



THE SKEPTIC'S Guide to the PARANORMAL

LYNNE KELLY

The
Skeptic's Guide
To The

PARANORMAL

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INTRODUCTION

Amazing facts are revealed to you. In front of your eyes, someone is claiming the most incredible things—they can read your mind, make spoons bend, identify the true shroud of Christ, predict your future, read your star signs, contact the dead or transmit messages telepathically.

In the face of no alternative explanation, you have little choice but to believe them. Surely they wouldn't be lying to you? Just because they are making money out of this, they wouldn't stand up in public and blatantly lie. Would they?

Maybe not. Perhaps some genuinely believe what they say despite all the evidence to the contrary. Maybe there is some truth in one of these claims. The only way to be sure is to have an alternative against which to measure. By eliminating the misconceived and fraudulent we can try and identify any which really do defy known science.

The Skeptic's Guide to the Paranormal gives a rational explanation for some of the most widely known claims of the paranormal. It takes tangible claims and examines the tangible evidence.

The lore of the skeptic says an extraordinary claim requires an extraordinary proof. If a claim is made publicly which defies all the rigours of peer review and debate, then it is beholden on the claimant to provide the proof. William of Occam was the fourteenth-century creator of the famous razor which bears his name. Occam's razor says that claims should only be believed if there is not a more simple

explanation. When the arguments become fuzzy, as they do so often in the world of the paranormal, you must be sure you haven't allowed the razor to become blunt.

Over 30 years of genuine interest in the paranormal, I have applied the tools of scientific method and skepticism: expecting and evaluating evidence. Not cynicism, but a healthy skepticism. Not disbelief, but a reluctance to belief without substance.

Some believers accuse skeptics of having nothing left but a dull, cold, scientific world. I am left with only art, music, literature, theatre, the magnificence of nature, mathematics, the human spirit, sex, the cosmos, friendship, history, science, imagination, dreams, oceans, mountains, love and the wonder of birth. That'll do me.

SPONTANEOUS HUMAN COMBUSTION

George Mott was a fireman in upstate New York. In 1986 he was found by his son Kendall in his country home. All that was left was a piece of skull and part of a foot. Although the TV and phone were melted and the curtains burnt, the wallpaper at the head of the bed on which he had died was untouched. On the bed Kendall found a pile of ashes which was, just hours ago, his healthy father. This case is fully documented. It is not a hoax.

What can be more frightening than the belief that humans can suddenly burst into flame and be totally destroyed, bones and all, for no known reason? Having been investigated by police and other authorities, there is no doubt that this strange form of human combustion is an extremely rare, but real, event.

Bodies which have succumbed to spontaneous human combustion display a horrifying similarity. Most of the corpse is almost totally reduced to ash, but the feet and arms may be left untouched and there is little damage to the surrounding property. Nearby household items may be melted, but not have ignited.

In a normal house fire, even a very intense one, human remains look like charred human bodies, with skeletons and some hint of flesh. The surrounding house and contents are extensively burnt. Even the intense heat of a crematorium furnace, designed specifically to reduce human bodies to ash, doesn't consume the bones. The remains need to be physically

crushed to form the ashes which are then returned to the family or buried. But in cases of spontaneous human combustion the bones and most body parts are completely reduced to ash. Is it any wonder that both firemen and forensic experts have been utterly bamboozled by these extraordinary spontaneous human combustion events?

Unknown to science

A man cannot 'burn of himself', wrote German chemist Justus von Liebig in 1851. Charles Dickens was 'perpetuating a vulgar superstition' said George Henry Lewes, philosopher and critic, in 1861 when Dickens killed off his evil, drunken Mr Krook by 'spontaneous combustion' in *Bleak House*. The great novelist retaliated by quoting actual cases. More cases have been documented over the years, and doubters have had to accept that the strange consumption by fire is not only real but worthy of serious study.

Can such total combustion of a human body in the absence of any external fuel be explained by science or are we witnessing the result of what many claim to be a paranormal effect? Something beyond science?

Until recently science had no explanation. But that is only a reason to say 'it can't be explained by *known* science' rather than 'it can't *ever* be explained by science'. There is a big difference. But now science has not only found an explanation but been able to reproduce the same effect in the laboratory.

Investigating the remains

Mrs Mary Reeser, a 67-year-old widow, lived in St Petersburg, Florida. On Monday, 2 July 1951 her landlady found she could not open the door to Mrs Reeser's apartment because the door handle was too hot. Her cries brought two house painters working across the street, who entered the apartment and found the gruesome remains.

In a room relatively untouched by flames they found a foot still in its slipper and a shrunken skull. The rest of what had been a large woman was reduced to ash.

Joe Nickell and John Fischer spent two years investigating the death. They noted that Mrs Reeser was a smoker who had told her son, a physician, that she had taken two sleeping tablets already that day and intended taking two more. She had been seated in her favourite chair, which had been consumed by the fatal fire. On the spot where the chair had stood there remained a pool of grease. She had a stiff leg which was held out awkwardly when seated; the foot of this leg remained intact.

A forensic anthropologist doubted the shrunken skull, which had been mentioned in news reports, and proposed that this was likely to be a misinterpretation of a spherical object which is left as the remains of musculature of the neck at the top of the spine. Nickell and Fischer concluded that Mary Reeser had been consumed by a slow burning fire as a result of a dropped cigarette. In her drugged state, she had not extinguished the flame which slowly consumed her, burning her body fat the way a candle burns its wax.

The candle effect

A modern candle is usually made of paraffin wax. Paraffin is manufactured from crude oil and, like oil, will burn. The wick is made of a material which absorbs the liquid wax easily. When a candle is lit the wax near the wick starts to melt. The wax is drawn upwards through the wick to the flame, where it evaporates and the gaseous wax burns.

In rare cases, a human body can burn in the same way, but the wick is on the outside—the clothes. The fuel is not paraffin but body fat, much like the tallow candles of old which were made from animal fats. The human body becomes an inside-out candle. The 'wick' must be ignited, say, by a cigarette butt falling on the clothes. It must be allowed to burn long enough for the body fat to start melting

and be absorbed into the clothing to fuel the flame further. Once the flame is being fed by melted body fat, the fire will burn long and hot, continuing to supply itself with fuel as it liquefies and consumes the body fat, evaporates the water and combusts the flesh.

For a human body to become a candle the person must be dead or unconscious. As the process is a slow one, the pain would soon alert any conscious person to extinguish the flames.

When the clothes first start to burn there will be an initial flare. If some kind of accelerant is present, say petrol or perfume, this may cause a high flame but this initial flare will subside almost immediately. The melted fat then becomes the fuel source to continue feeding the flames. The fat liquefies into the clothes and the victim burns slowly, but at a very intense heat. Extremities, such as the lower legs and hands, may not contain sufficient body fat to sustain the burn and hence can remain untouched. Also, lack of clothes on parts of the body can deny the melted body fat a wick.

Bone marrow is about 80 per cent fat. In a slow fire this fat can be liquefied and slowly released, allowing complete consumption of the bones. The body is destroyed from within. This is different from a crematorium where the burning is external and rapid.

As spontaneous human combustion is the result of an internally fed fire, there will be little flame to destroy external surrounds, although the heat may lead to nearby objects melting.

Confirming the theory

In an episode of the 1998 BBC series *QED*, titled 'Spontaneous human combustion', two cases gave clues which enabled spontaneous human combustion to be replicated in the laboratory. The first case involved an investigation into the remains of a woman conducted by Dr Dominique Deharo from the Police Science Laboratory in Toulouse, France. The police did not believe her death was due to

spontaneous human combustion, despite all the clues pointing that way. They were suspicious that a localised accelerant had been used. They caught the murderers, who confessed, telling police they had poured Chanel No. 5 on the body and set it alight with a match to hide the evidence of murder. They wouldn't have wanted to use just any old perfume, would they? Perfume contains alcohol, an accelerant. In this case, the small amount of perfume helped set the body alight. They didn't have sufficient for the normal, fast burn of a body doused in petrol.

In the second case, in 1991 near the American town of Medford, Oregon, a woman's body was found in the woods by two fishermen. It was still alight. They flagged down Mike Lougheed, the Deputy Sheriff. He discovered that the woman had been seen hitchhiking at about 7.30 a.m. Her body was found smouldering five hours later. There was intense damage to the body, with most of the bones having been reduced to ash, but there was no sign of damage outside the small area surrounding the corpse. The role of the slow burn was added to the clues.

Forensic scientist Dr John DeHaan was called in as an expert in arson investigations. He knew that what he was looking at was an example of the 'candle effect'. The woman's clothing and the deep layer of dead leaves had acted as a wick and her body fat had acted as the fuel. Damage to overhanging branches indicated the flame plume had been less than 50 centimetres high even though the fire was intense enough to consume the body thoroughly.

So the mechanism was now identified and named the *candle* or *wick effect*. It still had to be reproduced in a laboratory to be established as the scientific explanation for spontaneous human combustion.

In the laboratory

In 1998 Dr John DeHaan from the Californian Criminalistics Institute replicated the candle effect and demonstrated

conclusively how this can explain all the features associated with cases of spontaneous human combustion.

As shown in the BBC series *QED*, Dr DeHaan used a pig carcass wrapped in a blanket. (Pigs have a similar body fat content to humans.) The pig carcass was placed on a table and a small amount of petrol—it's cheaper than Chanel No. 5—was used as an accelerant to start the fire. After about two minutes the flames died down and from then on only the pork fat acted as the fuel. As the fat liquefied, it was consumed, giving a slow, intense, localised burning. The flame temperature was measured at over 800 degrees centigrade, but the flames were small; too small to attract the attention of passers-by.

Seven hours later the carcass was destroyed and the fire was extinguished. Nearby objects did not catch fire, but those very close to the pig did melt. In particular, objects high in the room where hot air was trapped were seen to melt but not ignite. The body extremities, such as feet, were not burnt. They didn't contain sufficient fat to sustain the localised fire.

Do try this at home

You may not feel like slowly burning a whole pig at very high temperatures in your kitchen, but you can model spontaneous human combustion at home.

Wrap a candle in a light cloth such as cheesecloth. Place a very small amount of perfume on the cloth and light it. The flame will soon die back and the candle will burn with the outer material acting as a wick. As the wax melts the cloth absorbs the flammable oil and fuels the flame. The cloth will be charred but continue to absorb the oil and burn. A red candle gives some lovely gory dripping blood effects if you are that way inclined.

Combusted humans

When a human body is discovered with the tell-tale signs of what has been called 'spontaneous human combustion', it is almost certain that the person was dead or unconscious before the fire started. Only the parts of the body which are rich in fat will fuel the fire.

Spontaneous human combustion requires an extremely unusual set of circumstances and is very rarely recorded. But as we saw above it can be replicated in the laboratory. It is human combustion, but it is far from spontaneous. So rest reassured: your body won't inexplicably burst into flames.

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WALKING ON HOT COALS

Before you lies a bed of flaming coals. The temperature is 400 degrees centigrade, maybe much hotter. You know 100 degrees is boiling water, so 400 degrees is mighty hot and would easily burn you. You remember enough of your school science to know that.

With training, you are told, you too can make the hidden powers of your mind overcome the heat and you can walk across this bed of coals without being burnt. It is simply mind over matter.

You stand in front of the bed. The radiant heat on your face is enough to make you step back from the edge. There is no way you will walk across this bed of coals. You're not that stupid. You see films of men on exotic islands walking across pits of volcanic rocks as an initiation ceremony. It's very impressive stuff. They train for a long time to achieve that level of control over the power of the fire.

