book 18 (144) has the lowest number of sentences. Book 31 (316) has the highest. The average number of sentences in the 18 books is 225.6. The statistics with regard to the number of sentences each book contains involve a clearly defined progression based upon the use of the number 14. Book 18 (144) is related to Book 19 (158); Book 30 (168), to Book 26 (182); Book 24 (202), to Book 20 (216); and so on up the scale. Three anomalies occur: Book 29 (231) and Book 21 (244), Book 27 (200) and Book 20 (216), and Book 22 (289) and (+28?) Book 31 (316). As the graph shows on Figure 5 a line was drawn from Book 18 through Books 24 and 28 to Point A on the line from Book 30 to 31; a line was drawn through Books 18 and 19 and extended to Point B or the point of intersection of this line with the extension of the line from Book 30 through Book 29; a line was drawn from Book 18 through Book 27 to Point C. Then a circle was constructed using AB as radius. When the chords had been inserted it was found that the extension of one fell close to Book 25 and the extension of another on Book 26.

As an indication that the relationships between the chords of the circle shown on Figure 5 and the plotting of the books on that graph might not have been merely chance, Figure 6 (drawn to the same scale as Figure 5) demonstrates that by use of the same principles put into effect earlier there were brought to light two other circles. Here the line was drawn from Book 18 through Book 25 to the Point A on the line joining Books 30

Figure 5: Books arranged in numerical order and plotted according to the number of sentences in each.

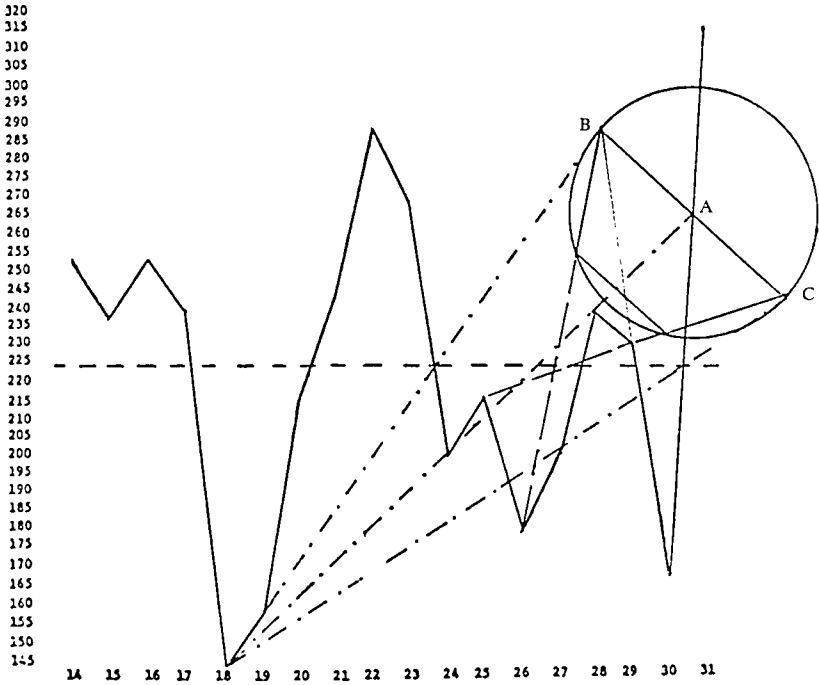
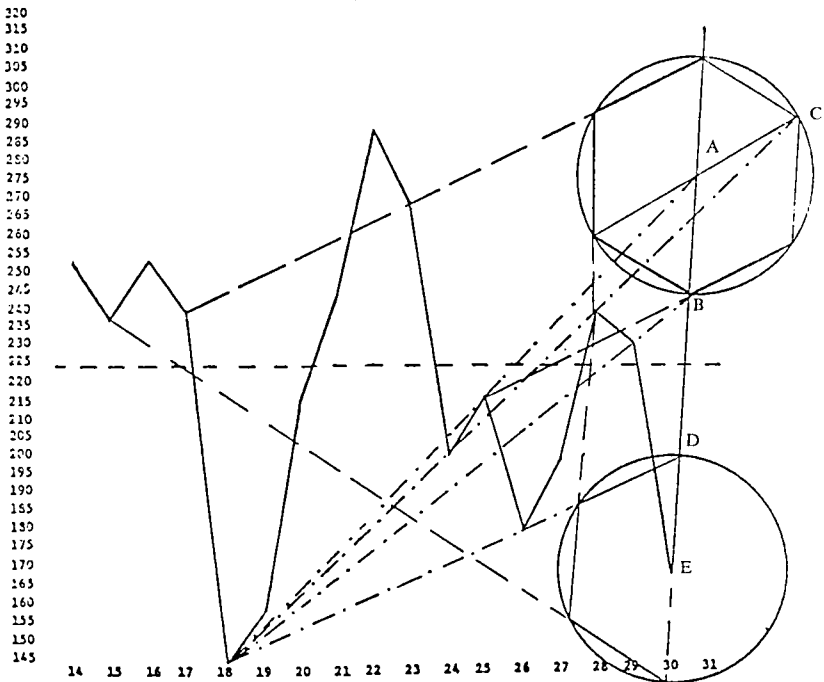


Figure 6: Books arranged in numerical order and plotted according to the number of sentences in each.



and 31. The line was drawn from Book 18 through Book 29 to Point B. With A as centre and AB as radius the circle and its chords were drawn. Then one chord when extended passes through Book 23 to Book 17, another chord when extended falls close to Book 28, the line from Book 18 which passes through Books 24 and 28 intersects the circumference just where two of the chords join at Point C, and a third chord when extended falls almost on Book 25. In the same fashion the line from Book 18 through Book 26 was produced to Point D. A circle with radius DE, E being Book 30, was drawn and its chords inserted. One chord when extended falls on Book 15 and another chord on Book 28.

The graphs pertaining to the other levels of style were analyzed to determine whether or not circles and their chords had relevance to points where the statistics had dictated the books should be plotted. The results were similar to those presented on Figures 5 and 6.

The next step in the investigation was to check data which up to this time had never been analyzed before. The data are those relating to repetition of joint vocabulary. This time the stylistic characteristic was examined from a different point of view. The graph presented as Figure 7 lists the statistics relating to the percentages of vocabulary in Books 15 to 31 which repeat word clumps found in Book 14. Thus, there is not a point on the graph for Book 14. The vertical axis on Figure 7 reveals that Books 19 and 27 (0.0099) contain the largest percentage of joint vocabulary repeated from Book 14 and that Book 23 (0.0032) contains the smallest percentage. The average amount of repetition is 0.0071%. As with Figure 8, the scaling is 0.005% vertical per book horizontal. First, a line was drawn from Book 23 to Book 27 (Point A). A semicircle was drawn, the line from Book 23 to Book 27 being the diameter. Point A and Point B (the point of intersection of the line of the average with the circumference) were joined. Book 23 and Point B were joined; the line passed through Book 31. The figure thus created is a right-angled triangle, the angle of close to  $30^\circ$  being at Book 23 and the angle of close to  $60^\circ$  at Book 27. The difference in percentages between Book 27 (0.0099) and the average (0.0071) is 0.0028, or  $4 \times 0.0007$ . The figure 0.007 plays an important role in the progression inherent in the statistics; for example, Book 24 (0.0047) + 0.0007 = Book 26 (0.0054); Book 26 (0.0054) + 0.0007 = Books 17 and 22 (0.0061). Books 16, 20 and 21 are related in the same way. The other figure which provides progression is 0.0003. All books not noted above are involved in a progression governed by 0.0003.

Secondly, chords were drawn within the semicircle. One chord when extended falls on Book 18. Another chord's line when produced falls on Book 19. Book 28 (Point C) is almost exactly the centre for inscribing the circle within the equilateral triangle formed by the chords and the radius of the semicircle.

Thirdly, Books 23 and 21 (Point D) were joined by a line. With this line as its diameter a circle was drawn and the chords inserted. Two chords when extended intersect at Book 31, and two others intersect almost exactly at Book 16. Book 20 (Point E) and Book 24 (Point F) are centres for the inscribing of circles within the equilateral triangles formed by the relevant chords and radii.

Figure 8 has the same basic circle as has Figure 7; that is, the circle whose diameter is the line from Book 21 to Book 23 and whose chords have been inserted. With Book 24 (Point A) as centre the the circle cir-

Figure 7: Book 14: External Repetition in Books 15-31.

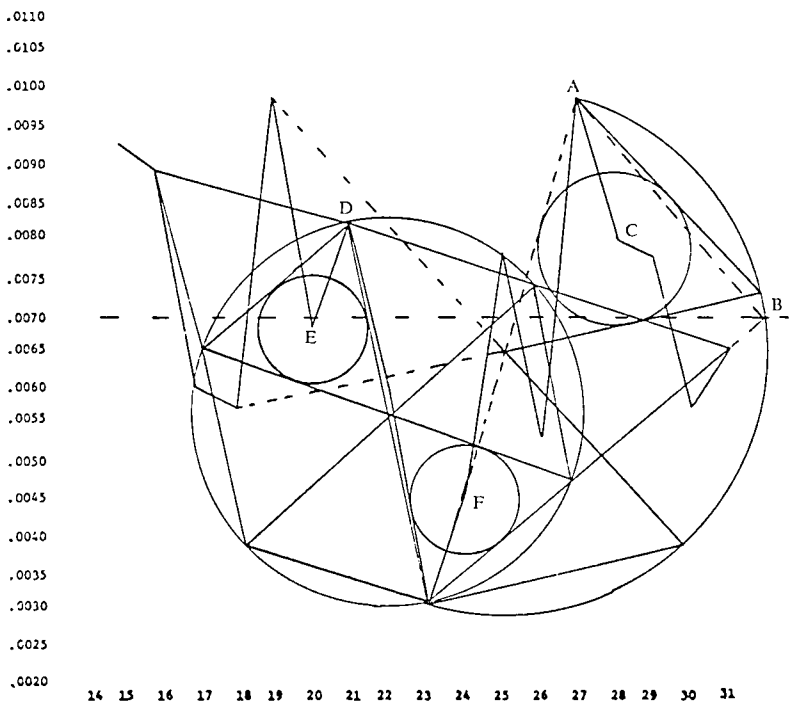
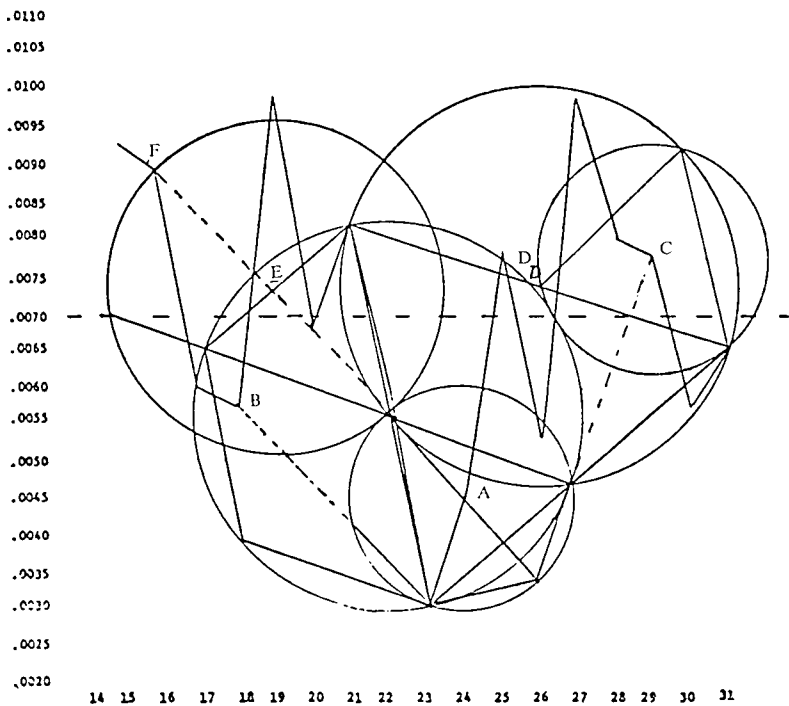


Figure 8: Book 14: External Repetition in Books 15-31.





cumscribing the equilateral triangle formed by the chord and the radii was drawn. One of the chords of this circle when it is extended falls on Book 18 (Point B); in the same fashion another chord falls on Book 29 (Point C). With Point D on the extension of the chord from Book 21 to Book 31 as centre the circle was drawn having the line from Book 21 to Book 31 as diameter. With Book 29 (Point C) as centre the circle was drawn circumscribing the equilateral triangle formed by one of the chords and the radii of this circle. The line AEF, passing through Book 20 and being close to bisecting the chord at Point E, was drawn. With Point E as centre and with EF as radius a circle was drawn. The analysis, carried forward to this stage, revealed the influence that chords seem to have had in determination of the placing of the books on the graph.

That Ammianus was familiar with Ptolemy's *Almagest* seems most likely. Books I and II of the *Almagest* are introductory, setting forth Ptolemy's basic astronomical assumptions and his mathematical methods. Book I contains his Table of Chords for arcs subtending angles from  $\frac{1}{2}^\circ$  to  $180^\circ$  by steps of  $\frac{1}{2}^\circ$ . Ammianus mentions Ptolemy's name twice in his *History*. The first occasion comes in chapter 3 of Book 20 where there occurs a digression on the eclipse of the sun. Furthermore, at a loss perhaps for the appropriate words in Latin, Ammianus quotes four Greek words taken from Book 6, chapter 6 of the *Almagest*. The second occasion for the use of Ptolemy's name occurs in chapter 8 in Book 22 where Ammianus is describing Thrace and the Pontic Sea. In providing details about the voyage around the shores of the Pontic Sea Ammianus writes that it is a distance of 23,000 stadia "as is asserted by Eratosthenes, Hecataeus, Ptolemy, and other very accurate investigators of such problems . . ." Here, of course, the reference must be to Ptolemy's *Guide to Geography*. The *Guide* came to be for geography what the *Almagest* was for astronomy.

Specific reference is made in chapter 1 of Book 26 to other astronomers with whose work Ammianus implies he is familiar. These are Meton, Euctemon, Hipparchus and Archimedes. At this point the historian is providing an explanation with regard to the principle of the bisextile year. It might be added that in the *Almagest* Ptolemy discusses this problem under the general heading in Book 3, chapter 9: "On the Inequality of Solar Days."

The question, thus, arose as to whether or not Ammianus' writing had been influenced by a familiarity with the astronomical principles set forth by Ptolemy in his *Almagest*. There seems to be a fairly significant body of evidence that perhaps this was the case.

Another clue that may help to explain the geometrical-statistical basis underlying Ammianus' style is the fact that he is apparently an observer of the heavens who is fully familiar with the movements of the signs of the zodiac. Books 20, 22 and 26 of his *History* contain references to the zodiacal constellations.

It is most tempting to conclude that in the case of Ammianus' writing the quantitative stylometric analysis has revealed a mind that is imbued with the knowledge necessary for one in the fourth century to possess were one to be skilled in astronomy. This tentative conclusion is all the more attractive in that it has been found possible to mount the signs of the zodiac from Capricorn to Leo on the graph shown on Figure 1. Evidence of this must be reserved as the subject of another paper.

A deeper mystery, however, remains unresolved. In view of the fact that altogether fourteen different levels of style have been analyzed and been

found to have a geometrical-statistical basis, the question arises as to whether or not the patterning was cognitive or non-cognitive or a combination of both. This paper does not attempt to provide an answer to that inquiry but rather to report what has been found in the hope that readers will feel free to communicate their knowledge of similar discoveries, should they know of any, to the writer. In any case it would seem desirable that the works of other writers, particularly those of Ammianus' own time, should be analyzed by methods similar to those outlined in this paper, in order to ascertain whether their styles have any features seemingly inspired by an esteem for geometry, astronomy or astrology.

Department of Classics  
University of Victoria  
Victoria, B.C.

16 March 1977

# NOTES

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## NEWS AND VIEWS

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The Problem of UFO Reports

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# NEWS AND VIEWS

## *Seminar on Extra-Sensory Perception*

A seminar on extra-sensory perception was convened by the New Horizons Research Foundation in November, 1977. It was opened by a lecture and demonstration of extra-sensory perception by the psychic sensitive Mr. M. B. Dykshoorn (born in Holland, now resident in New York), (author of the book *My Passport says Clairvoyant* (Hawthorn Books, New York, 1974), who subsequently led a number of discussion workshops. The Foundation wishes to thank those donors whose special donations made this interesting event possible.

## *Research Grant*

A grant of £300 has been received from Trinity College, Cambridge, England for investigation of the history of Borley Rectory.

## *Termination of Philip Experiment*

The Philip experiment which had continued for more than five years (since the Summer of 1972) was formally wound up in the Fall of 1977. This decision was arrived at because it was felt that no further progress could be made in gaining understanding of the psychokinetic force involved, and the scientific results to be gained from further meetings had therefore become disproportionately meagre in relation to the time and effort put in by the group members. The Research Committee were influenced in making this recommendation by the fact that, despite many requests to physicists and parapsychologists, no proposals had resulted for experimental approaches that would be both new and practicable. In addition, the group was becoming inundated with requests by visitors from all parts of North America and even further afield to sit in at the meetings. Originally the group had welcomed the participation of serious-minded visitors as it disseminated knowledge of the phenomenon, whose unique "flavour" (like that of many paranormal occurrences) is difficult to appreciate in abstract, or verbally to communicate. However, in the Fall of 1977, few of the weekly sessions were without a visitor, a circumstance which has been extremely frustrating of scientific purpose because it has rendered any continuity in experimentation quite out of the question. None the less, the Research Committee and the Philip group believe that group psychokinesis and in particular the projection of controlled fantasy or drama has been and will continue to be an important research method which, it is hoped, will be taken up by others, doubtless with improvements. We also welcome suggestions for new research by ourselves on "Philipian" lines.



# Can Humans Detect Weak Magnetic Fields?

JOEL L. WHITTON, M.D.,<sup>1</sup> and STEPHEN A COOK, Ph.D.<sup>2</sup>

*ABSTRACT: Two experiments on detection of weak magnetic fields are described.*

## 1. Introduction

The controversy over whether magnetic fields can physiologically affect or can be detected by *Homo sapiens* historically began with Anton Mesmer over two hundred years ago. There is little doubt that lower animals are influenced by weak magnetic fields. Barnwell and Brown (1964) have shown that snails, flatworms, fruit flies and *Paramecia* have highly differentiated responses to magnetic fields. Snails and flatworms for example distinguish the orientation of an artificial magnetic field and will systematically orientate their body axes to the field. Persinger et al. (1974) have demonstrated consistent alterations in thyroid function of rats exposed prenatally to low frequency weak magnetic fields.

In humans the controversy has been clouded with claims of healing and other anomalous effects of magnetic fields (as for example described by Davis and Rawls, 1974). Charcot and his pupils were among the first to investigate the putative healing effects of magnets (Owen, 1971). The issue can be approached by three questions. Is the normal geomagnetic environment essential for man? Can man behaviourally detect the presence or absence of an artificial magnetic field? Are there central nervous system correlates of magnetic fields?

Beischer (1971) has in part answered the first question with a *No*. By exposing subjects for 10 days to a null field environment he found no significant changes in tests of motor performance, spatial orientation and time estimation from results in the normal geomagnetic environment. He concludes that "a magnetic directional sensing, so convincingly demonstrated in insects, was either lost by man during the evolutionary process or is active in a more subtle way not noticeable in the described experiments".

Regarding the second question, there are claims that a certain group of individuals known as *dowsers*, who claim to be able to detect the presence of subterranean water, are sensitive to local gradients in the earth's magnetic field. In field dowsing, a dowser walks over a terrain and his forked twig or L-shaped rod will rotate or in some manner signal the presence of water, oil, minerals or whatever the dowser is attempting to locate (Tromp, 1968; Lewis, 1974; Owen, 1975). Barrett (1884) reported that in a large survey, three individuals could tell by standing beside an electromagnet if the current was on or off. Rocard (1964) claims to have shown that dowsers can detect magnetic field gradients

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as small as a few tenths of a millioersted per metre. (The earth's magnetic field intensity at the poles is about 0.7 oersted). Foulkes (1971) duplicated Rocard's study with results no different from pure chance.

The third question is equally provocative. A very interesting but still not confirmed effect of magnetic fields is the alteration of the electroencephalogram (EEG) in the presence of a magnetic field. Mikhailovsky (1969) reported that a subject's EEG showed delta and theta rhythms in the presence of 0.01 to 5 Hz, 1000 gamma sine waves.\* Maxey (1975) found that in two of eleven subjects their EEG had evidence of coupling to a magnetic field of 4.7 to 11.4 Hz, 30 gamma. These two experiments were done with very low intensity fields. High intensity fields also have an effect on the mammalian EEG. Gualitieri (1963) found alterations in the DC activity. Becker (1963) and Kholodov (1964) noted the occurrence of delta waves, and Kholodov (1962) and Beischer and Knepton (1966) found a decrease in the frequency pattern and an increase in spindles in the EEG. Becker (1969) has reviewed to 1969 the effects of magnetic fields on the central nervous system. The results of experiments with low field intensities are important, as in nature normally only weak fields occur (Conlay, 1969). Interestingly, the human EEG itself produces a very weak magnetic field which may be as high as 0.0025 gamma (Cohen, 1972).

The present study was undertaken to further clarify the second question and to determine if individuals can behaviourally detect weak artificial magnetic fields.

## 2. *Experiment One*

A flat coil of 100 turns of 28 gauge magnet wire was wound on a stiff cardboard circular support and suspended in a vertical plane with a wooden frame so that the centre of the coil was one metre from the floor. The coil radius was 0.46 metre, and 5% resistors were placed in series with the coil to give a total resistance of 1600 ohms. A wavetek function generator supplied a 10 Hz alternating current of 0.31 mA through the coil. This system produced a theoretical magnetic field intensity of 0.43 millioersted (mOe) at the center of the coil. The power dissipated was 0.16 mW and the magnetic energy was  $4 \times 10^{-10}$  joule.

Twenty-seven subjects, including two who believed themselves to possess the ability to dowse were studied during five experimental sessions spaced one month apart. Two experimenters were present; one to turn the current to the coil on or off, and the other to record the subjects' responses and whether or not the current was on. A trial consisted of first switching the current on or off to the coil and then a subject walking past within one metre of the coil and verbally stating simply whether or not the current was "on" or "off". The subjects were free to walk past the coil several times, stand in front of the coil or move their arms about or indulge in such motor behaviour as they believed would help obtain the correct response. Each subject was allowed a learning trial at the beginning of the series. At the end of each of the five experimental sessions, the subjects were told their performance score for that session. Not all subjects were present during all the five sessions and thus a variable number of total trials was obtained for each subject.

A chi-square test for non-randomness of responses was calculated for the response when the current to the coil was on, when it was off, and on the total

\*One gamma =  $10^{-5}$  gauss.

responses across all sessions for each subject. A chi-square test on a two by two contingency table to test if the current status was independent of each subject's total responses was done. In all cases P exceeded 0.05 (5%). A One Sample Runs Test was used to confirm randomness of the current states at the 5% significance level.

### 3. *Experiment Two*

The method for experiment 1 was used with the following modifications. The coil was suspended horizontally under the wooden floor of the testing room. The subjects were aware of its location. An automotive battery delivered a direct current to the coil such that the computed magnetic field intensity at the center of the coil was 600 mOe, approximately equal to the earth's magnetic field. A magnetic compass placed on the floor above the coil before the experiments deflected about 30° when the current was turned on. Eleven subjects, none professional dowzers, were studied during three experimental sessions. Each subject was equipped with a pair of dowsing rods (i.e. "angle-irons") consisting of coat-hanger wire bent in an "L" shape, with the two legs of the L about 4 inches and 10 inches long respectively. The subjects walked across the floor over the coil loosely holding the short legs of the angle-irons vertically, one iron in each fist. They reported their opinion of whether the current was on or off, based on the amount of rotation of the rods as they walked over the coil. It was confirmed that the off-on current status for each subject within an experimental session was random.