You join up. After seminars about the power you have within you, and with those around you being so eager and supportive, all those dreams suddenly seem possible. You feel so positive you could burst. You know that if you could just confront your fear of the bed of coals and draw upon that amazing power in your mind, you could walk across it. Then you know you could conquer the world.

You walk up to the pit and do exactly what you have been trained to do. You feel the damp ground beneath your bare feet; the heat on your face; the enthusiasm of those

around you cheering you on and chanting. You long for the applause which has greeted those who have crossed before you. Some have turned back. They just couldn't do it. But you can. You just know you can do this. And you do.

The feeling of elation is astounding. You did it! You walked across the fires burning at more than 400 degrees centigrade and you hardly felt the heat. You can confront the boss on Monday. You can sort out your financial worries. You can get that promotion, new job, boyfriend, art prize, role in the production . . . you can do anything. The \$500 for the course was money well spent. World—here you come!

Let's just imagine another scenario. A bit more mundane—sorry about that. But it's also much cheaper and safe to do at home.

You have a cake in the oven (or loaf of wholemeal bread if you'd prefer a healthier visualisation) at 180 degrees centigrade. You open the oven. You feel the heat on your face.

Will you put your hand in the oven? Touch the air?

Will you touch the top of the cake and press it to see if it bounces back?

Will you touch the cake tin?

Yet the air, the cake and the tin are all at the same temperature, 180 degrees centigrade.

The science

The key to the whole trick—and that's just what it is—is the difference between temperature and heat. Heat is the energy which burns you. It can't do so until enough heat energy has been transferred to your feet (or finger).

Wood coals and porous rocks are very poor conductors of heat. Air is even worse. Any metal is thousands of times better at conducting heat—that is, transferring it from one place to another.

More important is how much heat is actually contained in the material. Coals have a very low heat capacity. They store very little heat relative to other materials. Metals have

a very high heat capacity. They have a lot more heat stored and can get it across to your body quickly.

Technically speaking, the coals have a low heat capacity and poor thermal conductivity. Metals have a high heat capacity and high thermal conductivity. Our bodies are mostly water and hence have a fairly high heat capacity as does water. So it needs a fair bit of heat energy to be transferred before we can burn.

Don't they say 'it's all in the timing'? Walk rapidly, but don't run, across a four-metre imaginary pit. How long is each foot in contact with the ground? Two, maybe three, short periods of less than a second each. That's all.

Many people will pick up a glowing coal and quickly toss it into a fire again. In that brief time the heat needed to burn can't get across. In the time it takes to walk across a pit of burning coals, the time each foot is in contact with the coals is not enough for it to burn.

When your feet are in contact with the coals some heat does flow from the coals into your feet. But because the coals are such poor conductors of heat they actually cool down around that area. You can see the footprints of people after they have walked across the coals for this very reason.

There is another layer of protection coming into effect as well. It's called the Leidenfrost Effect. Your grandmother probably doesn't know its name but has used it often. It used to be common practice to see if an iron was hot enough by licking the end of a finger and touching the iron. The same effect is behind the reason people lick their fingers before putting out a candle flame. The water evaporates and for an instant provides a protective layer of water vapour between the finger and hot iron.

Standing in front of a bed of hot coals, you are likely to sweat from the heat and panic. Where do you sweat? On the soles of your feet among other areas. Just to make sure your feet are wet, most firewalks will be surrounded by wet ground. This thin layer of water vapour is an unnecessary extra level of protection, but it's there anyway.

Of course, things can go wrong when the pit of coals is not prepared properly. The mind can only overcome matter if the matter has been overcome by science first. There was a case, sometimes referred to as the Kentucky Fried Feet Fiasco, when 30 managers from the Kentucky Fried Chicken restaurant chain suffered minor to severe burns when they walked across a pit of coals which had not been correctly prepared. The report in *The Age* newspaper, cleverly titled 'Like some fries with that?', reported that this management fry-up occurred 'during the fire-walking exercise undertaken by many companies throughout Australia as part of leadership development and management bonding schemes' (*The Age*, 28 February 2002).

So anyone can walk across hot coals as long as the coals are of a material which has a low heat capacity and low heat conductivity and are prepared with regard for the laws of science, not pseudoscience. I know. I've done it. It feels like walking across warm carpet. Not even very hot. The training can be done in one sentence: don't stop to smile for the camera and try to sweat a bit.

CROP CIRCLES

It's lovely to see Hollywood producing fiction based on crop circles with the film *Signs*—aesthetic, fascinating and damn good fun. And fiction is exactly where any link between flattened breakfast foods and alien visitations belongs.

The corn field is large, and one night, suddenly and silently, areas of the corn are flattened into spirals and swirls, rings and circles. Sharp edges define the depression in which the corn is systematically bent; stalks are untouched only a grain's width away from those bent full to the ground. The stalks, still green and young, are bent but not broken. They are still alive. Standing inside such a phenomenon is eerie and spectacular. From the air or nearby hills the circle is stunningly beautiful. There are no footprints where a human has entered to create the huge depression now dominating the field.

The background

Although an occasional crop circle has been reported as far back as the sixteenth century, checking those sources show they clearly state the crop was cut. They are not early examples of the modern formations in which stalks are bent but still grow. So there is a complete lack of historical precedence. Any acceptable theory has to answer why this phenomenon didn't start until the 1960s.

One of the first crop circles was among reeds in Australia in 1966, but they didn't come to the public's attention until the explosion in numbers in the 1980s. From about three metres wide in the English counties of Hampshire and Wiltshire, they have grown to be as large as fields will allow. They have spread worldwide, with peak numbers following media interest in things alien.

Crop circles were initially simple circles of flattened cereals produced in the fields of unsuspecting farmers by forces unknown. As the phenomenon attracted more attention the circles became more elaborate. The linked circles, swirls and spirals became too complex to be called circles, no matter how broad the definition, and so the term 'crop pictographs' entered the literature. The appearance of a crop triangle merely confused the issue. The name 'agriglyph' enjoyed some popularity.

Over 1000 crop circles were formed in 1990 alone. On 12 August 1991 at Ickleton near Cambridge a Mandelbrot Set appeared in a field of wheat. It was a thrill for fractal fans to see the signature of their new art form laid out so wondrously. Were aliens in tune with human fashions?

Cereologists, as the believers became known, proposed many theories. By far the most popular is that crop circles are caused by aliens. Cereologists admit many crop circles are faked, but there are plenty, they say, which defy such skeptical interpretation.

The theories

These are the theories that have been put forward to explain crop circles.

1. Crop circles are created by aliens. A few witnesses have reported seeing flying saucers, strange lights and other alien indicators. Hollywood favours this explanation.
2. The Earth Energy Theory states that crop circles are a message from the Earth telling us to stop polluting it.

3. The circles are the result of a fungus—imagine a wildly enhanced version of the familiar fairy rings created by parasitic fungi and you'll have the idea.
4. There are underground fields, magnetic or electric, which suddenly cause the flattening of the grain. These are possibly associated with the remains of ancient fields and buildings.
5. The circles are the result of downdraughts from aircraft or helicopters. In fact, one theory proposes that the circles are the result of helicopter pilots flying upside down above the crop.
6. There are naturally occurring spinning winds, possibly small whirlwinds or tornadoes, which create the circles as a result of their sudden swirling pressure. The circles are usually found in summer when the evening or morning air is still and warm. Whirlwinds rise from the warm ground on hot, still days. They are often found near hills, giving rise to the idea that the presence of the hills causes some strange draughts and hence contributes to the formation of the wind vortices.
7. Crop circles are formed by a plasma vortex. This theory was proposed by physicist, and later meteorologist, Dr Terence Meaden, in his book *The Circles Effect and its Mysteries*. Rejecting the alien hypothesis, he proposed that a natural phenomenon was at work. He defined a plasma vortex as 'a spinning mass of air which has accumulated a significant fraction of electrically charged matter'. This wind has 'entered the ionized state known as plasma', and the 'vortices are to become plasma balls akin to ball lightning in appearance except that they are much bigger and longer lived' (Meaden, quoted in Nichell & Fischer 1987, p. 137). Some witnesses have reported lights and humming noises, which is consistent with the plasma vortex theory as well as with the more exciting aliens theory.
8. The last theory: they are all hoaxes.

Eliminating theories

Mother Earth's communications on the topic of pollution suit current philosophies. However, the theory lacks any physical means by which the Earth might have created the circles. It fails to address why the circles are made in some countries and not in those that have greater pollution problems. Nor does it explain why the circles started in the 1960s, when the industrial age a century earlier would have justifiably caused the Earth similar concerns.

Nothing can be found which detects the underground magnetic or electric fields, and certainly nothing is known that is strong enough to bend wheat and corn, which are not metallic or susceptible to a strong electrical or magnetic force. Strange, undefined energies are detected by dowsers with their various energy wands. To date, these have also defied any detection using scientific means. The presence of ruins and underground buildings has not been shown to correlate with crop circle occurrences, or produce forces with the strength to bend stalks. Why would these energy fields suddenly bend a stalk when it has grown unaffected for months?

The fungus can't be detected, nor can it be explained why such a fungus would bend stalks so neatly.

The helicopters, I am reliably told by pilots, would be easily detected by their smashed remains in the middle of the field if anyone tried such acrobatics. Any form of down-draught from a plane or helicopter would leave less defined edges while the bending would not be so uniform.

Nor could a vortex of wind create such a sharp outline. This explanation depends on the warmth of summer for the creation of whirlwinds and so has a lovely correlation with the pattern of crop circle seasons; but so does the correlation of summer with the time when crops are ready and are tall and yet still pliable, perfect for bending flat. In fact, it is very difficult to break the stalks of crops at this stage. A circle of broken stalks would be a much more impressive feat.

The proximity of many crop circles to hills is also quoted as support for wind vortices, but there is also an advantage to hoaxers who want to view their handiwork from above. The physics of wind and hills creating such specific wind vortices has never been developed convincingly.

Plasma vortices are unknown to meteorologists and have never been recorded or detected. It is a delightfully creative theory but suffers from lack of evidence. It also fails to match the evidence of the distinct circles, especially as they have become more and more complex. Although there will need to be some rational explanation of why such circles are not reported before 1980, it is a plausible cause of some simple circles and is worthy of further research.

Both the plasma vortex and alien theories draw evidence from eyewitness accounts. As the theories became more widely publicised, so the eye witness accounts support them. One teenager managed to support both when describing his apparent witnessing of the creation of a crop circle near Margate, Kent, in August 1989 to a newspaper (while posing for his photograph). He described 'a spiralling vortex of flashing light' which 'looked like an upturned satellite TV dish with lots of flashing lights'.

The appearance of crop circles is a localised phenomenon, with Wiltshire and Hampshire being the most favoured counties. The Wiltshire town of Warminster is referred to as the UFO capital of England, and so it was not surprising when nearby crop circles were interpreted as UFO landing sites. The belief that crop circles are created by visiting alien craft was born.

As the patterns became more and more complex, it was harder for those proposing natural phenomena to explain crop circle creation without the involvement of intelligent beings.

Humans or aliens?

We are left with the crop circles being created by humans or aliens—or a bit of both.

Hoaxers have come clean. Using a plank of wood and a piece of rope as their only essential tools, some have resorted to pieces of looped wire attached to hats to allow them to align with a distant landmark and gain accuracy in direction. If they link arms, and have a plank each, a circle can be created in no time.