### 4. *Results*

In experiment 1 the results for all subjects in their ability to correctly identify whether the current was on or off were not different from chance. Two subjects gave more off-responses and two gave more on-responses than expected by chance, but in each case the results were independent of coil current status. When all subjects were grouped, there was an average per subject of 9.2 (S.D. 7.2) on-current trials with an average of 4.6 (S.D. 3.9) on-responses and 4.5 (S.D. 3.7) off-responses, and an average per subject of 7.7 (S.D. 5.9) off-current trials with 3.6 (S.D. 3.1) on and 4.0 (S.D. 3.8) off-responses.

Within specific experimental sessions there were tendencies for some subjects to have significantly correct responses, but this was not maintained over the five sessions. Interestingly, some subjects reported physiological sensations in the presence of the artificial magnetic field. Some of these sensations were reported as "tingling sensation in back of hands", "sensation in head like change in air pressure as in an elevator", "a prickling feeling", "tingling sensation in stomach", "like walking through a cloud or fog". These sensations were reported in learning trials when the subjects knew the current to the coil was on.

The results for the second experiment were similar to the first. For all subjects, the results of identifying whether the current was on or off were not different from chance. Two kinds of errors are possible, identifying "on" when the current is off, and vice versa. Both kinds of errors occurred equally within both experiments.

### 5. *Discussion*

This study did not confirm the results of Rocard (1964). However, Rocard tested known dowzers in experiments using dowsing rods. The two self-proclaimed dowzers in the first part of the present study did not achieve significant results, but they did not use dowsing rods. The results of the present study are

consistent with those of Foulkes (1971), who found that the one experienced dowser tested could not detect weak static fields. It should be noted, however, that the fields used in the first part of the present study (about 0.4 mOe) and those used by Foulkes (about 7 mOe) were about 1500, and 90 times weaker respectively than the earth's magnetic field at Toronto (about 600 mOe). The second part of the present study employed static fields equal to the earth's magnetic field, and negative results were still obtained.

The methods in the present study do not exactly duplicate Rocard's (1964) study, especially as known (or professional) dowsers were not used. However, as regards non-acclaimed individuals — by far the majority — the present evidence suggests that they cannot behaviourally detect very weak magnetic fields.

#### 6. Acknowledgment

We would like to express our thanks to Mr. G. Yamamoto (Department of Clinical Computer Systems, The Hospital for Sick Children (Toronto), for constructing the equipment.

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# Mr. Mackenzie King and the Problem of Survival

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*ABSTRACT: This paper considers fraud in mediumship as alleged by Lamar Keene, and attempts to discriminate between possibly genuine paranormal phenomena and erroneous interpretations thereof. The origin of Mr. Mackenzie King's spiritualist beliefs is re-interpreted in the light of the Philip research.*

Parapsychological research covers a very wide field, including such subjects as telepathy, faith healing, dowsing, the human aura, the meaning of dreams, clairvoyance, precognition, psychometry, altered states of consciousness and many more. One of the more popular areas of research in this field is that concerned with the so-called 'spirit world' — ghosts, apparitions, poltergeists and the spirits of the dead who are alleged to appear in the séance rooms of spiritualists and mediums. In fact, newspaper, radio, and television reporters often seize on this aspect of the subject, and will refer to parapsychologists as 'ghost-hunters'. It is of course a very important and fruitful area of research into things labelled 'psychic'.

The psychological need to believe in some form of survival of the human personality seems to be an integral part of human nature. From his very beginnings Man has not accepted the idea that when the body dies, the whole of the personality — the essential being — also dies. The manner of survival, the ultimate destination of the surviving 'spirit' may vary with the cultural beliefs of the times, but the fact of some form of survival seems to be never in doubt. Here perhaps one should say, that when trying to probe the mysteries of the problems concerning survival, one is not necessarily casting doubt upon the fact of survival itself. The psychological need to believe probably exists in almost every one of us. Whether proof itself exists or not, survival may very well be a fact. As parapsychologists we are concerned with the truth of the claims that many people make that certain events offer such proof; and *that proof* relates to survival in a very specific form. If it were generally believed that survival was a continuance of one's essential being — the spirit, if you wish to use that word — into another sphere, a place without continuing relationship with earth, that all connections with life on earth are severed, and no communications between living and dead are possible, then, as parapsychologists, we would not be especially concerned. It would be a matter of personal faith. In fact many people do, of course, believe this to be the case, and conduct their own lifestyle accordingly.

But the spiritualist belief is different. Spiritualists believe that our spirits do indeed survive death, but in a very special way. They believe that spirits can return to previous homes and loved ones, that they are still aware of what is happening in this world, and of events concerning friends and family; that they are concerned about this, and in many cases able to intervene, by means of

warnings, counselling, and prediction of future events. The spiritualists also claim that they themselves can communicate with the spirits of the dead, pass on their messages and warnings, and they offer this communication as proof of survival. As I have said, this is a special form of survival. According to this theory the spirit remains bound to the earth — although it may mysteriously travel the globe instantaneously at the bidding of a medium; the spirit is concerned and involved with earthly affairs, so that we live in a truly double world, peopled by the living and the dead, the seen and the unseen, combining to shape events and destinies. This is a matter of some concern, for it affects us all, collectively and individually, if the facts are as related. It is important to us, for instance, if those in charge of our affairs are acting solely on the wishes and advice of their earthly colleagues, or are tapping the resources of the spirit world for guidance. The idea, of course, is not new. The pagan gods and goddesses, the spirits of the trees and woods, the spirits of the primitive tribes in our earliest days of civilisation, were credited with the ability to appear, and interfere in the affairs of men. The prophets of the Old Testament, the Apostles of the New, saints and martyrs, kings, politicians, famous figures from the history books, many of them have been reported to have appeared again after death to help, warn or advise the living.

What we as parapsychologists are concerned with is this — are these alleged communications really proofs? Do they represent the truth about survival? Or are they a manifestation of the psychological need to believe in survival? Are we capable of believing in survival without proof, and do we therefore cling to any theory that seems to offer proof, however flimsy and insubstantial? Even if this so-called proof is totally irrational, do we prefer it to the absence of any proof at all? I suppose a definition of a parapsychologist is someone who is seeking for the truth in these areas that are on the fringe of psychology. Scientists seek for truth in many fields, physics, chemistry, astronomy, and so on, and these are all recognized as orthodox, conventional, scientific areas of research. Because psychology is the study of the make-up of the human mind — a word which we cannot even define adequately — it is not regarded in the same way as the orthodox sciences, it cannot be defined in the same kind of terms. Still less can we come to grips with all the interplay of human beliefs, feelings, psychological needs and irrationalities that lie within the area that we define as of interest to the parapsychologist.

To the parapsychologist it is important to discover the truth about these theories of survival. It is important because if you believe the spiritualist theory, you are subscribing to the idea that we are living in a truly 'double' world — peopled by the unseen spirits as well as the living inhabitants. Are these claims real hard facts, or are they part of our psychological make-up, part of our mind's defences against the acceptance of death? Does survival mean that we are doomed to a sort of shadowy existence in the after-life, still possessing links with this earthly life, and at the beck and call of psychics and mediums on earth whenever they choose to 'call' us back for consultation? As ghosts will we return to warn our families left behind of future disasters? Or, can we dismiss this kind of proof, and say that the question is still open; there may be some form of survival of the human personality, but we do not know at present in what shape or form our spirits enter into a continuing sphere of existence after earthly death? These questions are important, not only regarding our own personal attitude to life and death, but also because our daily lives may well be affected substantially by those people who do believe the spiritualist theories,

and who may be acting under counselling, advice or instruction from departed friends or relatives. Three books have recently been published which shed a great deal of light on the subject of survival. They are all the result of a careful search for the truth, without prejudgement or bias by their authors. I would like to talk about these three books, individually, and in some detail.

The first book I would like to refer to is entitled *A Very Double Life* and was written by Professor Stacey of the University of Toronto. It is a report of his examination of the private diaries of William Lyon Mackenzie King, one of Canada's most famous sons who was Prime Minister for more than twenty years, more years than anyone has held office in Canada, including the duration of the Second World War. Mackenzie King was a man whose private life was kept a close secret from all but a very few of his nearest friends, a man considered by the public as utterly efficient, a little ruthless perhaps, and an unemotional unapproachable person. But Mackenzie King was one of those unusual people who managed to keep a fully written diary of his private life from the time of his youth — since he was eighteen years old in fact. There have been some famous diarists in history — Pepys is probably the name that first springs to mind in this context, and Samuel Pepys revealed to us the daily life of his times in a way that no historical chronicler could possibly have done — the day-to-day gossip, the little cameos of events give us a wonderful picture of life in England during his times. But there can surely never have been published a diary such as the one left by Mackenzie King. The contrast between the image of the public man, and the picture of him that is revealed by his diaries is truly amazing. The title of Professor Stacey's book is taken from King's own comment in a diary entry that he is leading a 'very double life'.

We are fortunate that we have the diary available to us! Mackenzie King had intended to write his political memoirs at some time after his retirement, and had kept the diaries for this purpose. But, aware of the possible reactions to the revelations they contain, he had intended that they should be strictly edited, and that all the portions pertaining to his private life should be destroyed. However, his instructions were not sufficiently definitive on this point, and at the time of his death he had neither written his memoirs, nor decided which portions of the diaries should be retained. Application was made to the courts by prospective biographers, and the content of the diaries became more widely known. Judgement was made that the whole content of the diaries should be available for posterity.

The diaries reveal Mackenzie King to have been a very different man from the person he appeared to be to the public. The book by Professor Stacey makes fascinating reading indeed. But in the context of this discussion the aspect of his life that was so very interesting was the fact that, completely unknown to all but a very few of his closest friends, Mackenzie King was a man who regularly, almost on a daily basis, consulted the members of the spirit world for advice, counselling, and pre-knowledge of events yet to come. It seems that King's conversion to spiritualism came about as a result of a number of family bereavements that fell upon him during the years of the first World War, in particular the decease of Bell, a much loved sister, and of his mother, to whom he was very close. He was then (1917) in his mid-forties, and at this time he wrote that Bell, the dead sister, "is nearby, she watches and helps to plan and arrange". However, it seems that his first encounter with a medium was in 1925 while in the throes of a general election. He writes of this



period that he believed that his "dear mother and father, and Max and Bell are near and about me, and Sir Wilfred [Laurier] as well. Their spirits will guide and protect me".

He continued to consult mediums, and on a visit to London in 1926 records conversations with Sir Oliver Lodge on the subject of spiritualism. The first actual séance he attended seems to have been in 1932. The medium was a Mrs. Etta Wriedt, well known in spiritualist circles on both sides of the Atlantic. It should be noted here that Mrs. Wriedt seems to have been honest in her beliefs, and certainly over many years of holding seances for King never seems to have asked for more than very modest fees for her services. But she convinced King that he was in contact with his parents, grandparents, brother and sister and other dead relatives, as well as with many political figures. King writes in his diary, "there can be no doubt whatever that the persons I have been talking with were the loved ones and others I have known and who have passed away. It was the spirits of the departed. There is no other way on earth of accounting for what we have all experienced this week". King continued to visit spiritualists for many years. He goes to great pains in his diary to state that he never acted *solely* on the advice and information given him by these spirits beyond the grave — he listened, and then made up his own mind. He says he never allowed these sessions to cloud his judgement, and Professor Stacey states that he believes King was honest in his belief. However, it is indeed difficult to believe that anyone as immersed in the spirit world as King was could refrain from being influenced, particularly when the communicators were people who had so much influence on him when alive. His devotion to his mother was extraordinary, and it is probable that was the reason that he did not marry. It seems hardly likely that he could be objective about advice from his mother from the world beyond, especially as it would seem to have the weight of extra knowledge and authority. It is impossible to believe that he was not at some times influenced by messages from the spirits.

But King received communications in another way. A year after his first seance experience King discovered that he did not necessarily need a medium, or a seance circle, to get messages from his beloved departed spirits. He discovered table rapping. On the 13th November 1933 King held a small dinner party at which three close friends were the guests. We do not know who introduced the idea, but King writes in his diary, "We had an amazing evening. The first time I have seen table rapping, and having messages come thro' to me from father, mother, Max (his brother) and Bella. There can be no shadow of doubt as to their genuineness". From then on King refers constantly to his "little table" — he seems to have communicated constantly through it. His circle was small, a very few close friends, who lived nearby. He no longer needed to travel to mediums, or have them brought to him, to stay in touch with his dead family — he could communicate every night if he wished. Frequently his only companion with the little table was Joan Patteson, a close friend and next door neighbour. It was all very cosy. King continued to visit mediums whenever the opportunity presented itself, and when he travelled, but in the meantime he had his little table. He seized upon every opportunity to communicate with the dead. It is recorded in the book that when in Toronto, in 1942, on a visit to his publisher, he discovered by chance that one of the employees of the firm was a spiritualist. Nothing would satisfy King but that he have an immediate sitting before returning to Ottawa, and he records with great pleasure that not only did all his relations appear, but that he had conversation with Sir Wilfred

Laurier, Queen Victoria, Florence Nightingale, Ann Boleyn, Sir Frederick Banting, Norman Rogers (his former secretary), and many others. One has an irresistible mental picture of all these characters lined up, so to speak, in a waiting room to converse with the Prime Minister of Canada. A motley crowd indeed.

Perhaps I should relate one of the more interesting communications recorded — one that caused King some doubt, however fleeting, as to the origins of some of his messages — because he *did* doubt at times, but seemed able to successfully stifle these doubts. It was 1939 at the outbreak of the second World War. On the 2nd of September King and Joan Patterson were holding a session with the little table. King's father came through and announced that Hitler was dead; "He was shot by a Pole". Hitler's armies had invaded Poland the previous day. King's mother, Laurier, William Gladstone (a frequent visitor) and Max King followed. During the seance there was a telephone call to say that the British Cabinet were delivering an ultimatum to Germany, and that war was imminent. King felt that more time should have been allowed before the ultimatum expired. He returned to the little table, where his father's spirit still asserted that Hitler was dead and said that the British and French would agree to a conference when they heard of this. His mother declared that, "War will be averted". Hitler, of course, was not dead and war was not averted, and on the 4th September King wrote, "This all makes perfectly clear either that a lying spirit has come in somewhere, or that subconscious wishes dictate the words expressed". He continued, "I felt I perhaps should not have sought to use the table to discover the course of events".

From time to time King expresses an uneasy feeling that some, at least, of his messages originate in his own subconscious desires and wishes, but he does not seem able to sustain this belief. To a large extent he left his spiritualism in abeyance during the war years, and during two visits to London, for instance, he records no séances. However, he did continue to use his little table, and he records a séance in 1941, when he sought advice about a trip to England, and Laurier advised him to go by bomber plane, his mother declared that Churchill liked him, and Gladstone told him the war would be over by Christmas — all his own subconscious desires! In spite of reservations that King expressed from time to time about the messages, it is clear that in fact, at heart he believed them. In 1948, on a visit to London, and when he had resumed sittings with mediums in that capital city, he records a sitting with Geraldine Cummins, a well-known English medium. Roosevelt was then, of course, dead, but he communicated during this sitting, and asked King to deliver certain messages to Winston Churchill. During the course of the sitting Roosevelt had, allegedly, asked or begged King not to retire from his office of Prime Minister; Roosevelt said that King had the wisdom that Churchill lacked, and urged him to hold on to office, promising that when he (King) slept he (Roosevelt) would put messages in his mind. King was indiscreet enough to send word to Churchill that he had these messages for him, and when Churchill asked to see the documentary evidence he sent the record of the sitting to Churchill, together with the uncomplimentary remarks about Churchill, who was not pleased. In 1948 also during this visit, when King was ill and confined to his rooms at the Dorchester Hotel, a whole procession of professional mediums visited him, bringing with them the spirits of a host of his deceased friends. Roosevelt appeared and told King he should "knock off for at least a year". and that he should write his memoirs, not forgetting the *"important chapter, your firm faith in a future life,*

that you have evidence of it." King returned to Canada, and within two weeks resigned from being Prime Minister, but he never got around to writing his memoirs or the requested chapter.

I would like to turn now to the second book of my trio. This one is called *The Psychic Mafia* with a subtitle *The True and shocking confessions of a Famous Medium*. The medium is one Lamar Keene, and the book is his confession of fraud, as told to Allen Spraggett and the Rev. William Rauscher. Allen Spraggett is a wellknown personality in the field of parapsychology, an investigator, an author and journalist. He has had many years of experience of investigation of mediums. Canon William Rauscher, an Episcopalian rector in New Jersey, and past President of the Spiritual Frontiers Fellowship, has also had many years of experience in investigating spiritual mediumship, and he and Allen Spraggett collaborated in writing a biography of Arthur Ford, the famous medium among whose papers they found evidence suggestive of fraud. Over the years there have been many allegations of fraud in the séance room, especially among the more highly paid professional mediums, and there have been many confrontations between investigator and practitioner, and some between mediums and those who come seeking the truth. There has recently been a controversy in England between the President of the Spiritualist Association of Great Britain, and some members of a spiritualist church he visited, who accused him of conducting a fraudulent séance. This type of allegation is not new, but such allegations are very difficult to prove. Evidence of the truth of the medium's *message* is often very convincing, especially to a bereaved and emotionally upset person who wants nothing more than the conviction that death is not the end.

This book *The Psychic Mafia*, like the previous one on Mackenzie King, makes fascinating reading. Lamar Keene relates how, when he was nineteen years old, he was introduced to spiritualism by a friend. He and the friend attended a spiritualist church, gradually becoming absorbed into more and more of its activities. They started off innocently, genuinely believing, but he relates that they became increasingly aware of the fraudulent aspects of the set-up. He describes the gradual change in his own feelings *about* the fraudulent aspects of mediumship — after all the sitters want voices, spirit forms, wonders, and isn't the customer always right? He relates how easy it was to pick up bits and pieces of information about the clients and weave them into the spirit messages. He relates also how he and his friends gradually came to realize how much fraud was involved, but by then they were also dazzled by the potential profits! He goes on to say how they broke with the church they had been involved with and decided to launch out on their own. They invited a famous medium to visit them to demonstrate her abilities, and they realized that she was using the most simple methods of cheating. They let her know they were aware of this, and offered to co-operate, and they were in! Once it was realized they were prepared to operate on a fraudulent basis the mediums' secrets were revealed to them, and Lamar Keene relates how the "psychic mafia," as he dubs it, works. He tells of files that are kept relating to everyone who ever seeks a sitting from a fraudulent medium, how these mediums exchange information both of messages given, and knowledge obtained from the sitters, how this information is recorded and circulated on file cards kept in locked and secret vaults in many spiritualist churches and camps. He reveals the conjuring tricks that these cheating mediums use to produce their effects; he tells of objects stolen, only to be returned at a later date as if mysteriously

produced by spirits. He tells of fake materializations, of concealed microphones to pick up illicit information about sitters, and much more.

One might quite justifiably wonder why, if mediumship was so profitable, did Lamar Keene decide to confess. It was a very profitable racket and he tells us of enormous sums of money paid to mediums for their information. He says that he gradually became unhappy about deceiving one particular person of whom he had become very fond, and who was as a second mother to him. This lady was a person of great integrity and honesty, and Keene says he became very uncomfortable with his deception. He tells us also, that he became a Mason, and began to take the masonic obligations to heart. Friction increased between him and his partner in mediumship, until finally a confrontation occurred, and Keene decided to make a clean break. He confessed his tax evasions to the Internal Revenue Services, and confessed to the police authorities, the FBI and the sheriff of his years of fraud. He then was prepared to tell his story to anyone interested and prepared to listen. The book *The Psychic Mafia* is that story.

But Lamar Keene's story is not the whole story of mediumship and spiritualism. It appears obvious that *many* of the professional mediums are fraudulent, and only in the business for the money. But Keene's story only confirms what many researchers have been very suspicious about for many years. There are many stories on record of exposures of fraudulent séances. It is interesting that in the past, parapsychologists and researchers have often been bogged down by the fact that they have been certain that fraud exists, and have yet been unable to prove it satisfactorily. A great deal of effort has gone into trying to prove that the physical phenomena of the séance room, the noises, floating trumpets, and the like, are produced by cheating methods, and perhaps not as much effort has gone into research into the origins of the messages themselves, the sources from which the mediums obtained the information given out by the spirits. It has been a very mixed picture indeed, and it is clear that while there are fraudulent mediums, there are also many many people who are *not* cheating, and who do really and honestly believe that they are communicating with the spirits of the dead.

We come now to our third book, entitled *Conjuring up Philip — an Adventure in Psychokinesis*. This really was an adventure — with an unexpected ending. This book tells the story of a parapsychological experiment, one of the most interesting ever performed by the participants. A number of members of the Toronto Society for Psychical Research became interested in a discussion on the nature of a ghost. The question arose because some of the members had been out investigating an alleged haunting, and during an all-night vigil some of the team had themselves seen what they thought was an apparition. During the subsequent discussion the group reasoned that as they themselves did not believe that such apparitions were indeed the spirits of departed people, then seeing a ghost must be an hallucination, and if several people see it at once, then it must be a collective hallucination. This of course, was only a theory, but the group felt it was an acceptable alternative theory to the departed spirits theory. They reasoned that if their theory were correct one ought to be able in some way to produce an hallucination, preferably a collective one, that they all would see together, and if they were really lucky perhaps one that could be seen by everyone present. It seemed an attractive idea for an experiment, and they decided to try it. The book tells the story of the experiment.

Briefly, this is what happened. The members of the group decided that in order to be sure that their ghost was not a departed spirit they would have to invent a completely fictitious character, but give him or her a personality and background story that could be acceptable in order to create a ghost story. The story of Philip, a Cavalier, living in the mid 1600's, at the time of Oliver Cromwell in England, was invented by one of the group members. Philip had been a follower of Charles I, who had been deposed, and Philip remained a follower and spy for Charles during the period that Cromwell was ruling the country. Philip was married to a beautiful but frigid wife, Dorothea, and the marriage was extremely unhappy. Philip found a beautiful gypsy girl while riding through his estates one day, and brought her back to live in secret in the Dower House as his mistress. However, Dorothea found her, and accused her of using witchcraft to ensnare Philip, and had her tried and burnt at the stake as a witch. Philip was too afraid of being denounced as a spy for Charles to intervene, but subsequently suffered agonies of remorse, and finally cast himself from the battlements of his home in despair, and became a ghost. This was the ghost the group decided to attempt to create.

It did not prove an easy task. The group met regularly for a whole evening each week, but at the end of a year, after trying various meditation methods, they still had not seen any apparition. However, during this time they had come across the work of some English people who had been interested in trying to reproduce the physical effects of the seance room — the previously mentioned noises, raps, levitations, etc. A special type of approach to this particular problem was recommended, likened to learning a psychological skill. Here were some people saying that perhaps some types of physical phenomena were genuine, and that they could be produced by any body, not necessarily mediums, and also that these effects were not caused by the spirits of dead people, but that they came from the subconscious minds of the living people in the circle. The Toronto group members decided to try this approach, having read with care the details of the English experiments and the reasoning as to why it worked. At that stage they were still hoping to create an hallucination. Basically, the recommended approach was a re-creation of the seance room atmosphere, but without the need for a special medium, or the belief that spirits of the dead were present. The English experimenters believed that the force necessary to produce the phenomena was generated in the minds of the sitters, and that anyone could acquire the ability to do this by learning it as a sort of psychological skill. The members of the Toronto group decided to try this method to produce their apparition, and changed their approach to the experiment completely.