The first to confess were Doug Bower and Dave Chorley, two retired British artists who were in their sixties by the end of their 15-year prank. They had been indulging in a spot of mischief. In 1991 they claimed to have faked over 200 hundred crop circles and knew others who had done likewise. They started by simply walking in ever-increasing circles from a central stake using a horizontal piece of wood to flatten the corn. They walked in and out of the fields along the 'tramlines' left by tractors.

Cereologists agree that many of the crop circles are the result of hoaxers, but they say some are beyond the ability of humans. One of the best known cereologists, or 'croppies' as they are affectionately known, is Pat Delgado, an engineer and cereologist who wrote *Circular Evidence* with another engineer, Colin Andrews, in 1989.

In 1991 the British newspaper *Today* had Bower and Chorley fake a crop circle. They then had it inspected by Pat Delgado, who declared that no human could have made it. Other newspapers and television stations have had crop circles faked to try to fool their rivals. Crop circles are big news stories. Despite the public embarrassments of this type, many cereologists still believe that a small percentage of crop circles may be genuinely made by aliens.

When the single word WEARENOTALONE appeared in a field (Doug and Dave at work again), Delgado wrote in *Flying Saucer Review*: 'At first it was an obvious hoax, but prolonged study makes me wonder'. Such is the desire of cereologists to make the evidence match their beliefs. The complex circles became signs and messages from alien races to humans. The not-alone message was, in fact, directed at the other hoaxers, not to the human race from aliens. The 'we' not 'you' went unnoticed.

Could the dancing lights sometimes seen at circle sites have anything to do with the torches needed by the hoaxers?

We cannot prove that all crop circles are manmade without an intensive and expensive investigation into every one as they occur. There is no one with the money and motivation to mount such a massive campaign. So we are left with the question: if we can't check each one what should we believe? Until we are presented with a circle which *is* beyond the skills of humans, there is scant reason to believe there is any alien race at work. We can never prove a negative. We can never prove there are no crop circles which are made by aliens.

Here we must apply Occam's Razor, the philosophical premise that if there is a complex explanation and a simple explanation, it requires strong evidence to accept the complex one. To date, we have no evidence that the crop circles are the work of a race travelling vast distances, unknown to us and undetected by us, and managing to toil unnoticed in fields to create a phenomenon which can simply be made by humans.

Motivating the hoaxers

Why would someone fake a crop circle and then keep quiet about it? Most remain anonymous because, let's face it, no matter how beautiful it might be, it is graffiti. There is the small issue of criminal damage and angry farmers. For others, it is the fun of fooling the croppies. Having your crop circle deemed to be certainly alien is a real buzz for those in the game.

Researchers Joe Nickell and John F. Fischer, in a study done for the Committee for the Scientific Investigation into Claims of the Paranormal in 1991, refer to the 'shyness factor'. Crop circles are almost exclusively made at night. They don't tend to appear in fields under surveillance, and for many years no one claimed responsibility.

Doug Bower and Dave Chorley kept quiet for 15 years;

even Bower's wife Irene knew nothing of their work. Bower and Chorley have confessed they dreamed up the idea over a pot at their local, the Percy Hobbes. Their goal had been to fool the ufologists.

Starting with simple circles and a heavy steel bar, they attracted no attention. Moving on to planks and ropes, they drew more complex figures. When their efforts were finally noticed, they delighted in the claims of scientists and ufologists that no human intelligence could create such wonders. Closely following the comments on each creation, they developed artistically and rejoiced in the attention and their ability to confound.

More recently, farmers have realised that there is a buck to be made by charging people to enter the flattened fields. There is also a roaring trade in high-quality photographs of the most impressive of crop circles.

And so the emphasis changes and many crop circles have been generated openly by people who call themselves crop artists and certainly do justice to the term. Some farmers encourage them and charge for viewing, passing them off as alien mysteries or acknowledging them as pure art works. A short search on the Internet will deliver you some incredible photographs of stunning artwork. Few artists have the delight of their work being photographed from helicopters and the images published worldwide, at no expense to themselves.

The field is their canvas. Long may these artists bend stalks.

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THE SHROUD OF TURIN

Do you need tangible proof for your beliefs? Some people do and the Shroud of Turin provides it for many Christians. They claim it is the true burial cloth of Jesus.

The debate is between the advocates, who believe it is the true burial shroud of Jesus, and the skeptics, who believe it is a work of art. You decide.

The clues

1. The Shroud of Turin is a 4.3 metre long cloth of linen with a full length human image that is considered to be a likeness of Christ.
2. The image contains both the front and back of a man, as if he had been laid on the cloth with his feet at one end. The cloth was then folded over his head to cover the front of his body.
3. The likeness is a negative image. That is, the prominent points, such as the nose and eyebrows, are dark, while sunken parts, such as the eyes and neck, are light. In a normal photograph the nose and eyebrows are usually light, while the eyes and neck are dark.
4. The likeness of Christ is the thin, heavily bearded man shown in many religious art works.
5. Wounds on the body are visible on the back, chest and face with puncture marks on the feet, hands and one

- side. This is consistent with the description of Christ's crucifixion and spearing in the side.
6. There are reddish bloodstains on the image at the wrists, feet and on one side of the body. There are more smaller bloodstains around the head, consistent with the wearing of a crown of thorns.
 7. Iron and protein, as are found in blood, are present in the areas of the bloodstains.
 8. Porphyrins, also found in blood, are present in the area of the bloodstains.
 9. Over the eyes are two round darker rings, considered by some to be coins.
 10. Pollen which is consistent with the known species around Jerusalem has been found on the cloth.
 11. The linen is a herringbone-twill weave.
 12. The image only appears on the surface of the linen on one side. It does not penetrate the fibres.
 13. The negative nature of the image was not realised until the shroud was photographed in 1898. Photography was unknown in the Middle Ages or before. The positive image, as viewed on the shroud, is not particularly impressive. It is in the negative image that the true strength and likeness is revealed.
 14. Thirty American and a smaller number of European scientists examined the shroud minutely in October of 1978 over five days and reports from that group have been quoted widely as authenticating the cloth as being the burial shroud of Christ.
 15. The Shroud of Turin Research Project (STURP) group of scientists has produced a theory, called the 'flash photolysis' theory, which explains the image in terms of the energy generated by the body of Christ at the moment of resurrection.
 16. An Associated Press report on 20 November 1979 said: 'The scientist who led the team that investigated the Shroud of Turin last year says evidence so far indicates that the linen did in fact wrap the crucified body of Jesus Christ'. The scientist was then quoted as

saying: 'Every one of the scientists I have talked to believe the cloth is authentic'.

17. One of the STURP scientists, on the ABC-TV (America) network show *20/20* at Easter 1981, said: 'The likelihood of this being a forgery is less than one in a million, in my opinion'.
18. Skeptics have maintained that it is a work of art created by an artist in the Middle Ages.
19. An artist of that time could not have known about negative images and photography.
20. There is no sign of brush strokes on the shroud. It cannot have been painted.

Advocates also say:

21. The blood flows and anatomical details and pathology of crucifixion are correct and beyond the knowledge of the artists in the Middle Ages.
22. Artistic methods have been ruled out as a possibility.
23. The shroud is consistent with biblical descriptions of the burial of Jesus.
24. The shroud image contains unique 3D information which enables a recreation of the physical body of Jesus. This proof that the shroud could not be manmade was proposed with much mathematical detail by John Jackson and Eric Jumper in 1976.
25. Flat sections over the eyes have been identified as coins. One of the members of the Holy Shroud Guild, Father Francis Filas, SJ claimed to be able to read the inscriptions on the coins and that they were from the time of Christ. Others have failed to see anything in the blur.
26. This image is just too good to be produced by a medieval artist.

The theories

Contact theory

The body was covered in oils and spices, as was common in the time of Christ, and these were transferred by direct contact with the cloth as it was wrapped around the body. More oils and spices were transferred from the more prominent body parts, such as the nose and eyebrows. There are, therefore, imprints of these parts of the body while the recesses remain blank.

Vaporography theory

The image is the result of a projection from the body onto the linen. Body vapours, such as weak ammonia, which is present from the fermentation of urea in sweat, reacted with the spices on the cloth. The shroud acted like a photographic plate and so produced a negative image.

A Leonardo photograph theory

Lynn Picknett and Clive Prince, in their 1966 book *Turin Shroud: In Whose Image? The Shocking Truth*, claim the Shroud is the result of a photographic technique developed in absolute secrecy by Leonardo da Vinci in response to a commission for the Pope, Innocent VIII. The shocking 'truth' is indeed shocking. They claim that the shroud is a fifteenth-century composite photograph of Leonardo's head and the body of some unfortunate fellow crucified for the purpose by Leonardo.

Flash photolysis theory

The image is a form of scorch mark formed by a short burst of radiation emitted by the body of Christ at the moment of resurrection. This defies any known scientific phenomena and is certain proof of the supernatural nature of the

resurrection. This is the favoured theory by the believers in the authenticity of the Shroud.

Medieval artisan theory

The image is the work of a medieval artist. The artist used a rubbing method with a semi-solid or dry substance. The colouring pigment has faded with time due to reaction with the cellulose of the fibres, temperature, evaporation and handling. This is the favoured theory for skeptics.

The history of the shroud

1355

The linen and image, later known as The Shroud of Turin, is first recorded in the Church of Our Lady in Lirey, a small town in north-central France. The shroud is owned by a soldier of fortune, Geoffroy de Charney, or de Charny, depending on the source. Biblical relics are very popular at this time and can be relied upon to generate significant income for their owners.

1357

Pilgrims are flocking to see the shroud, claimed to be the true burial shroud of Christ. The many visitors pay to see the cloth. A skeptical bishop, Henri de Poitiers, launches an investigation into the authenticity of the shroud and, deciding it is not legitimate, has it hidden away.

1389

The shroud is on show again, and is investigated by Bishop Pierre d'Arcis. Again it is deemed not to be Christ's true burial shroud.

1453

Geoffroy de Charney's granddaughter, Margaret, regains control of the shroud and launches a Middle Ages version of the travelling road show with it. In 1453 she 'gives' the shroud to the duke and duchess of the Royal House of Savoy, which will later become the Italian monarchy. Those who advocate the authenticity of the shroud like to emphasise Margaret's generosity in giving the shroud to the Royal House of Savoy. (However, it is recorded that the House of Savoy responded generously by giving Margaret two castles.)

1552

The shroud has a proud reputation as a source of protection. However, it is nearly destroyed in a fire in the chapel which houses it. Molten silver from the lining of the casket falls onto the shroud, which also displays water marks from the same event.

1578

The shroud finally arrives in Turin, Italy, having been sold many times en route. It is to stay in Turin and can be still seen at the Royal Chapel of the Cathedral St John the Baptist.

1898

The shroud is photographed by Secondo Pia. On developing the plates, the shroud image is seen in negative, which gives a much clearer image.

A new interest in the shroud arises, amid claims that no artist in the Middle Ages could have known about photography, which was still centuries from discovery.

Debate about the authenticity of the Shroud of Turin continues to rage.

1976

John Jackson and Eric Jumper, who work at the Air Force Weapons Laboratory, Albuquerque, New Mexico, claim the shroud contains unique 3D information which will enable them to reconstruct a solid figure of Christ. The complex mathematics could not be known by an artist in the Middle Ages.

1977

Jackson and Jumper form STURP in March 1977. Jackson and Jumper are also on the Executive Council for the Holy Shroud Guild. Almost all the members of STURP are deeply religious scientists.

1978

In October a group of American and European scientists spend five days examining the shroud. Carbon dating is not permitted by the Vatican on the quite reasonable grounds that it would require some of the precious cloth to be removed.