To their great surprise, one evening, shortly after they had changed their methods, the table suddenly slid across the room although nobody had actually pushed it. Shortly afterwards the table started to emit raps, loud and clear, while everyone's hands were still on top and nobody was moving. The raps seemed to be coming from inside the table. The sitters asked if the raps were being caused by Philip, their imaginary ghost. They suggested that one rap should signify 'yes' and two raps 'no'. The table responded with one rap, and they continued to ask questions and elicit raps in reply. It should be emphasised that the raps came in reply to questions only, and were not random noises. The sitters continued over many evenings to question 'Philip' and elicited from him entire confirmation of the story they had invented for him. Over a period of

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time the table acquired a complete personality to the members of the group — he was Philip.

Philip did not appear, and to date, has still not done so. The members of the group feel that the experiment will not be really complete until they do produce the apparition. But the experiment had taken an unexpected turn and instead of providing answers about ghosts had shed considerable light on what happens in the séance room. Here were genuine physical phenomena, but the spirit allegedly responsible for them was a completely imaginary character. It should be stated that none of the group members are psychics or mediums, they are not spiritualists in their beliefs, and the sittings were conducted in full light — even the glare of television cameras — as opposed to the dim lights of the séance room. Many many visitors came to see and participate; the proceedings have been filmed, videotaped, televised, and tape recorded. There is no fraud involved in the production of the noises, or indeed of various other minor physical manifestations that have occurred from time to time. The experiment continues to the time of writing — the group members have tried many experiments — they have proved they can switch communicators to such improbable characters as Father Christmas, a raven-haired beauty from Venus, a talking dolphin named Silk, the Artful Dodger from Dickens. Anyone whom the group desires to produce as the communicator they can. They discovered that they were not all needed to produce the rappings. Any four of the original eight group members could produce results. Any number of visitors can be added, and these get answers to their own questions in the form of raps under their own hands. The full story of the experiment, together with some of the alleged conversation from Philip is told in the book, together with chapters relating the experiment to spiritualist theories, to the poltergeist phenomenon, to current parapsychological research and to haunting and apparitions.

Perhaps for the purpose of this paper the reader should be reminded that spiritualism had its very beginnings in the United States in 1848, when two sisters, Maggie and Cathie Fox were the victims of what, in the light of current knowledge, appears to have been a poltergeist outbreak. Noises were heard, in particular loud rappings, especially in the walls. The girls, after an initial period during which they were badly frightened, started to answer the raps back, and to their great surprise the raps responded in the same way Philip does. A conversation ensued when the raps alleged that they were created by the spirit of a murdered peddler, who had been done to death in that house by a previous occupant. Although the previous owner vigorously denied the story, and no trace of proof was found to confirm that such a peddler had ever existed, nevertheless the belief that the spirits of the dead can communicate by rappings was born. During the next forty years or so the idea grew until a new religion, that of spiritualism began.

Although one cannot, as yet, explain the source of the energy that creates the physical phenomena, certain ingredients, so to speak, seem necessary. There has to be a strong emotional element to produce results — it seems as if the noises are the result of the release of emotional tension. The members of the group need to be strongly *en rapport*. They need to have spent time with each other, and have emotional sympathy and empathy, with a common object of attention — in this case Philip. Experience has shown that the group members acquire a degree of mental telepathy with each other. So much for the necessary ingredients to produce physical phenomena. But what about the content of

the messages? The group have demonstrated to their own satisfaction, and to the satisfaction of those people who have been observing the experiment, that they are unable to produce anything in the way of response that they do not already know either collectively or individually. Philip in his responses never strays from the story the group have invented for him, unless the group as a whole decide to make a change, then he goes along with it. The group can demonstrate a degree of mutual telepathy, but they have no ability to foretell the future, or to answer correctly a question to which none of them know the answer. Interestingly, in such a situation strange scratching sounds come from the table — typical of the scratching noises reported in many poltergeist cases. The group may answer questions *inaccurately*, in fact they often do. But this is because their knowledge is incomplete, and they *believe* the answer to be correct. In other words, Philip is a reflection of their own collective knowledge, conscious and at times, subconscious.

This experiment sheds a great deal of light on what might very well be happening in those spiritualist circles where the medium is not deliberately fraudulent, or cheating. Many such séance circles are exact replicas of the Philip experiment, consisting of the same group of people meeting week after week, with a common shared interest and belief, often emotionally involved with the idea of the spirits of the dead being present, and in fact obtaining genuine physical phenomena, purporting to come from these same spirits. In reversal of what has been so often believed, the phenomena may well be genuine, but do the messages come from the dead spirits, or are they a product of the conscious and unconscious minds of the sitters? Are they getting just the messages they wish for and expect? It seems to me that the evidence is beginning to be weighed down very much in favour of this latter idea.

Let us return to Mackenzie King. He had dealings with both professional and amateur mediums alike, and although his biographer states that there is no evidence that King was exploited, or that they charged him excessively, nevertheless it is difficult to believe that many of the professionals could not have been well aware of his identity, and of his extreme belief that his family and dead friends were all around. Certainly at one time at least it was recorded that King was urged to retire from public life, write his memoirs, and especially was he enjoined to write of his belief in spiritualism and of his communications with the spirit world. He did indeed retire within two weeks of being told this, but he did not write as suggested. He never got around to writing his memoirs, and he seems to have decided that the world was not ready to accept the fact that the Prime Minister of a country such as Canada was indulging in Spiritualism. But imagine how profitable it would have been to the spiritualists if such a public statement had been made by King! But as well as participating in professional séances King himself indulged privately in the table rapping. Probably his experiences with the table reinforced his belief in the mediums and vice versa. He could not know as we do now that he himself could be responsible unconsciously for the rapping. He would know, for certain, that neither he nor Mrs. Patteson were actually knocking with hands or knees to produce the sounds. To his mind it *had* to be some outside force, and for him, the spirit theory was the obvious answer. Nevertheless, from time to time, he had his doubts and he expresses these in his diary. He wonders whether the messages were the surfacing of his own subconscious wishes and desires, but the genuineness of the rapping led him to believe that they had to be caused by some sort of spirit, even if it was at times a lying spirit.

As I have said the diaries make fascinating reading, and we are fortunate indeed that they have been preserved. Of course, Mackenzie King was not the only person in high office or with a responsible position who has consulted mediums and the spirit world, but his diaries constitute perhaps the most detailed account of such consultations. As I said at the beginning the question of one's personal belief in survival as such is not affected by the truth or otherwise of the spiritualist claim. But the mode of survival is important if it is claimed that we continue to meddle in the affairs of men after we have passed on. It is then important to be sure of the truth of what is being claimed. I think the content of the three books I have been discussing proves to anyone who is not totally biased that there can be other interpretations put upon the events and messages that are associated with the practice of mediumship than that our spirits are surviving beyond death, floating in a kind of never-never land, waiting to be called in by some medium to deliver banal messages, dubious counsel, and often sugary comfort. I would hope most of us are too intelligent to believe in this mode of survival.

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Toronto Society for Psychical Research.

1 March, 1977



# Xenoglossia: A Subject with Two Possible Instances

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*ABSTRACT: Three types of xenoglossia may be distinguished: neophasia, linguistic restitution or pseudo-xenoglossia, and true xenoglossia. A preliminary case report of xenoglossia in a subject who spoke Norsk, the language of Vikings, and wrote Sassanid Pahlavi, the ancient language of Mesopotamia, while in a deep hypnotic trance, is discussed.*

## 1. Introduction

In mediaeval times the utterance of foreign languages unknown to the speaker was one of the four principal signs of the presence of a demon. *Xenoglossia*, the speaking of foreign languages, and *xenography*, their writing, even today — despite over 100 years of empirical research — are regarded as uncanny. It is useful to consider the writing and speaking phenomena as related, and to distinguish three types: neophasia, the construction of a purely artificial language; linguistic restitution, the use of a previously forgotten language or the recall of subliminal auditory and visual memory records; and xenoglossia itself, as a true utterance of a language foreign to the speaker.

The neophasias include two related phenomena “speaking in tongues” or *glossolalia*, and *linguistic neoformation*. The speaking in tongues of certain fundamentalist religious groups has no apparent grammar or propositional vocabulary and sounds as pure gibberish; however, it is claimed that the speaker and sometimes others can translate what was said. William James (1897) reported one case and later (1902) remarked that automatic utterance is characteristic of religious leaders. Cutten (1909) considered glossolalia a phenomenon unique to Christianity. Linguistic neoformation sometimes satisfies the requirement of a language. In the late eighteenth century a man known as Psalmanaazaar constructed an artificial language he called Formosan (Stuchlik, 1967). Early in the present century, William James reports of a journalist and member of a spiritualist camp who spoke an artificial language while in trance (Fodor, 1966). A famous case was that of Mlle. Hélène Smith who devised (apparently unconsciously) the “Martian” language, and the “Uranian” and “Lunarian” languages, as she called them. Theodore Flournoy, Professor of Psychology at the University of Geneva, studied this case thoroughly and discovered the Martian language was modelled after French (Flournoy, 1899). There were two subsequent Martian languages, those of Mrs. S. Mead and of Dr. Mansfield Robinson (Fodor, 1966). Two more recent cases were a new language from a schizophrenic patient studied by Jessner and a man who constructed several languages (*polyglottous neophasia*) reported by Stuchlik (1957), both cited by Steyn (1972). Historically, much earlier examples of neophasias are known. The “primeval tongue,” the universal language Swedenborg believed to be the language of the Angels, was used by the early spiritists to communicate with the dead. The beginning of modern spiritualism in the

mid-nineteenth century, however, saw the primeval tongue fade out and be replaced by multiple more cryptic constructs.

Linguistic restitution is a form of cryptomnesia and is the most widely recognized of the xenoglossic phenomena. Regression to another language or the mother tongue is not uncommon (in polyglots) in acute aphasia. Psychotic polyglottous individuals may exhibit fewer thought disorders in some of their languages (Steyn, 1972). A related type of language restitution is the unconscious recall of long forgotten visual or auditory memories during dissociative states such as hypnosis and automatic writing. One of the first recorded cases of the remarkable unconscious ability of aural memory (cited in Meerloo, 1964) as of a maid-servant who in delirium spoke ancient Biblical Aramaic. It was discovered that some years previously she had listened to a minister who was preparing himself aloud for an examination in Aramaic. Many passages of the woman's delirious speech were identified in the pastor's collection of Rabbinical writings. A similar case (and perhaps the same case) was reported by Coleridge (1889). Myers (1961) discusses a case reported by Schiller whose brother while in trance wrote classical Greek sentences that he later recalled having seen years previously in the Iliad. Fragments of Hindustani were also spoken, a language which he had not heard since a baby of eight months in India. Freeborn (1902) reports an elderly lady delirious with pneumonia speaking Hindustani which she had not heard since the age of four. A physician, the late Dr. Eric Strauss, in charge of the psychiatric department at St. Bartholomew's Hospital in London, once wrote in trance a script that was German and written upside down. It was found to be a close copy of an encyclopaedic article that the writer presumably had seen much earlier (Heywood, 1968). All commonly known languages have been seen in automatic handwriting (Kardec, 1874). Linguistic restitution may be responsible for reports of foreign languages in dreams. Such occurrences are usually consonant with the dreamer's language skills and the dream work (Altman, 1969). It may also explain reports under hallucinogenic drugs of hearing voices speaking foreign languages unknown to the subject (Barron et al, 1964). Linguistic restitution may also account for the unusual ability of some automatic writers to construct more grammatically correct language forms while in trance than normally.