Joe Nickell, from the Committee for the Scientific Investigation of Claims of the Paranormal, demonstrates a rubbing technique known to have been used long before the Middle Ages which produces a negative image from a bas-relief and shows no signs of brush strokes.

Thirty-two rigorously clean sticky tape tests are taken from the shroud by STURP. Dispute over the interpretation of these contributes to a break in the group.

1979

In November press releases from STURP quote scientists as being convinced that the shroud is authentic.

1988

Three postage-stamp-sized samples are sent for carbon dating to three independent laboratories in America, Switzerland and England. Using accelerator mass spectrometry, the results are in close agreement, within the accuracy of such tests. They date the flax which was harvested to form the Shroud of Turin linen at between 1260 and 1390. Advocates criticise the reliability of carbon dating methods. Skeptics claim the debate is over.

Evaluating the theories

Contact Theory

If oils and spices from the body were transferred to the cloth by direct contact with the cloth as it was wrapped around the body, we have a problem with the image. A cloth wrapped around a curved body, when flattened out, would give an expanded image of the non-horizontal parts of the body, such as the sides, giving a grossly distorted image of the human. The image on the shroud is a plan view, looking down on the body. Simple geometry has ruled out this theory.

Vapourgraphy theory

If the image is the result of a projection of body vapours from the body onto the linen, we have a different problem with the image. Vapours do not travel in nice straight lines, but disperse, so the image would be blurred. The image on the shroud is quite clear. This theory has also been rejected.

A Leonardo photograph

This claim is based on the fact that Leonardo was a genius capable of such an extraordinary feat of science. The fact he may have been intellectually capable of it does not justify

the leap to saying he therefore did it. Leonardo lived just beyond the accepted carbon dating period. Born in 1452, he was more likely to have completed such an amazing feat nearer the end of his life in 1519 than the beginning.

The authors of this theory claim the disembodied look of the shroud supports the claim that it is a composite of the vain Leonardo's head on the body of his model. A more likely explanation is that the neck area is too far from the cloth when producing the image by rubbing, hence giving an apparent gap on the front but not the back image, or that the cloth was moved between rubbing the head and the body.

The believers say that the fact that the man was genuinely crucified means it is authentic, and that our suggestion that Leonardo crucified someone (either living or already dead) is macabre, and therefore, for some curious reason, inconceivable... However, we are dealing here not only with uncompromising 'heresy', but with Leonardo, to whom the end always and absolutely justified the means.
(Picknett & Prince 1994, p. 177.)

The fact that Leonardo's notes do not mention the creation of the shroud can be explained logically by the heretical nature of the fraud and hence the life-threatening aspect of exposure. However, those notes also do not mention the photographic method used which was advanced enough to generate a two-metre image, twice, on a single piece of cloth. If he had developed this technique, why did he not leave a photograph of himself, given his well-documented vanity? Why would someone with his brilliant knowledge of anatomy add blood flows to the image, given he must have known blood does not flow after death? If he was intending to add the blood and wounds later, why not use his own body, of which he was known to be proud, for the entire image? Why crucify some poor soul?

Most importantly, if Leonardo had developed photographic techniques why did it take centuries for others to

gradually build the knowledge to do so? Surely he would have mentioned such an incredible achievement and demonstrated it on some other task.

Leonardo's genius remains unsullied against such claims.

Flash photolysis versus medieval artisan

This leaves the flash photolysis theory, which is the theory still favoured by believers, and the medieval artisan theory, favoured by skeptics. These are the reasons why skeptics are sure there is no more need to debate this one.

1. Carbon dating shows the linen to be from the Middle Ages. End of story.
2. There are about 40 'authentic' burial cloths of Christ on display around the world. The Shroud of Turin is merely the most famous. There is no mention in the Bible or early Christian writing of a large burial cloth or of any image formed at the time of the resurrection. Surely, given the desire for miraculous proof of the divine nature of Christ, such a relic would have rated a mention.
3. The likeness is a negative image. The method of taking a rubbing from a bas-relief object (a raised sculptured figure on a flat surface) will create a negative image because more of the rubbing pigment will be deposited on prominent features.
4. The likeness of Christ is that of the thin, bearded man shown in many religious art works. This shows that the medieval artist was using the accepted image of Christ from the day. There are no records of what the real Jesus Christ looked like.
5. The bloodstains are redder than other parts of the image. Bloodstains do not remain red after time. They turn black or dark brown. These bloodstains also have a chemical composition matching paint which was used in medieval times.
6. It is true that there are higher concentrations of iron

and protein, as are found in blood, in the areas of the bloodstains. But iron and proteins are also found in pigments. Iron oxide is often used as a red colouring. Iron oxide fades to yellow when dehydrated, so much of the iron oxide has now faded to yellow.

7. There are also significant amounts of mercuric sulphide, which is a well-known pigment called vermilion—a red pigment.
8. There is no trace of sodium or potassium, constituents of blood which would have been present if the stains were truly blood.
9. Porphyrins are present in the area of the bloodstains. These are found in blood, but they are also found in other animal and plant products, such as those used to make artists' pigments.
10. Scorches on the linen show a strong reddish fluorescence under ultraviolet radiation. The only areas of the shroud to show this fluorescence are those which were burnt in the fire. There is no sign of it on the rest of the image.
11. The doubts expressed by the bishops in the fourteenth century are supported by a letter, which still exists, from Bishop Pierre d'Arcis to Clement VII, the Avignon Pope, stating he knew the artist who produced the shroud.
12. Pollen which is consistent with known species around Jerusalem has been found on the cloth. This relates to a claim by Max Frei, who was later to authenticate the Hitler Diaries, now known to be fakes. Cloth was often brought to medieval Europe from Palestine, so there is no strong support from the pollen grains anyway.
13. The linen is a herringbone-twill weave. This weave was not used in the first century or in Palestine. It was used in Europe in the Middle Ages.
14. It is claimed that an artist of that time could not have known about negative images and photography. An artist using rubbing methods, not painting, over a bas-relief of an image of Christ would have produced a

negative image. He had no need for knowledge of photography.

15. While we are talking about this medieval history maker, the claim that an artist of the time could not have been skilled enough to produce such an image is pure nonsense. The human race has always had brilliant artisans. We are not cleverer now, we just have more scientific knowledge and technology, gradually built on the cleverness of those before.
16. There is no sign of brush strokes on the shroud so it cannot have been painted. True, it was probably produced by rubbing.
17. The claim that the blood flows and anatomical details and pathology of crucifixion are correct and beyond the knowledge of the artists in the Middle Ages has been denied by other pathologists and anatomists. In fact, they claim the anatomy is elongated and not accurately representative of human anatomy.
18. It is very commonly stated by believers that 'artistic methods have been ruled out as a possibility'. Far from it. Skeptic Joe Nickell demonstrated the method used to create the shroud by using a bas-relief and the pigments and tools available at the time. He was able to reproduce all the features of the original shroud, except the carbon dating.
19. The shroud is widely claimed to be consistent with biblical descriptions of the burial of Jesus. Bodies were not wrapped that way in the time of Christ, nor are there any biblical references giving such a description.
20. The claim that the shroud image contains unique 3D information has been disputed by other mathematical modellers, who claim the resulting body using the proposed calculations would be distorted. However, the image was probably produced from a 3D object, so this claim adds nothing to the authenticity debate.
21. The church has never claimed this as an authentic relic, however it has not discouraged the myth.

Finally, some words from Walter McCrone. An analytical chemist, McCrone is president of the McCrone Research Institute in Chicago, which is a non-profit organisation offering courses in microscopy, crystallography and ultra-microscopy. He was a member of STURP and part of the investigation team working on the Shroud of Turin, who now claims he was 'drummed out' when he disagreed with some of their findings. He says:

My microanalytical work on the sticky tapes from the shroud's surface has proved to my satisfaction that the entire image was produced by an artist using iron earth and vermilion pigments in a tempera medium during the middle of the fourteenth century . . .

The image was created by an artist who was commissioned to paint a shroud, probably to be used in religious processions or to be exhibited in the newly founded church at Lirey by the de Charny family. I doubt if the artist was intending to fool anyone, and I feel that the church vergers didn't have to make any conscious effort to convince the general populace that this was the shroud of Christ . . .

Finally, I can see no possible mechanism by which the shroud image could have been produced except as the work of an artist. The faithful representation of all of the anatomical and pathological markings, so well described in the New Testament, would be difficult to produce except by an artist. They are totally without distortion and, indeed, look exactly the way we would have liked them to look.

(*Skeptical Inquirer*, 1982, vol. vi, no. 3, pp. 35–6.)

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PSYCHIC READINGS

She sat in front of me, the tears forming in her eyes, but she didn't wipe them away.

'There is no way you could know that,' she said. I had told her of a recent trauma in her life and the person who didn't understand her full potential. He didn't mean to do so, I said, but he was constantly telling her she wasn't capable of achieving her goals. She was riddled with self-doubt, I had told her, but had a dream which she really wanted to pursue. And he was holding her back. She didn't know what to do about it.

'There is no way you could know that,' she said. She was right. There was no way I could, and I didn't. I was doing a psychic reading, using my own system. I call it Tauromancy. It is an 'ancient art' I had constructed only months before using metal book marks adorned with masks, and a collection of chopsticks, which I call staves and rods. Using cold-reading techniques, and under a sign which said 'Australian Skeptics', performing at a science show, I had managed to get 80-90 per cent accuracy rates consistently, with no psychic abilities at all.

'I don't know it,' I told her. 'I am a fraud.' I pointed to the sign next to me saying 'Psychic Fraud \$0.00'.

'I know that,' she replied, 'but you couldn't know it any other way. You must be psychic and don't realise it. Anyway, you told me I have two daughters. You couldn't have known that, either.'

The two young girls she had sent away just before her turn in the queue were a pretty good pointer, though. Despite my obviously flawed attempt to explain the techniques I was using, she remained convinced I had paranormal powers and offered me a significant amount of money to do private readings for her. I packed up my staves, masks and rods swearing never to do it again.

I have done it since, many times, with similar success and have become very attached to my paraphernalia. I can fully understand that someone who believed in the system they were using—the stars, cards or numbers—would be continually reinforced in that belief by the positive feedback. People want to believe you and it is a wonderful bond as you talk about their feelings and life. The person is engaged with you on the topic which interests them most—theirself. For that reason, these readings may be harmless, they may even be beneficial, but if they are based on a false claim of psychic ability then the methods need to be exposed.

What is a psychic?

'Psychic' is a word that is used to describe someone who draws on forces beyond those recognised by science. They may see or hear people or events beyond what the recognised five senses—hearing, sight, touch, taste and smell—would tell them. They may have a link to the spiritual world and can chat with those in the afterlife.

I believe psychic readers are drawing, consciously or unconsciously, on principles of psychology. I cannot prove that psychic powers do not exist. In fact, I would be very pleased to see such abilities discovered and understood. I have no doubt we know very little about the brain and its potential. But I have yet to see any evidence that convinces me there are such abilities.

Those who market powers they do not have need to be exposed, so any true psychic potential can be studied properly. Some universities have parapsychology research

centres and it is through them that we have the best chance of determining whether psychic abilities do exist.

Some skeptics claim people who fall for such readings must be gullible fools. It is more likely they are not fools, but fairly intelligent. If the psychic is using cold-reading techniques, then the sitter does most of the work, interpreting the information and finding the links. Smarter people can search their memories faster and will more readily find the links, patterns and meaning. They are more likely to give the feedback necessary for the reader. As for 'gullible'? Is that any different from 'trusting'? I will readily admit to gullible.