True xenoglossia is controversial. Myers did not believe in the phenomenon (Fodor, 1966). It is a phenomenon difficult to prove because it requires establishing that the speaker or writer previously never had heard or seen the language. For example, Mathew Manning (1974) reports automatically writing Arabic script that was, to him, a completely unknown language. One phrase, however, translates as "Kingdom of Saudi Arabia" of which the Arabic version appears on bank notes. Heath (1886) describes over 600 people, mostly children, in the period 1688 to 1701, who reportedly did not know French, but would preach long sermons in that language. The *New York Evening Post* reported (November 10, 1930, cited by Fodor, 1966) a four-year-old girl in Warsaw who, although her parents spoke only Polish, was found to speak correct Gaelic (a long-deceased great-grandfather who spoke Gaelic had emigrated from the island of Lewis in the Scottish Hebrides). It is not known what became of the girl or if she had memories pertaining to past lives. (See Stevenson, 1975, 1977, for such memories in children). Stevenson (1974) thoroughly researched the case of a woman who spoke grammatically correct Swedish and Norwegian while recounting, in trance, a past life. After several years of study

it was strongly suggested the woman had not in her current life learned the foreign languages spoken in trance. A second case suggesting true xenoglossia has also been reported by Stevenson (1976). Challmes (1974) has reported on a hypnotic subject that while being investigated for memories of past lives wrote Egyptian hieroglyphics considered by language authorities to be "very well done." The report did not mention if an attempt was made to establish whether the subject had previously seen hieroglyphic script. Another instance of speaking words in the old Egyptian hieroglyphic language occurred in a young native English-speaking girl known as Rosemary in 1927 (Wood and Hulme, 1937; Curtis, 1970). Several thousand phrases obtained while she was in trance were verified by Egyptologists to be authentic. Furthermore Rosemary was able to answer in context, and in the ancient language, questions put to her in that language.

## 2. *Hypnosis and Multiple Personalities*

The induction of multiple personalities in a deeply hypnotized subject is a well recognized phenomenon. Seven percent of volunteer subjects are able to create secondary personalities under hypnosis, and such subjects are psychologically healthier and freer creatively to adapt to hypnotic suggestions than hypnotic subjects who are less able to dissociate ego functions (Kampman, 1976). That in certain subjects these *sub-identities* are integrations of unconscious memories of putative past lives is a matter of some controversy. It can only be tested empirically. Should such personalities demonstrate knowledge and skill (for example, of foreign language) not known to the hypnotic subject, that would be evidence for the case (Ducasse, 1962). The requirement that no one else now alive also knows the knowledge (as proposed by Watson, 1974) begs the question of ancillary mechanisms such as telepathy and clairvoyance. If clairvoyance exists as a valid mechanism to see the future (and to know what the experimenter will find if he attempts to verify hypnotically produced facts, as suggested by Lodge, 1894), why not a parallel mechanism to see the past psychically? In such cases, the requirement of Lodge and Watson needs augmenting by the condition that no one else, alive or once living, knows or has known the knowledge — a clearly unreasonable situation. I believe it is merely sufficient for the hypnotic subject not to know, itself a formidable state to prove. However, it is difficult for some people to be rational about reincarnation theory on account of bias from either our Western Culture's materialism or its religious creeds (Lewis, 1977; Stevenson, 1977; Whitton, 1976). Immense resistance is mobilized against any theory that threatens to revise a culture's foundation.

The technique of regressive hypnosis and its precautions as employed in these experiments have been previously described (Whitton, 1976).

## 3. *Case Report*

The subject is a single man in his late thirties. He is educated in the field of psychology and holds a responsible position in the assessment and treatment of children with learning and behaviour disorders. His native language is English, but he has also studied, in varying degrees, French, Hebrew, Rashi, Yiddish, Greek, Latin and Italian. As far as can be determined, he had heard or seen at some time, Hindustani, Punjabi, Spanish, Polish, German, Russian, Hungarian, Czech, Dutch, Norwegian, Japanese, Mandarin, Cantonese, Cree, Ojibway, Korean, Vietnamese, Gaelic, Swahili, Arabic, Afrikans, and several dialects of the West Indies and Polynesian Islands. Such exposure to various languages is

not uncommon with today's communication and travel. As far as can be so far ascertained from the subject and his family he has not heard or seen Icelandic, Norsk, or any of the older Iranian scripts.

Using techniques previously described (Whitton, 1976), documentation and analysis was undertaken of memories of putative previous lives of the subject. Of those personality identities studied in depth, two seem able to speak or write fragments of languages that the subject has not studied within this life. One is a personality called Thor who claims to be what is now called a Viking. Thor is not remarkable, being only one of many raiding warriors in a small Viking army about the year 1000 AD. Thor speaks Norsk, the direct ancestor of modern Icelandic. The subject while in deep trance said that in his mind he heard Thor speaking. The subject could not translate the language nor understand in any apparent manner what Thor was saying. When asked, the subject was able to write on paper a phonetic description of phrases and words he would hear Thor speak. The following list of phonetically written phrases were obtained when the subject, as Thor, was asked to describe his ship and life at sea. Raters who spoke Icelandic and Norwegian assessed independently the list for "Icelandic-looking" words and phrases that were represented phonetically. The phonetics in bold type are those for which there is agreement in the interpretation; the Icelandic word equivalent is in the second column and English translation in the third.

NAJLBROVNIK	BRU NYK	<i>Bridge Seamonster (NYKUR)</i>
	(LJUBAVNIK in Serbian means <i>Lover</i> )	
YIAK NBRONIJK	JAKI	<i>Iceberg</i>
LEJNESVKONJA	NES VIK	<i>Part of land between two bays, Bay</i>
	(KONJA in Slavonic languages in <i>Horse</i> )	
ROKO	ROK	<i>Storm</i>
VLOGNIA	LOGN	<i>Calm weather</i>
NEJI LOKUSNO	LOK LOKS	<i>Container, Ending, At last</i>
	(NIJE USUSNO in Serbian means <i>It is not tasteful</i> )	
IAN TI		
KIAK 80 SANTI	(80 SANTI in Serbian means 80 <i>Ice floes</i> , the 80 was written in numerals)	
IAN TIYOCCO		
YKONDOROKONO	KOMDU	<i>Come you</i>
VOLNYKIAGE	(VOLNY in Russian means WAVES)	
KLONYK CHIKRANTI		
IAN TI LBOVNYK		
BITTEREN HOSEN	(This came into his awareness as he was looking at his clothes and is probably out of context)	
YAK RUDI	ER UTI	<i>Is outside</i>
LOTTGAEN	(A name of a place)	
VRONJK		
YIAK LEDDEREN	(JAK LED in Serbian means <i>Strong ice</i> )	
YAKOVADJKA		
RAMA BJACTAEN		
HYARTA KNOLOTTEN HJARTA	<i>Heart</i>	
VIOLNYK		

This collection of phonetic phrases can in part be recognized as fragments of the language claimed, and it appears to be in context to the questions asked of the subject.

A subject who is naive to a certain language can experience considerable difficulty in phonetically writing that language. For example, another subject was slowly read the following Icelandic sentence: *Enn bar staka jaka af og til ad lani vid Hornbjargsvita*, which means, *At Hornbjargsvita single ice floes were occasionally still drifting ashore*. As the subject was read word by word the Icelandic sentence by one of the raters (whose native tongue is Icelandic), the subject wrote the following phonetics: NYR STARKA YAKA RFOTV ARLADI YIV HORVSRSWEDA. It can be appreciated that only three or four of the phonetic groups would be recognized in their translation.

Most of the recognized phrases from the case report do relate to the context of ships and possible events at sea. It is interesting to note that some of the phonetic phrases can be recognized as other languages (Serbian and Russian). Whether these represent instances of linguistic restitution or coincidence of language forms could not be determined. A related problem is the chance that a random phonetic group can be recognized as representing words in a specific language; this has not been assessed, although it has long been recognized that auditory perception can be unreliable (e.g., Coover, 1917). There is no evidence that the subject has seen or heard at any time Icelandic or Norsk or Serbian. However, on one language there may be hesitation to declare that linguistic restitution is not a factor in this subject.

A second foreign language was investigated in this subject to increase the likelihood of true xenoglossia. The subject while in deep trance was able to write a script that belongs to the Iranian Group of scripts. He described being a young man living in Mesopotamia (then part of Persia) in 625 AD. The script used at that time was Sassanid Pahlavi (226-642), and has not been used since 651 AD. It has no relation to the present day Iranian. All of the samples produced in deep trance were verified as being Sassanid Pahlavi script by Dr. Idrahim Pourhadi from the Near Eastern Section of the Library of congress (communication, November 23, 1977). The script was written in a child-like manner with some letters misplaced. The subject was asked in trance to write Pahlavi words as translations for certain English words. However, most of the produced script cannot yet be translated, and that which is does not appear to match what would be expected.

Of these two foreign languages it cannot yet be said that they meet the full criteria of true xenoglossia. However, there is no evidence they are instances of linguistic restitution or cryptomnesia, or neophasia.

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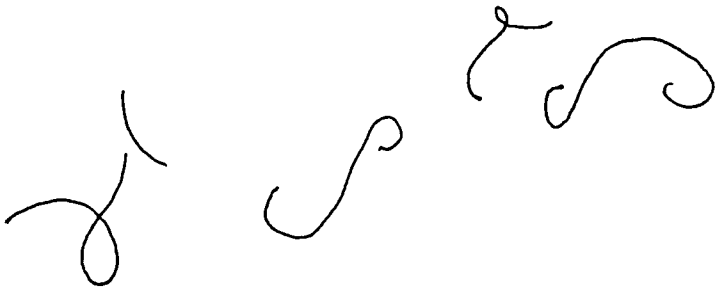
#### SUBJECT'S PAHLAVI TRANSLATIONS OF SOME WORDS

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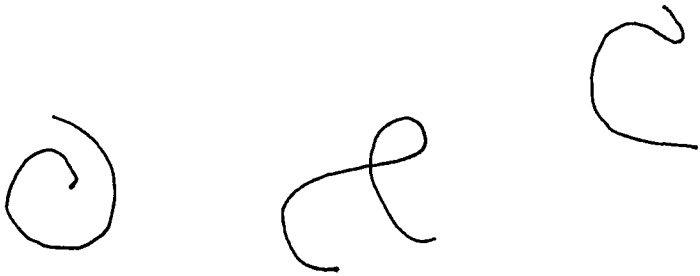
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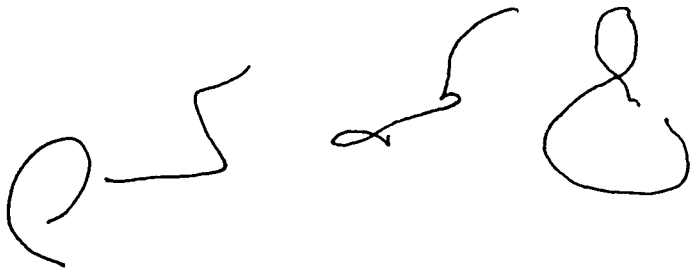
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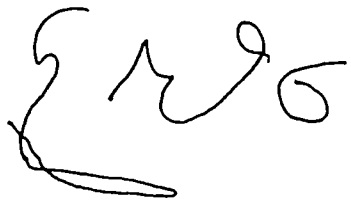
FOOT



TEMPLE



ROAD



CLOTHING

g o

HOUSE

Flora

VILLAGE

Wendy

BROTHER

George

20 ("HIS" AGE IN YEARS)

82

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T.S.P.R. Medical Committee

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# The Problem of UFO Reports

IRIS M. OWEN

*ABSTRACT: Some notes on the problems encountered when on the 'receiving end' of UFO reports. How does one make an assessment and decide on the method of investigation when a sighting is first reported?*

In April 1976 the Toronto Society for Psychical Research decided to take a closer look at the UFO phenomenon, in an attempt to understand just what was the experience people had had when they said they had seen a UFO. It was decided to set up a standing committee of the TSPR to undertake this research. Many of the members expressed interest in this project, and a number of qualified people in various disciplines offered their help, and we are able to call on the services of astronomers, air traffic controllers, meteorologists, soil analysis experts, and many others. We announced the formation of the UFO Research Centre, Ontario, to the local media, radio stations, television stations, and all the local newspapers, and waited for the reports to come in.