Are the psychics all lying?

Although I believe the famous stage performers know exactly what they are doing, I am not convinced this is the case with some of the psychics who do personal readings from home, at the local market or at Mind and Spirit shows.

As I strike home with a name or a recent separation from a loved one, I can see how easy it would be to convince myself these messages were jumping into my head from some other source. It is not much further before I could be convinced of my own psychic powers, especially if I dearly wanted that to be the case. A sensitive person can pick up many clues from others without being conscious of doing so. Through psychic readings, people are talking about themselves, acknowledging their inner lives and being reassured with a positive feedback about the genuineness of their feelings and the resolution in the future. People seek out psychics when they have problems. A good psychic will always give a confident resolution in the future.

For this reason I believe many 'psychics' are not deceiving the clients as much as they are deceiving themselves. A psychic will usually be someone who has a genuine interest in the field and has been involved in paranormal ideas in the past. They try a reading with a friend. It seems to work. Then

another and then someone beyond the friend circle. Now it is someone they have never met yet they still seem to know about them.

The friend talks about their abilities and someone else asks for a reading. And then another. Then someone offers to pay them. Beggars them to let them pay for a reading. They are special. They have a source of income which is never dull. They now have a rare talent and life which is no longer mundane. It is a very seductive self-deception.

Although the pseudoscience is psychic, the science is psychology. Our lives have common threads and pathways and our humanness defines us. There is a lot which is predictable in being human and this is what the cold reader draws upon.

Cold and hot reading

Cold reading is a term often thrown about dismissively to describe what psychic performers are doing. 'They're just cold reading' is taken to mean throwing out vague generalisations. Cold reading is usually quite specific, but it relies on the specifics that apply to so many of us.

Cold reading is telling people about themselves drawing on a knowledge of the psychology of the majority. We are far more alike than we are unlike, yet most people don't realise it. They feel that their self-doubt is theirs alone—everyone else seems so confident. They leave everything until the last minute, yet everyone else is so organised. Most people have a drawer of junk in their houses where keys reside waiting for someone to identify them. They have photographs in a box which they mean to put in an album, and souvenirs which they feel are slightly tacky but could not bear to part with. Many people have a pet who means more to them than most people and have recently (what a wide-ranging time frame) had to support someone through illness. There are clothes in their wardrobe which are too small, but they will fit into again—one day. And there is that

present someone close gave them which they really can't stand, but what are they going to do with it?

There is someone they miss and someone who irritates them but they must endure. Someone doesn't recognise their full potential and someone else doesn't care. Most people will be able to find a Peter and a Mary who bears some relationship to their lives—either in this world or having already 'passed over'. Taking an easy way out, psychics will try for just an initial. 'Who is the letter D?' Or R or A or J. Sounds like John, Ron, is it Yvonne? Given time and prompting, most people will identify the name belonging to the letter or sound.

Stop and read the last paragraph slowly. Can you, with time, find each of these people in your life? The focus is on you and the psychic is waiting for a response.

Gender and age groups are very useful guides. Find me a teenage girl who isn't self-conscious about her looks and I will acknowledge a very unusual adolescent. Almost all women have 'issues with something of a feminine nature'.

Drawing on these many common factors, the psychic then feeds back to the client anything which gets the nod. The hit is then repeated as if these are very individual specifics which have just been revealed to the psychic—that is cold reading.

A beginner can prepare a standard spiel to suit most people and have variations ready for gender and age.

The psychic then moves on to an intermediate level in cold reading, drawing on information from the person in front of them. The way people dress, groom, stand or sit will tell you a great deal about them. The psychic is now using the information specifically from the individual in focus.

In the many readings I have done, the family illness has been a standard. Women will almost always identify with the revelation that there was 'someone close to them' who was very ill. 'Close to them' rather than 'a family member' broadens the net. Acknowledging the support they gave and the emotional drain it was on them will usually cause them to respond and talk about themselves. From then on

you feed back what they are saying, elaborating and responding to the emotional reactions before you. Men will often identify with sacrifices they made in their career choices for the family. Once they are nodding and feeling personally involved with the reading, they will do the work, feeding back so much in words and expression that you will gain direction from them. After the reading, credit will be given to you even though the information has been provided by them.

As a psychic reader progresses to a more advanced level, it helps to have some prompts. This is the value of paraphernalia. In my own scheme, Tauromancy, the metal masks give the emotions, prompting me to talk about anger, love, dislike (hatred is too strong), fear and sadness. The rods and staves reflect money, travel, people (who support and who repress), family, tragedy, death, romance, illness, career and dreams. I allow the person to lay them out as they see fit, reinforcing the feeling that they have control and hence the success of the reading is from their good work. A group of staves are 'blockers' which enable me to talk about the things in life which are blocking the money, travel or dreams. My clients can almost always identify those blocks in their lives and we talk about removing them. They do so, taking away the blockers and feeling empowered in their lives.

Using interesting cards or beautifully illustrated charts serves to prompt the psychic reader on the aspect of being human which they can then blend with the standard interpretations and a sensitivity to the individual in front of them.

If you want to become a hot-shot psychic, you can hot read. That means that you use information gained from other sources: associates listening in the foyer before the show, microphones on in an auditorium before filming or secondary sources such as application forms with names and addresses. From these you can gain certainties. Fed back to the person during the reading, you will astound with your powers.

They'll quote the hits

The psychic will give out as many prompts and specifics as possible, often rapidly. A hit can be emphasised, noted, reinforced. 'Yes, I got Frank strongly there.' 'Yes, that time was a drain on you. Looking back, are you surprised you coped?' That will give another yes. Another certainty of psychic empathy.

There will be many misses. With waiting and prompting, a psychic can usually find a Chris or a Jenny. Not recently, the psychic prompts, Jenny was back a bit. Ah, the childhood friend. Does anyone not know a single Jenny?

The psychic prompts:

'The man who you were there for when he was ill.'

'He wasn't really ill, but do you mean when my husband was really down?'

'Yes, depression is an illness.' And then the psychic has new knowledge of a husband and a sadness and all that goes with it.

There will be total misses—those which cannot be converted. The psychic may then move on. One method is to say 'I know there is a suitcase there. You must be just blocking it out. We'll come back to it.' Failure lies with the client not the psychic.

'They were right a lot of the time' is often said after a psychic performance. Time is a crucial factor. When the psychic gets a hit they reinforce it. Pause, think, reflect and draw out more from the hit. A miss is passed over quickly. So the memory is of much more time in which the reading was correct. But if you do a count of the tangible statements and then tally how many were right and how many were wrong, a very different picture emerges.

The misses will be forgotten. Even better, they will be edited out if the performer has the good fortune of all the advantages that TV editing rooms provide. The hits will be quoted, requoted, enhanced and retold yet again—even repeated in promotions and end pieces on the show or advertising. The misses are no longer in memory.

The reputation of the psychic is based entirely on those hits.

DIY psychic reading

To be a successful cold reader all you need to do is two crucial things:

1. Tell people they are human—we are all far more alike than unlike.
2. Incorporate what they tell you, verbally and non-verbally, as if it is your own revelation.

Your essential tools are the experiences and emotions common to people of a given age group and gender, but which are not readily recognised as such.

When cold reading you need to throw out plenty of statements which have some substance. Totally vague statements will not be recognised as personal. People tend to find more meaning in any statement you make than is actually there. They want to hear:

- about themselves
- evidence of some underlying methodology for making the statements, such as a star chart, set of numbers, ornate cards or innate inexplicable abilities
- statements with personal and emotional meaning, for them to interpret
- prompts which allow them to give feedback and be involved
- personal validation of whatever they have just told you
- something specific, a name or place
- reasons for not having achieved all they feel capable of being
- promises that the achievements are just in the future
- that they are warm, intuitive, self-sacrificing and creative—very creative. And make that very sensitive as well.

Entry-level cold reading

The beginner's version is just to use a standard spiel which pretty well fits everyone. The most famous is that developed by Bertram Forer in 1948 and gleaned from astrology columns collected at the local newsstand. His students rated it on average at over four out of five, with five being perfect. It has received similar ratings over subsequent decades of testing. How would you rate it for accuracy for yourself?

Some of your aspirations tend to be pretty unrealistic. At times you are extroverted, affable, sociable, while at other times you are introverted, wary and reserved. You have found it unwise to be too frank in revealing yourself to others. You pride yourself on being an independent thinker and do not accept others' opinions without satisfactory proof. You prefer a certain amount of change and variety, and become dissatisfied when hemmed in by restrictions and limitations. At times you have serious doubts as to whether you have made the right decision or done the right thing. Disciplined and controlled on the outside, you tend to be worrisome and insecure on the inside.

Your sexual adjustment has presented some problems for you. While you have some personality weaknesses, you are generally able to compensate for them. You have a great deal of unused capacity which you have not turned to your advantage. You have a tendency to be critical of yourself. You have a strong need for other people to like you and for them to admire you.

Intermediate level—adapt for the sitter

As you become more comfortable with cold reading you can start to adapt it according to whoever is sitting in front of you. People are telling you a great deal by their age, gender and dress. A teenage girl will be concerned with relationships and riddled with self-doubt. A teenage boy will sit there with his body language screaming infallibility or self-loathing, but not both. A middle-aged woman will be weighed down with responsibilities for others while an older

man will be searching for purpose after retirement. Go with the stereotypes unless the sitter clearly defies them in their presentation. But, whatever you do, make it sound like these are very individual traits and that you are in no way likening them to any other individual.

There are major transitions in life which apply to everyone, so draw on them in the content of your spiel, depending on the age of the sitter.

Starting with the inevitable birth, we go through childhood (where we learn a musical instrument which we have subsequently stopped learning), puberty (where we challenged expectations and rode the emotional roller coaster), education (where we didn't do as well as we knew we could), work (where there was someone who inhibited us and didn't recognise our full potential), marriage (where we held back from our own dreams because we put our family first), children (where we *really* held back from our own dreams because we put our family first), middle age (when both younger and older family responsibilities and career and mortgages and health and . . . weighed down and held us back from following our own dreams) and older age (where we decided to 'bugger them all' and do our own thing—I dream on here!).

There is a standard set of emotions you can draw on for just about everyone: self-doubt and guilt are reliable, as are ambitions and desire for self-worth, and love, of course, and hate. Just be careful to mention that they resist hate and don't usually act upon it, which makes it all right. Then there are fear, dreams, desire for money (which, of course, doesn't rule them) and a sense of responsibility (which does). Conflict—there will always be some somewhere if you dig enough. If not, then claim they are suppressing it! A sure one is the drain on them because they have supported others through their times of stress. With patience, and pauses, they will tell you all about it.

Health is another certain area. Most people have some area of pain. The back is a good place to start. A time of illness in their childhood is also worth exploring. 'You missed some

school at one stage . . . ' will do. Or was it during university or job training? The serious illness of 'someone close to you' will rarely fail to get a reaction. But you must have something to follow with: 'You haven't really resolved all the emotions raised' or 'Your contribution was appreciated more than you realise'. A hit must be followed with a reason for your raising the topic in the first place. Then let them talk.

Look carefully at the person. Watch any behaviour before they sit down. Hands show nervousness and a direct gaze defines confidence. Note dress, quality and type. Are they well groomed, conservative, repressed or flamboyant in dress? Fingernails, shoes, wear on cuffs and seams of clothes, rings, necklaces, brooches, tie pins, hair combs and clips, scarves—they all tell you about the person, although I have found the general impression more valuable than the details. Anything which could be of sentimental value can be used, as is often the case with jewellery or badges on a handbag or lapel. Be careful: claiming that someone wearing a Royal Air Force badge is keen on flying is a tad obvious.