As might be expected, in the initial stages we were swamped with reports, most of them old sightings, some of them dating back many years. The majority of these reports were impossible to check because of the time factor. However, things eventually settled down, and the actual number of phone calls lessened. This paper is a reflection on the problems one encounters and the difficulties that arise at the receiving end of these telephone calls reporting UFO sightings. When calls come in decisions have to be made on the type of investigation to be carried out, the people to be called on to investigate, and the priority to be given any call.

The first frustration is that when someone sees what they believe to be a UFO they frequently do not telephone immediately and report the sighting. They wait until the next day, or the next week, or until someone or something reminds them that the 'thing' they saw "must have been a UFO!" Perhaps they have been listening to a radio program, or have read something in the newspaper. Thus, following media programmes, one gets a 'wave' of calls reporting out-of-date sightings, and there is no way of checking whether a light somebody saw, at some time they can't quite remember last week, was really unidentified, or merely *unidentifiable*, because of lack of sufficient information. The person concerned will generally assert that "it must have been a UFO, I have never seen anything like it before", and if you cannot explain it, they go on believing they have seen a UFO. Also, following a media program many reported sightings are 'coloured' to fit what the person reporting believes he or she *should* have seen for it to be a UFO. Any suggestion that a light in the sky could have been a planet, satellite, helicopter, or plane will be indignantly denied.

Even when people do telephone at the time of reporting a sighting their own beliefs and wishful thinking can sometimes colour their reports in this way. Thus I may be looking out of the window at the actual object being reported

to me as a UFO (say a planet, or searchlight), and the person at the other end of the telephone will be insisting that it is a UFO, but I can recognize it for what it is. Conversely, of course, many of our callers are pleased when we can immediately identify something as a natural phenomenon. However it becomes increasingly difficult to identify all man-made or natural objects in the sky; there is a limit to one's ability to identify aircraft when not presently in view, there are too many of them; similarly there is no reliable chart of the satellites, and some of these are visible on very clear nights or at certain times, and not others. To a large extent we have had to accept the fact that very many reported lights in the sky will remain *unidentifiable* — this does not mean that had we had the necessary information we could not have identified them, but such information is very difficult to get, especially after the event. However we take note of lights behaving in a manner which seems completely at variance with any other object in the skies which we know of, and some of them are indeed puzzling. One has also to take into account, of course, the possibility of deliberate hoax; a group of engineering students apparently pulled off an elaborate hoax in London, Ontario, in the Spring of last year. Some seven hundred people telephoned the local radio station to report two strings of lights crossing the sky; the sighting was reported on the news and a television crew went to the local airport to interview the pilots of two small planes that were in the air at the time. Although the students also telephoned in, saying it was a hoax, and although the remains of the balloons they used were found, and one of the pilots actually saw the balloons rising from the campus, the fact that it was a hoax was not widely published, and many people are not aware of the truth concerning this incident. This, of course, is an ongoing problem, stories about sightings continue to be circulated and repeated whether they have been proved reliable or not; it is important in the initial stages of an investigation to make sure that your informants are not pushed into a position from which they cannot retreat should they be proved mistaken.

The majority of the sightings reported to us have been of lights in the sky, but we have had a number of reported sighting of actual objects which certainly cannot be explained away as satellites, planets, airplanes, etc. The sighting reported is of an actual object, seen clearly enough to recognize shape and texture, although there may be lights on it, or around it. Also we have had reports of markings on the ground, alleged to have been caused by a UFO landing, although we have not, in our Centre, had a definite link between a UFO and a landing site. But we have had reports of objects 'as big as a house', 'hundreds of feet across', and so on. These reports present a problem completely different from the reported lights. Often these reports come in well after the event, and usually there is no other witness, although some sightings are reported where more than one person is alleged to have seen the object.

In dealing with such reports it is useful to be able to draw on one's previous experience in parapsychological research, because there is not the slightest doubt in my mind that some of these objects did not in fact objectively exist; they could have been due to other explanations. Of course, we have been the victims of one or two attempted hoaxes; some people tell us these stories just for fun, but to most of the people reporting this kind of object the experience is real, though the object *may* not be. I have no doubt that some of these sightings are types of hallucination. This was one of the reasons that we ourselves became interested in the UFO phenomenon — we were becoming increasingly aware of the strong resemblance that some of the UFO sightings bear to psychic pheno-

mena; an aspect that has until recently been largely overlooked. One of the points that used to be continually made in favour of accepting some of the more bizarre close encounter cases for instance, was that these events were reported by people whose 'word would be accepted in a court of law' — that there could be no reason why they should be lying, that the event which occurred was a real experience to them, and so on. This is a situation with which we are familiar in psychic research — psychic phenomena can and do happen to anyone, they are real to those to whom they are happening, very often they are real in the physical sense that anyone who happens to be present can witness them. The people reporting these events are not lying, they are telling the truth as they know it. It is perhaps important to reiterate the nature of hallucinations. Given the right circumstances anybody can experience an hallucination, and probably most people have had such an experience at some time or other during their lives. Hallucinations due to drugs are known and accepted as fact by most people who have read about the subject; hallucinations during a febrile illness are well recognized; and generally referred to as delirium. But one can also experience hallucinations at times of emotional upset or stress, if one is elated, depressed, worried, overjoyed, etc. This is nothing to do with one's mental health, it is purely related to emotion. In a state of disturbed emotions one frequently sees what one expects to see, for instance seriously ill people and those in danger of death frequently 'see' those loved ones who have already died. These experiences are very real to the person concerned, and they are unable to distinguish between hallucination and reality. I believe that some reported UFO sightings are a form of modern 'ghost'. The hallucination takes the form that is expected by the person seeing it.

We are all familiar with the ghosts of various ages and cultures, religious visions, ancestral ghosts, and so on. There are other modern ghosts, however, that parallel even more the UFO ghost theory. There is a legend in the Eastern part of England of appearances of a Great Black Dog — 'Black Shuck'. This ghostly dog, with blazing eyes, has been continually seen over a period of many years in this particular part of England. The legend belongs particularly to this part of the country. Ivan Bunn of the Fortean Society recently collected accounts of some forty first-hand sightings of this creature and plotted them on a map. They all occurred in the area of the legend. If you are an East Anglian you will be familiar with this legend, and you will not be surprised if the ghost you see is that of Black Shuck. Incidentally it is an area singularly free from UFO sighting reports.

In July 1976 two milkmen delivering milk early in the morning in Nottinghamshire, England, reported seeing a lion, on the road, walking away from them. They called the police, and a huge search, using tracker dogs and helicopters was mounted. It is a populous area, lions are not native to Britain, and it was believed the lion must have escaped from a zoo or circus. But no zoo or circus reported a missing lion. And no lion was found. Neither were the remains of any meat or animal a hungry lion might have devoured ever found — the lion, if it existed, must have become a vegetarian! People called in and stated that their pets were restless on the night before the sighting, and during the following ten days 65 people called in to the local police reporting seeing the lion. One couple even called in from Norfolk, many miles away, to say that previously they had seen a lion on a pull-in on the road, but had not reported it for fear of being thought crazy. A farmer called and reported finding

strange pawprints on his land. The lion was never found, nor its body, nor any remnants of food. It could not escape from England, and apart from the Norfolk report it was not reported anywhere else. But the whole episode reminds one very forcibly of the kind of thing that happens when a programme concerning UFOs is broadcast, even down to the restless animals, and the prints on the ground. Some of the objects people reported as lions turned out to be ordinary indeed, mistaken in the height of excitement for a lion, others were completely non-existent. The English are fond of animal ghosts (perhaps because of their well-known love of animals), a ghostly puma has been roaming the Surrey hills for some eight years past, and I have no doubt the lion will become a local legend in Nottinghamshire. It is worth noting that the initial sighting was observed by *two* milkmen, as was the aberrant lion in Norfolk seen by two people. While some of these sightings were probably in the nature of harassment to the already overworked police, undoubtedly a large number of people, in a state of excitement and fear, really thought they saw a lion. A momentary trick of vision can be transmuted into belief that one is seeing the object one expects to see. A ghost experience is often the culminating event in a poltergeist situation. Traditionally, in a poltergeist situation the first disturbances consist of noises, sounds of footsteps, doors banging, and so on. Then objects begin to move of their own accord, often quite large objects of considerable weight. Lights may switch themselves on or off, electrical and mechanical equipment may malfunction. At this stage the people concerned may believe they are being 'haunted', and search for a possible scapegoat, or 'scapeghost'. When it is decided who it is that is causing these effects it is not uncommon for one or more of the people concerned to see an actual apparition of their 'ghost'. This is a very common pattern of haunting, and on with which we have become very familiar over twenty years of research. Generally speaking the phenomena centre around someone who is in the midst of an *emotional* disturbance. Now, transpose this to the UFO phenomena, and one can see the parallels. If the person undergoing emotional stress is in a situation where unexplained happenings are taking place around him, and he then is out in his car, and suddenly the lights go off, or the engine stops, and he is familiar with and believes in the possibility that UFO's are real craft from outer space, and contain strange beings — labelled humanoids — then this is what he may very well see! They will appear as completely real to him as any other type of ghost. And, incidentally, one has only to recollect the reality of a figure conjured up by a stage hypnotist for fun, to realise how very real these figures are to the person reporting the experience. And of course their reality is confirmed in the witnesses' view by the actual reality of the car malfunction, or perhaps by the broken branches of trees, or even, possibly, by landing rings. We have had such cases reported to us. They need much careful and confidential investigation, but we have no hesitation in saying that some of the alleged close encounter cases reported to us have been experienced in the context of a poltergeist happening. The ghost that one sees in such a situation is exactly that which the viewer expects to see — in the days of Ancient Greece and Rome people saw the ghosts of the gods, and goddesses, who visited the earth and conversed with mortals; later, in the Middle Ages, religious ghosts were seen, the Virgin Mary, Christ himself, and various saints, apostles, martyrs. Ghosts of historical figures abound in their expected places, and family ghosts are seen in their expected and usual clothing, no matter that the brooch on great grandma's dress is the

one reposing in the jewel box upstairs! Traditionally all the expected trappings are there.

There is a further complication in the field of UFO reports. A specific 'cult' has grown up around UFOs. The basic beliefs of the cult are essentially the same as the basic beliefs of many religions, but with a 'twist'. Essentially the story is that UFOs are craft from some other galaxy, operated by beings superior to ourselves. They are watching the progress of life here. (Some say they actually 'planted' mankind here). They are finding and training certain chosen people who will be rescued from an impending 'holocaust' towards the end of the current millenium. Some spiritualists are now saying that the souls of those passed over are taken up into the UFO computers, and some of them can continue to communicate and are sending us this information! Some of these ideas have been around for many years and were put forward in the literature of the 1930's. They have become a mishmash of science fiction, spiritualism, and psychic readings, with a flavouring of pyramid lore, stories of the Bermuda Triangle, and lost Atlantis. When investigating a reported UFO sighting of a 'close encounter' type it has become necessary to ascertain if the person reporting has been exposed to any of these ideas, and believes in them. We have found that a number of people reporting this type of strange object, or who report they have been taken aboard, very firmly believe these theories; they may believe that they are among the chosen, that they have been given a message for mankind, or even that their loved ones who have passed on are aboard the UFOs waiting for them. Their reported sighting may then be more in the nature of a religious vision or apparition, and the 'shining people' bear a striking resemblance to angels.

As I have said this is not a research report, but a note of the difficulties one encounters at the preliminary stage of an investigation. On receipt of a call reporting a sighting some preliminary judgement has to be made as to the method of investigation to be followed. Mere filling in of a form does not give one much information about the personal background of the persons concerned, and it has to be stressed, very strongly, that whether the report is of seeing a flying saucer, or a ghost, or encountering a lion in the High Street, or a black dog with blazing eyes in the countryside, or a puma, or a headless coachman with headless horses, the experience itself is real, and the people having the experience may well be *completely normal people*. Any one of us can have this experience, and in fact most of us do have such an experience from time to time, even though we do not always recognise it as such.