Your demeanour

Start the reading by handing responsibility back to the person and making your excuses up front. Use something like: 'I don't know how this works and so sometimes it can be confusing. It is only really accurate if we work together.' Failure is their fault, success is your achievement.

During the reading, make sure you pause and allow them to talk. Pause long enough and they will be forced to talk. The slower the delivery is, the more convincing. A calm, low voice will draw them to concentrate on your words. Use what they say, watch for nods and go with any agreements. Move on quickly from any misses; they will be forgotten. The person is there because they want to hear about themselves, so feed back anything they have told you in a different way, a bit later in the reading.

Listen to every word. You have no interest in the world

except them. To do a reading properly you will find that has to be the case. And don't be surprised if you find you are engaged in some of the warmest conversations you ever have. I have never found a cold reading amusing or anything a client has said to be worthy of ridicule. A good reading just doesn't work that way.

Advanced reading

The next stage is to develop some kind of authenticity for your reading. As mentioned above, I use a complex collection of chopsticks, metallic masks, cloth bags and embroidered mats. Others use star signs, tarot cards, crystals or palms.

People find meaning in symbols, so the more beautiful and complex these are the better. The props act as a prompt for the various aspects of life to be included. The sitter sees the props as credence, some external validation. I even have a small, handwritten book of notes I took 'while studying Tauromancy in the Upper Pendim regions of China'. I refer to my book during the session, showing I have not perfected the art (hence justifying the misses) and giving a history and academic structure to the reading.

I also start by asking the person to arrange the props on the mats. This allows me to observe the way they work. Those who just drop them fairly randomly are very different people from those who take time to arrange with care and precision. Unlike systems based only on birth dates and times, Tauromancy acknowledges the growth as they have journeyed through life. It isn't a total falsehood. What they are doing in placing the rods, staves and masks, and the comments they make, tell me a great deal of who they are right now.

You can start to include some very specific information. Remember it is the sitter doing the interpretation, not you. So give them scope for it to look specific, but have as broad a range of interpretations as possible.

If the sitter indicates a hit, keep with it, saying the same

things in different ways and embellishing along with the feedback. With practice, you will develop your own successful statements. Below are some which have worked for me.

- 'Who is Alison?' Pause. 'Or is it Alex?' It is confronting, so they want to find an answer as you wait. If there is a significant pause, you add: 'Not in your immediate family and friends. A bit further. I worry that you aren't fully aware of the depth of influence here.' They will find Alex, Alison, Alan or Anne, and tell you enough to draw on. Or David or Ann or Bert. Go for a common name in the age group of the sitter or a previous generation. When you have the link, talk about them. They may well lead you to more crucial characters in the plot that is your sitter's life.
- 'Tell me about the case.' If you are lucky, you will have hit on a court case. Then you are home with a certainty. If nothing comes back quickly, go for travel. 'I see a suit case. There's something in it which is pretty significant for you.' It might be something they took with them, the reason for the trip. Or a souvenir.
- 'December was an important month for you,' or 'I sense a real change in your current contemplations.' These can lead to links into key aspects of their lives.
- 'You were a bit stressed. I am getting an incident a few months ago. You're in an office.' If necessary, push. 'Maybe it's longer. There's a table. You have a member of your family with you.' Or ask 'Is it a doctor's surgery?' Most people have something in an office sometime.
- 'I'm not the first to comment on your potential, am I? Or to recognise you are not using your ability to its fullest?' That almost always works.
- 'I wanted to stay away from it, but you seem to need to talk about the health issue. It's worrying you, isn't it?' If no reaction, say: 'You do worry about your family a lot, so it's understandable that you have taken this so seriously'. This means that you never intended it to be their

own health. If still no certainty, then talk about seeing an older member of the family. If still nothing, try: 'You were very supportive, but have you yet acknowledged how much that took out of you?' You knew it was in the past—hadn't they realised you knew that (you say, in all innocence)? If they still have nothing, they have defied all statistics on health in families.

You will only find the statements which work for you with practice. But you will soon grow a set of statements which draw out the crux of your sitter's personal issues. Then you talk to them, with honesty and sincerity. It is not a joke or to be done for fun at someone else's expense. I feel emotionally drained at the end of a session.

Hot reading

The unscrupulous get really sneaky and head into hot reading. You can find out about the person through the phone book or other public documents, confederates feeding you information through an ear piece, associates checking handbags conveniently asked to be left in the hall and prior checks through many unrestricted sources. If your client has booked for the reading or public performance, then you have plenty of information already and the necessary data for further personal checks to be made.

I have never practised hot reading and will never do so.

Further reading

Cold reading is a real art and a lot of practice is needed to do it convincingly. If you want to study cold reading seriously, I strongly recommend reading Ray Hyman's classic article: 'How to convince strangers you know all about them', first published in *The Zetetic*, Spring 1977, and the wonderful and very detailed book by Ian Rowland, *The Full Facts Book of Cold Reading*.

Cold reading can be fun and lead to wonderful discussions between people about what it really means to be and feel human.

Cold reading is not fun when it is used to exploit.

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SPIRITUALISM

From the middle of the nineteenth century and well into the twentieth the spiritualists flourished. Communities were still parochial and lives retained some of the simplicity isolation from the wider world can protect. Religion was under attack. Voices proclaimed science as a higher reason and then, even worse, Charles Darwin called the Creation story into doubt with *Origin of Species*.

It was a time of religious fervour. Many Christian sects saw spiritualism as blasphemous. Those who had not adhered to the pious life claimed to be speaking now from a democratic Heaven. It was, the Christians declared, a pact with the Devil. The Christian Church was dominated by men. There was resentment, screamed from the pulpits, of practices which gave credence to the spiritual utterances of women, let alone mere girls.

It was a time when spiritualism had spread from the first rappings in small-town New York state to England and on to Europe. Married couples, widows, mothers and daughters, men of science, writers and philosophers, could be seen in the séance rooms of America and Europe. Sir Arthur Conan Doyle, Sir William Crookes, Professor Charles Richet, Dr Schrenck-Notzing—famous and highly respected men wrote about their experiences and gave credence to the beliefs that in these small, dark rooms the spirits of the dead would walk, talk, touch, move objects and sound out their presence.

Let's sit in on a séance at the turn of the nineteenth century and experience it for ourselves.

At the séance

The room is a small parlour in your host's home. In the corner is a cabinet—just a small space with a single chair enclosed by dark curtains held up by wooden rods. Ruth is a middle-aged woman. She tells how she will act as the medium for the spirit world to return to the Earth, to talk and walk among you. She sits at the small table with the group of five intense people and asks that you all hold hands. Miss Darlington, not much more than a child, starts to shake.

The lights are extinguished, leaving only a candle flame in a small desk behind Mrs Clovelly, sitting opposite. Shapes form as your eyes become accustomed to the gloom. Rapping sounds come from the walls, it seems, and then from the floor; and now from under the table.

Ruth asks that the people on either side of her hold her wrists so they can act as 'controls' ensuring she is unable to cause objects to move. She guides you to take her wrist. You hold that bare wrist firmly. Mr Jensen reports equal diligence.

You feel a touch on your shoulder. A gloved hand can be seen in the candle glow. It taps your shoulder again. Small objects materialised from the air, known as apports, land on the table. A flower for Mr Jensen and then a brooch. Mrs Clovelly claims the brooch. It was lost a long time ago; a present from her now dead husband. She cries.

A silk floats to the table. Miss Darlington recognises the face of her fiancé, killed only a few weeks ago. She had hoped to make contact. She takes the silk and kisses it. Over and over.

A long silver trumpet rises above the group, floating unsupported, and from it comes a voice which talks of the spirit world. It is Benjamin Franklin, long since dead, and

he tells Mr Maxwell of his departed wife, Marie. Tells him things only Marie could know. The trumpet voice says your name. He tells you about your child, your tiny Adeline, who died while only three years old. She is with him in the afterlife.

You nod and don't reply. Your emotions prohibit calm response.

Franklin bids you farewell and the table starts to move. It tilts, first right then left. It settles and silence falls.

Ruth stirs, takes some deep breaths and speaks. Now, she says, she will go to the cabinet and the spirits will come to the room. She will be tied, completely constrained. It is essential you do not grab at the ghost, you are reminded, as if you grab a spirit guide it can be fatal for the medium.

A second candle is lit and the medium enters the cabinet. You check the curtains, the chair, the floor. Nothing is hidden there. Mrs Clovelly checks the medium. Nothing, she says, could be hidden in her garments. Inside, she is fastened to the chair. You pass ropes around her body. Her wrists are tied to the arms of the chair, her ankles to the legs. The second candle is extinguished. The curtains are drawn and you all sit at the table once again, softly singing hymns. Minutes pass and you hear a voice, muffled, from the cabinet. She calls to you and you go. In her hand, still tied, is a parchment. You take it and read. Miss Darlington's father has written to his daughter telling her to marry her patron. You are told to close the curtains. A cool breeze brushes your hot face for just an instant and the candle light flickers.

The sitters continue to sing hymns in the dim light. After half an hour, maybe much longer, the curtains move and a face appears. The ghost of a Native American is emerging. He enters the room, and in the dim light you glimpse the slumped figure of the medium still in her cabinet.

The tall Indian man walks around the room, touching one sitter gently, talking to another. His presence is very real and physical. He returns to the cabinet and closes the curtains. You all sing hymns.

The medium stirs, but is still deep in her trance. The curtain moves, unaided, just enough that you can see her form. The candle glow catches a white, fluidic substance which emerges from her heart. More and more it comes as she groans. Still tied tight, the ectoplasm grows and become a half body at her side. It grows until a child, a Native American Indian girl, stands beside her. Draped in white, her faint face looks surreal. She stares across the room and the small music box, isolated from all, plays its eerie tune.

As you watch, the child droops and drops until she is but a white mass on the floor, slowly drawn back into the medium. The curtain floats back and you can no longer see Ruth.

Two hours have passed and you are tired. You wait. Then you hear the medium stir again. She speaks very slowly, then more firmly. She is back, released from her trance and wanting release from her bonds. You go to the cabinet and check the ropes. She is still bound as she was at the beginning.

When released, the medium is clearly exhausted. Lamps are lit and the room floods with light. The séance is over.

We will return to the séance room and examine just what did happen. Meanwhile, we need to place these events in the history of spiritualism.

The Fox sisters

Spiritualism all began with two small girls. Katherine was only eleven and Margaret thirteen. In a two-room cottage in the backwoods of New York state, they lived a dull and impoverished life. Sleeping upstairs in a single room, the family lived and ate downstairs. The playful girls convinced their mother, a believer in the spirit world, that the sounds of an apple tied on string and knocked against the wall or stairs was evidence of the presence of departed souls.

Katie and Maggie, as they are more often known, went to bed on the night of 31 March 1848 in the early evening. Rapping was heard by their parents not long after. Rushing

upstairs to their daughters, they were surrounded by the sounds. Mrs Fox called the neighbours who soon hurried to the house to witness the events. A dozen neighbours in the tiny room was a tight crowd. They asked the spirits questions. How many children does this woman have and how old is that one? Each answer was tapped out correctly. Rap if this man is a peddler (it rapped) and if the ghost had been murdered in the house (it rapped its assent). Was it here to hurt anyone? Silence. The neighbours wrote their testimonials. The little town of Hydesville was alive with the news.

The sisters had enlarged their apple repertoire by rapping with fingers or cracking their toe joints against surfaces which would transmit the sounds. Tables, stools, bed-ends, walls and doors provided the resonating surfaces.

Their brother David suggested the alphabet be recited; the spirit would tap at the appropriate letter. It was a cumbersome method, but messages could now be conveyed.

Maggie and Katie had a much older sister, Leah Fish, who had married, moved to nearby Rochester and produced a daughter. Mr Fish had since left his wife who now supported herself by teaching music. On hearing of the Hydesville events, she immediately returned home to find the constant attention had driven the family from their home to stay with David.

Forty years later, Maggie described how Leah had immediately demanded the girls show her how they had produced the sounds. She had never been fooled.

The family moved to Rochester and their fame soon spread. The spirits learned to move tables, touch people gently in darkened rooms and answer the numerous questions from the endless stream of people visiting the house. Leah soon charged for her sisters' performances as the music lessons could no longer continue in the crowded rooms.

Katie later explained how she would watch for muscle movements in the face of the sitter to indicate when the correct letter had been reached. When she directed her eyes to a faraway corner of the room and rapped more loudly, the

sitter would detect the sounds as coming from there. Her feet on the base of the table legs produced sounds from the top of the table, while the base of the door produced sounds from the top. The ubiquitous belief in the innocence of young girls prevented people from being suspicious.

Mediums appeared in other towns, rapping, spelling and moving tables on request. So the time came, Leah insisted, for the sisters to go public. For twelve days the spirits refused to rap or move. Leah was unable to make the sounds as convincingly herself. Finally the younger girls, still barely in their teens, relented.

On 14 November 1849 they rapped out their spirit messages in the Corinthian Hall in Rochester. Four hundred people assembled to witness the event. The spirits replied to the questions. A committee of investigation was appointed to check the methods. It had been suggested they were using their knee joints, and so these were held, and searches of their bodies and clothing were made by female members of the committee. Katie later confessed they used a Dutch servant girl to tap from the cellar beneath the stage during these tests.

Through night after night of investigation in front of often hostile crowds the gutsy girls persevered. They were finally rewarded. The committee declared them genuine. Their fame grew rapidly and it was decided they should perform in New York.

With the patronage of Judge John W. Edmonds of the New York Court of Appeal and Horace Greeley, editor of the *New York Tribune*, they enjoyed a new-found respectability. The spirits now learned to tap 'd-o-n-e' whenever they felt the session should cease, hence avoiding difficult questions.

Despite leaving many unconvinced, the Fox sisters inspired an ever increasing number of mediums, who performed for a rapidly growing throng of believers. There were times of embarrassment, such as when a complaint was made that the ghost of Benjamin Franklin replied in very poor grammar, to which Leah replied 'You know I

never understood grammar!' However, these did little to dampen the enthusiasm of their followers. Books and pamphlets on spiritualism flourished as widely as the spiritualists themselves, spreading throughout the world.

Leah Fish moved to New York and opened séance rooms under the patronage of Horace Greeley. During one of Maggie's sessions in Webb's Union Hotel, Philadelphia, Maggie met Dr Elisha Kent Kane and life changed again.

Still only about fifteen years old, she was immediately adored by the young sailor and explorer. From a prominent Philadelphia family, he was normally beyond the reach of a poor, uneducated girl like Maggie. He declared his love and their romance was publicly acknowledged. Dr Kane's letters show he was never fooled by her performances and constantly begged her to give up the trade. Kane even offered marriage if Maggie were to give up the pretence, rejecting his respectable intended partner. Leah was furious.

From July 1853 to October 1855 Maggie went to live in seclusion while Kane was in the Arctic seeking out the lost polar explorer Sir John Franklin.

It was two days after his much awaited return before he sought her out, and then, amid the affectionate displays, he asked her to sign a declaration for his mother that they never would, and had never intended to, marry. Maggie was devastated and declared their love over, but soon relented and their affair continued. Newspapers reported every step to an eager readership.

Before departing for England to meet Lady Franklin, and deliver the manuscript of his Arctic adventures to his publishers, Dr Elisha Kane exchanged rings with Maggie Fox in the presence of a friend and they considered themselves married. On Kane's return, his fragile health was now so poor he was sent straight to the West Indies where he died upon arrival. Kane's family ensured Maggie was given nothing from his estate and William Elder's biography, *Life of Elisha Kent Kane*, published in 1857 to capitalise on his fame, fails to mention her existence. Maggie was left without means of support.

She wrote a memoir including the transcripts of his letters. After legal battles and broken promises with Kane's family, the memoir was published in 1862. Then Maggie returned to the only trade she knew—mediumship. Leah Fish was now Mrs Daniel Underhill, wife of a wealthy, and believing, New York banker. Now a successful medium in her own right, she disowned Maggie, who descended into poverty and alcoholism.

Katie had worked for Leah until Mrs Underhill's new professional status made her redundant. Katie then went to work for Mr Horace H. Day, who divided his time between spiritualism and owning an Indian rubber works, the source of his wealth and respectability. Katie spent every morning rapping out the spirits' messages as a salaried worker. She earned 1200 dollars per year.

Leah progressed. It was she who first produced the spiritualists' new attraction: the materialisation. A female, luminous spirit emerged in solid form.

Katie, along with many of the now numerous mediums around the country, started producing materialisations in New York, eventually persuading a rich widower, Mr Livermore, that one of them was his dead wife. He became her patron. Famous ghosts soon appeared from Katie's cabinet, including Benjamin Franklin, who put in a regular appearance at a number of séance rooms. Katie moved to England, taking her materialisations with her. Soon these luminosities started appearing in séance rooms all over England.

Katie took the opportunity to introduce herself to the much respected scientist William Crookes, who was later knighted for his services to science, which included the discovery of the element thallium. A founding member of the Society for Psychical Research, at one time its president, he hoped to prove the reality of spiritualism using scientific methods. Having lost his beloved brother at the age of 21, he sought desperately to make contact with him. Katie contacted Crookes by way of a letter written by Livermore's dead wife during a spirit-writing session.

Records of Crooke's letters and his notes show Katie was following Maggie's path into alcoholism. Hysterical interludes and her increasing unreliability did not improve the poor impression of her performances compared to other more skilful mediums Crookes had investigated. In 1872 Katie married one of her believers, a London barrister, and became Mrs Jencken. By 1873 Crookes' records display his irritation with Katie as the sessions become rarer and eventually cease.

In 1881 Katie's husband died, leaving her with two small boys, Ferdy and Henry. Back in New York, these sons were taken from her by the authorities because of her drunkenness. Maggie came to her sister's aid, gaining permission to take the boys to England and the safe custody of their uncle.

Maggie and Katie, the two small girls who had started it all, had sunk into misery, drunkenness and poverty. Leah had flourished and was now a wealthy medium in society. They plotted their revenge.

On 21 October 1888 in the New York Academy of Music, before a large crowd, Maggie confessed. Spiritualism, she said, had been a sham from the start. Katie sat in the balcony and nodded her agreement to all her sister said. Maggie demonstrated exactly how she and Katie had cracked their toes to make the raps. She explained all they had done from knocking apples on the end of strings against walls, to using assistants when they needed them.

Was it all over? Not at all. The movement was barely dented. Spiritualism had outgrown the need for the validity of the Fox sisters. When no other opportunity arose, they weakly recanted and attempted, yet again, to make their living as mediums. They failed and both died in poverty.

Daniel Dunglas Home (1833-86)

The Fox sisters confessed and most other famous mediums were publicly exposed as cheats at some stage in their career, as documented in Ruth Brandon's fascinating

history *The Spiritualists*. One famously was not. It may have helped that his séances were by invitation only. D.D. Home wrote and was written about extensively, in his autobiographies, biographies and many articles in newspapers and pamphlets of the time. Born into a poor family in Edinburgh, he was raised by an aunt in America. Falling out with his pious aunt over his spiritualism, he left as a young man to travel through Britain, France, Italy and Russia as a medium. Home is reported never to have accepted payment for his services, but he did accept gifts, and he managed to travel and live a very comfortable existence in the homes of his many patrons. One of these, the wealthy widow Mrs Jane Lyon, was told by her late husband, through the mediumship of Home, to adopt him as a son. An English court convicted him of 'improper influence' and he was ordered to return all monies he had received from his doting 'Mama'.

Home was famous for his accordion, which was cased in his room, visible but untouchable, and which played two thin, ethereal tunes: *The Last Rose of Summer* and *Home, Sweet Home*. James 'The Amazing' Randi, in his wide-ranging reference *An Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural*, notes that a number of tiny mouth organs were found in Home's possessions after his death. Only capable of a single octave range, these two tunes represent examples of the very few limited melodies which can be played on such a tiny instrument. Given Home's large moustache, these could have been easily drawn from the hiding place in his mouth, to be played when needed.

Although declared genuine by William Crookes, all investigations took place in séances strictly controlled by Home. Some of these were in the home of Kate Jencken (née Fox). It must also be noted that many of Home's séances produced no contacts from the spirit world. This inability to predict when a phenomenon will take place can be very useful to the performer, but is taken by believers as evidence of authenticity.

Crookes published his findings in the *Quarterly Journal of Science*, a much-quoted scientific support for spiritualism, but Crookes was also proprietor and editor of this journal, hence avoiding the peer review which caused the same papers to be rejected by the Royal Society.

One of the most convincing displays, according to Crookes' many records of the time, was Home's ability to handle burning coals without injury. As a chemist, Crookes declared this impossible. However, the great magician Harry Houdini disagreed. Desperate to contact his late and much-loved mother, Houdini was greatly interested in spiritualism. In his quest to prove its validity, however, he served to expose more spiritualists than almost anyone else. In his 1920 book *Miracle Mongers and Their Methods*, Houdini gave exact instructions on the methods used to perform this particular feat by magicians of the day, methods known well before Home's time.

Chemicals known at the time as samphire, acquavita, quicksilver, liquid storax and hematitus were mixed in particular proportions and used to anoint the feet or hands. Another method involved long-term washing of the hands with 'pure spirits of sulphur' which burns and cauterises the skin and, with repeated application, makes the skin hard and leathery and able to take excessive heat. A third, pre-performance, method involved rubbing the hands with dilute sulphuric acid, or a solution of alum, and then hard soap, which desensitised them to heat.

Despite being married twice, many accounts of supernatural events detail happenings which occurred, not in the séance room, but in the bedrooms of the young male sitter or host with whom D.D. Home stayed. Sexual overtones in the atmosphere of séances pervaded many contemporary accounts. As we shall see, with the famous mediums Eva C and Eusapia Paladino, they didn't just pervade—they positively dominated. Meanwhile, the exotic Madame Blavatsky had joined the scene.

Helena Petrovna Blavatsky (1831-91)

While D.D. Home was convincing Crookes of his powers, he was also inspiring one of the most exotic spiritualists of the time. Born in the Ukraine, Madame Blavatsky was still a teenager when she left her middle-aged husband of three months, General Blavatsky. She travelled widely, at one point working as a circus rider in Istanbul. She met D.D. Home in Paris, where she was employed as his assistant. Her history of repeated exposures includes the time when her French Société Spirite was disbanded in 1871 after a spirit hand was exposed as a long white glove, stuffed with cotton. By 1873, she had founded the Theosophical Society in the USA. Writing numerous books on the topic, she converted many to the belief in spiritualism.