It also has to be said that although many of the close encounter type sightings reported to us fall into the categories just mentioned, we cannot at this stage say that they all do. I have listed the possibilities that must be taken into account when investigating a reported sighting, indicating the depth of research that has to be done before conclusions can be reached; I am not suggesting that all sightings fall within these boundaries. We continue to collect reports and to investigate them as fully as possible. It is a problem well worth investigating, an increasing number of scientists and professionals are taking the UFO problem seriously and devoting some of their time to at attempt to unravel what is, in any case, a fascinating mystery. Hopefully we shall eventually understand the whole phenomenon as a result of these efforts.

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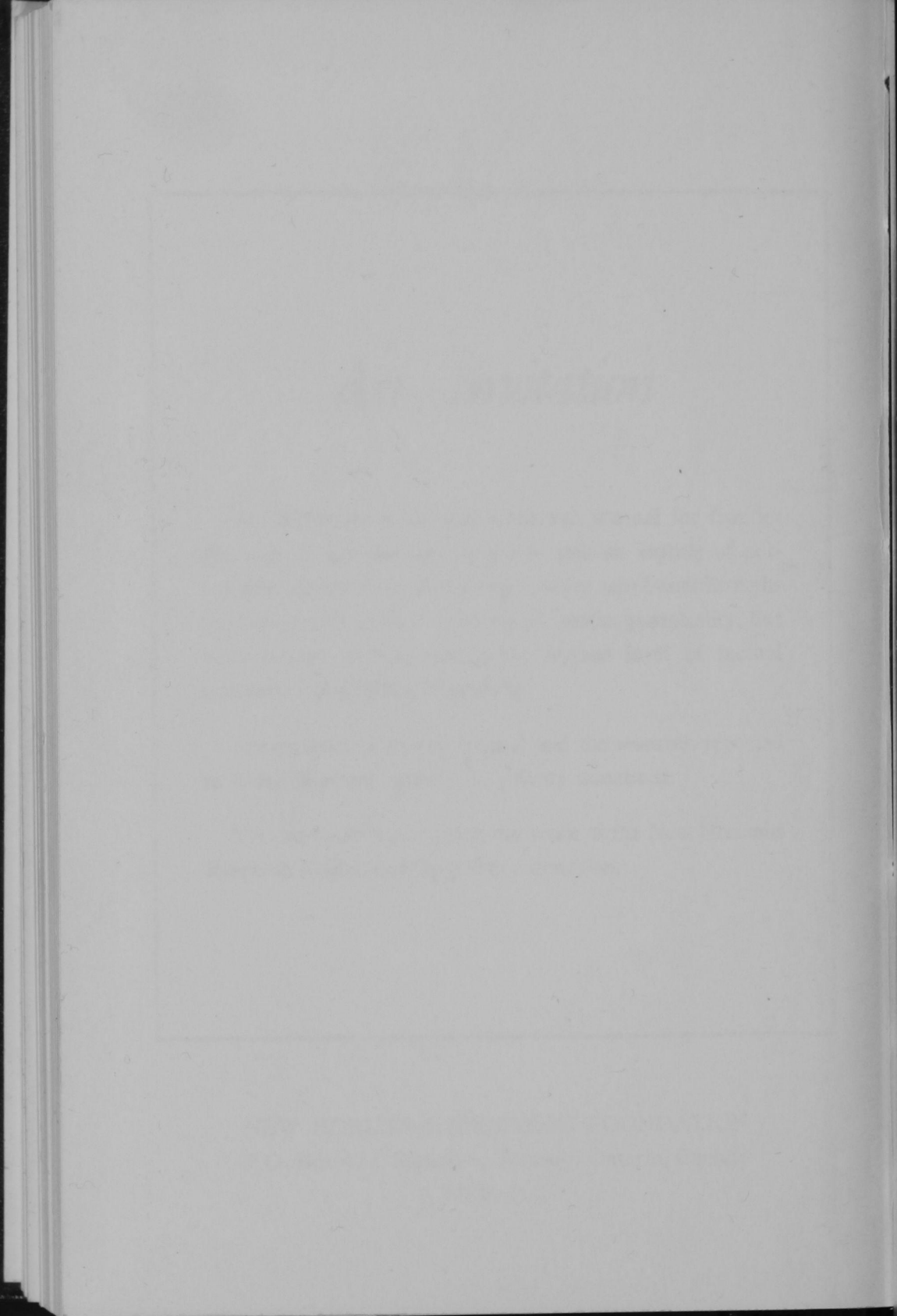
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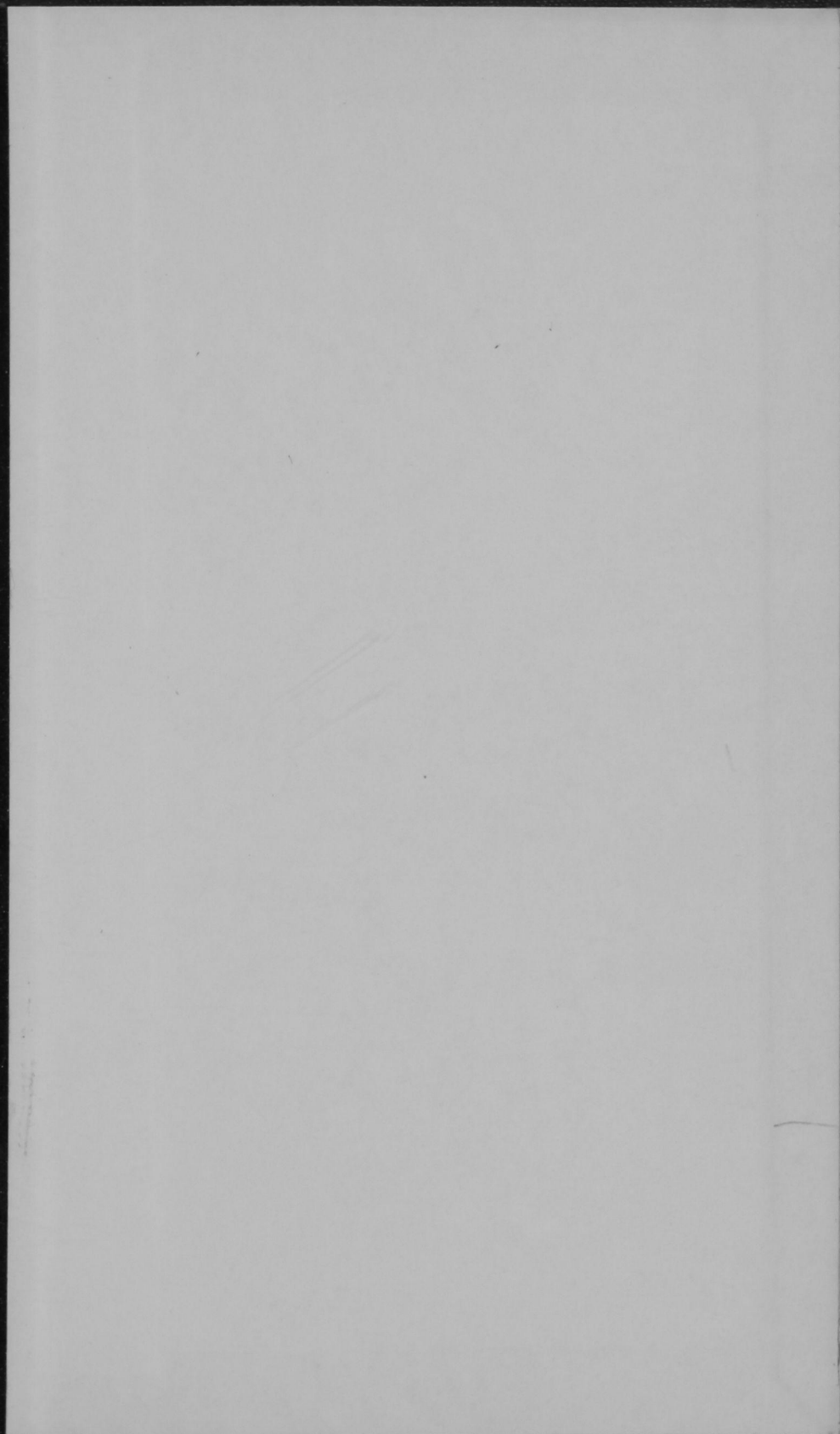
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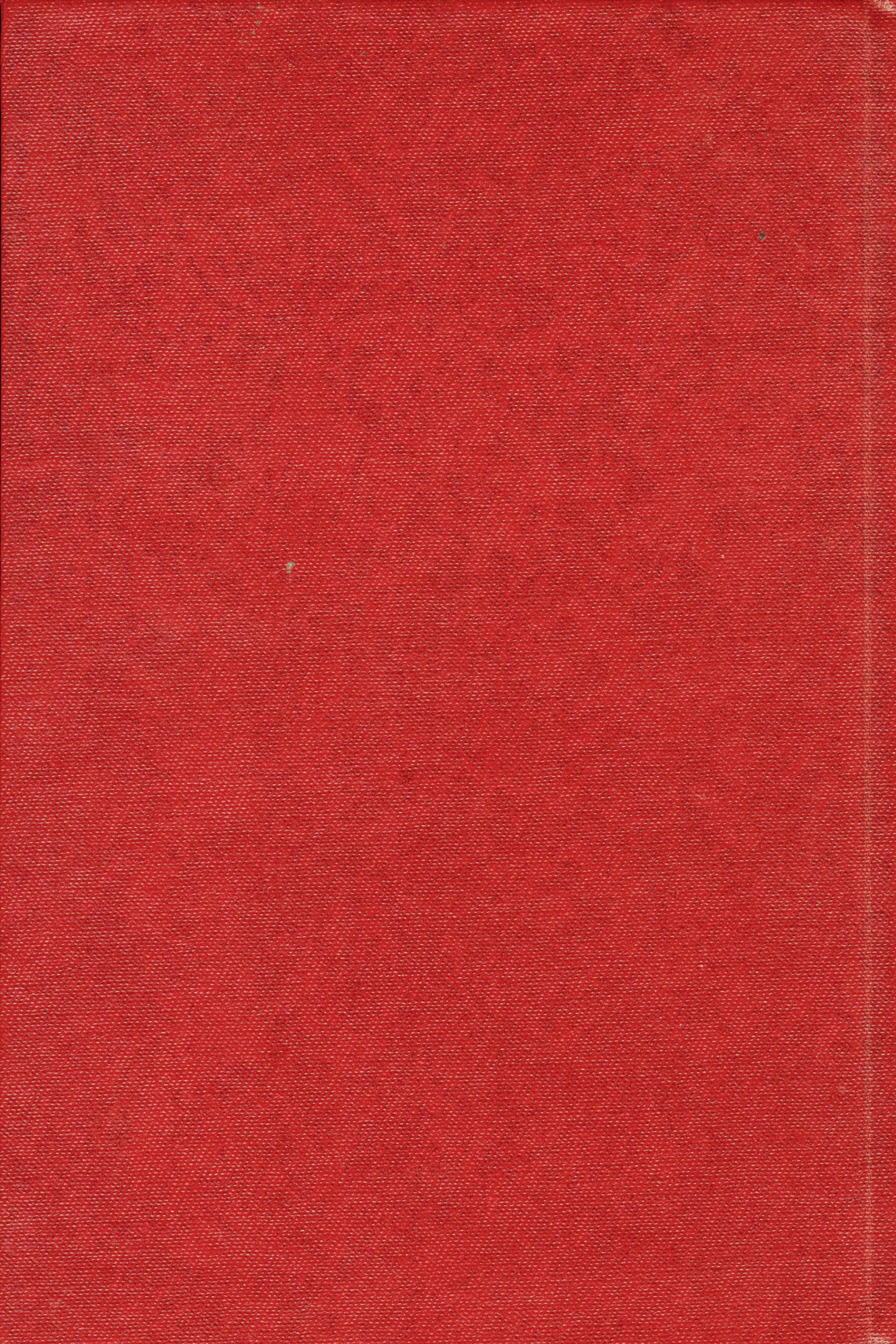
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