Madame Blavatsky was one of the first to bring Eastern Mysticism into the spiritualist arena, with the core beliefs of the Theosophical Society being based on the writing of Tibetan mahatmas, which were often dropped into séances from the spirit world. Madame Blavatsky had led a cult for a few years in India, but when the sect's headquarters in Madras were examined it was found that many séance room tricks emanated from Madame Blavatsky's bedroom, which conveniently adjoined the séance room. Despite issuing vehement denials and threats to sue, Madame thought it best to leave India, and would never return.

In England her tricks were exposed as conjuring, while an actor was discovered to be playing the part of the materialised spirit guide. A.P. Sinnett wrote books about his great belief in Madame Blavatsky, but even he publicly acknowledged that an employee had admitted to dropping the note from a Tibetan Master into his own séance through a crack in the rafters.

Conjurers, not the least of whom was the famous escapologist Harry Houdini, were constantly reproducing the tricks of the spiritualists in public exposures.

Harry Houdini (1874-1926) and Sir Arthur Conan Doyle (1859-1930)

Houdini was a very close friend of the equally confident and equally famous Arthur Conan Doyle. Like Houdini, Doyle had a strong desire to believe in the spiritualists. The death of his son Kingsley and brother Innes, both when very young, led to a life-long search to make contact with them. Doyle's reputation for rigorous logic belongs more to his fictional character Sherlock Holmes than to himself. Being able to create such a character in an environment of your own making is very different from being able to apply such rigour to the real world, especially when that world is one you want to believe in fervently.

Doyle, in his battle with Houdini's abilities to repeat the mediums' tricks, made use of the common claim in such instances, that Houdini was himself psychic but did not recognise the fact.

Doyle and Houdini's friendship survived their greatly differing opinions until 7 June 1922, when Doyle's wife Jean decided to display her skills as a medium and contact Houdini's mother. Jean Doyle was an automatic writer, that is, a medium whose hands become the means by which a spirit can write down their messages to the living.

That fateful day, Lady Doyle wrote a long missive from the dead woman, starting with a cross and continuing for pages of reassurance for her son. Houdini was devastated that his deepest feelings should be exploited in this way. He had no doubt the message was not of his mother's doing. First, the message was written in English, a language she could not write and spoke only haltingly. Second, his devoutly Jewish mother would never have commenced her message with a cross, a peculiarity known to be fondly used by Lady Doyle herself.

Unlike Houdini, Doyle never faltered in his faith. By the end of his life Houdini had decided that the spiritualists were all frauds. However, he left a message with his wife that he would relay from the afterlife if that was in any way possible. Many tried to receive the message and pass the

most famous of tests. Only one succeeded, a close friend and medium Arthur Ford, but it was later confessed by Mrs Houdini that it was she, not the late great magician, who had passed on the code.

Sexuality and the séance room

In a world where sexuality was taboo except behind closed doors, holding hands in darkened rooms must have been titillating. Women were paid great compliments by suave young men. Older men were flirted with by pretty young women. Some of these older men were distinguished scientists. Even scientists are sexual and emotional beings!

Eusapia Paladino (1854–1918) was formerly married to a magician. An Italian medium, she was publicly acknowledged as genuine by such famous scientists at the time as the French physiologist Dr Charles Richet and the German physician Dr Albert Freiherr von Schrenck-Notzing. A petulant and difficult personality, she would throw tantrums and refuse to continue when testing didn't go her way. Being caught cheating, displaying hostility by apportioning such delicacies as a dead rat into the séance room and keeping what many contemporary reports considered unsavoury company did little to lessen her fame in Europe, America and England.

Eusapia so openly engaged in sexual relations with her sitters that Italian scientists Cesar Lombroso and Gioranni Schiaparelli hypothesised that her skills were due to a re-direction of her fundamental sex energy. Their reports discuss the erotic sensations and orgasms she experienced when she went into a trance, amid the descriptions of her menstrual secretions.

Dr Charles Richet was also responsible for validating the skills of the nude performer Eva Carriere (1886–?). Born Marthe Beraud, she was to take the name Eva C for her mediumship. Her first experiences were in Algiers where she was party to the year-long deception practised in the home

of her late fiancé while she was staying with his family. The family friends, along with Eva, confessed to the fraudulent materialisation of an Indian spirit, Bien Boa. Marthe left Algiers and the publicly humiliated family.

Richet protested Marthe's innocence, finding it impossible to believe that such a well-bred young girl could deceive in this way. He continued to support her when she reappeared in Paris as Eva C, three years later.

Eva C's materialisations were thoroughly documented. In 1912, one of her admirers, Juliette Bisson, widow of the playwright Andre Bisson, invited the medium to live with her. Juliette's own notes from the time leave no doubt the relationship was sexual.

Unlike in her Marthe days, when the ghosts were played by others, Eva C now produced materialisations from her own body. Stripped into a leotard beneath a smock, Eva C would be examined, first by Juliette Bisson and then by Dr Schrenck-Notzing, in what the latter described as a gynaecological examination, to prove she had hidden nothing in her vagina. Schrenck-Notzing left extremely detailed writings on every aspect of the séance.

After Eva C had retired to the ubiquitous cabinet, and been hypnotised into a trance by Juliette, the sitters would wait for up to three hours for the phenomenon. The curtains would open and the materialisation, swarms of viscous ectoplasm, would emerge from the medium's body. Later in her career, discarding the leotard and performing nude, she would be observed making violent muscular actions, associated with groans and gasps. Some reports mentioned childbirth, others orgasm.

Eva C often insisted on a further gynaecological examination after the event, despite none of the sitters deeming it necessary.

Later materialisations had recognisable faces attached to the back of Eva C's head. The flattened features made some sitters suspicious. Unfortunately for Eva C, in January 1914 a Miss Barkley wrote in *The Psychic Magazine* that Schrenck-Notzing's photographs showed the letters LE MIRO in the

ectoplasm above Eva's head. All the phantom faces could be found in recent issues of the paper *Le Miroir*. Although Eva had added moustaches and coloured hair they were clearly identifiable.

Excuses were made and the performances continued. Harry Houdini was of the opinion that the ectoplasm was gauze which had been regurgitated, claiming the effect he witnessed at a séance in 1920 was decidedly disgusting. He also concluded, not unreasonably, that Juliette Bisson was acting as an accomplice.

Into the twentieth century

And so the history goes on—claims and counterclaims, exposures and confessions. Yet the trade continued to expand well into the twentieth century. Published in 1976, *The Psychic Mafia* tells of M. Lamar Keene's thirteen-year career as an extremely profitable fraud. Known as 'The Prince of the Spiritualists', he earned, and disposed of, great wealth. He describes the spiritualists as the Mafia because of the way they communicated among themselves and helped each other exploit their victims.

The Blue Book is the trade name for a huge database of information on regular sitters, compiled for each area. This data is contributed to by mediums and used by others as they visit different areas or sitters visit them. In book form, often published within the trade, or on the cards described so thoroughly by Keene, this information provided certain facts to be revealed to the sitter during a reading. It is now reported to be on computer for the modern spiritualists to use.

Keene describes the many tricks of the séance room in detail, from the floating trumpets to the dropping of apports, small tokens from the spirit world. He tells stories of Camp Chesterfield, a spiritualistic haven in Illinois, where many mediums plied their trade. He relates one occasion when the police rang to contact a woman. Unable

to come to the phone because she was in a séance, the medium's wife took the message. She relayed it to her husband just before he made his entrance. In that séance, the poor woman was told by the spirit world that her son had just ascended to them as a result of a car accident. She had hysterics and the sitters had certain proof of the medium's prowess.

Wealthy patrons were targeted and their money secured in their wills for the luxurious spiritualist churches which grew in the spiritualists' glory. Keene also describes the tawdry side of the trade—the spiritualists who would satisfy the sexual needs of grieving spouses desperate for physical contact from their departed loved ones.

Keene went public with his confessions and was the victim of an attempted shooting soon after. He has since disappeared from sight, some rumours claiming he has taken up the trade again, others suggesting he is living an honest life under another name.

Revisiting the séance room

So let us revisit our séance with a little more light now shone on the events. This description draws on methods now documented thoroughly from the exposures of mediums at the time. The most famous mediums were highly adept at elaborate illusions, the master magicians of their day. Many others were exposed in using the tricks described below. Their sitters were often so keen to believe, they refused to accept the many evidences of deception.

Ruth is seated with the five sitters at a very small table. The lights are extinguished, leaving only a candle flame. Using a solid tip on her shoes, she raps against the table and floor, causing sounds to be heard. Her young daughter, Elly-May, knocks gently on the door. Slipping outside, a few minutes later she taps on the window frame. During the rappings, Ruth puts a long black glove on her right hand.

Ruth asks that the people on either side of her hold her wrists so they can act as 'controls' ensuring she is unable to cause objects to move. She guides you to take her left wrist close to her hand. She slumps forward, her loose robes covering the hand. Guiding Mr Jensen to take the left arm further up, she has her right arm free. She can now perform her tasks with a hand that is invisible in the poor light from the candle on the other side of the room.

From beneath her chair she takes a long gloved hand on a rod, which has been hidden in a sack looking just like the chair's hessian underside. She uses it to tap you on the shoulder. She replaces it and removes the apports. She tosses first the flower, then the brooch. Pulling on a black cotton thread, the piece of 'silk' is released from the ceiling. As requested, Miss Darlington sent Ruth a photo of her dead fiancé. After soaking the photo in ammonia, Ruth pressed it against the silk using a hot iron. The silk is really satin, but silk is the preferred term when it comes from the spirits. The likeness is quite recognisable and Ruth is pleased with the effect.

Last she takes a silver cone from the sack underneath the chair and expands it to make the séance trumpet. She does this against the back of her chair while still slumped, covering the noise of the movement with groans. Extracting a rubber hose from the trumpet, she passes the hose to her mouth and then, using a black rod attached to it, causes the trumpet to rise in the air. In the very dull light, the rod and tube can never be detected. Benjamin Franklin, the fashionable ghost of the time, can speak.

Mr Maxwell's Marie and your Adeline were facts Ruth had ascertained from other mediums who performed in your area. Those seeking contact with their lost ones do so often.

Having moved so that her feet can now be pressed firmly against the table legs on either side of her, Ruth tilts the table. Moving one foot to the far leg of the table, she tilts it again. She removes her glove and places it in the sack.

Ruth goes to the cabinet and while Mrs Clovelly checks her for any possible hidden objects you use the second candle to check the cabinet.

Ruth holds her arms slightly above the arms of the chair while you tighten the ropes. This takes a great deal of strength, yet she must appear relaxed. She does the same with her feet. The curtains are drawn and your hymn singing covers any sounds she makes as she slips out of the ropes, loose now she has relaxed her arms and feet. Free to move, she goes to the wooden rods holding the curtains. From a hollowed out hidden section she retrieves the curled parchment. By the end of your third hymn she has returned to her chair and placed her hands and feet back in the ropes. She calls to you and Miss Darlington's father's missive is read. While your attention is firmly on the astounding parchment, Elly-May slips into the room. Fully dressed in black, her face blackened, she has the door open only an instant, but it is still enough to allow a slight breeze to enter. You shiver and start singing again.

Elly-May creeps to the back of the cabinet, staying close to the walls. Her footsteps are covered by the hymn singing. She carries a black velvet bag. She hands her mother the costume of a Native American, made of gauze and with false arms crossed. Sitters expect to see at least one Native American ghost. Her mother raises her arms above her head and supports the costume. She appears to be much taller than she is. Elly-May sits on the chair and slumps forward. Ruth, the ghost head held high above her own, enters the room, talking in a deep voice and touching the sitters.

She returns to the cabinet and closes the curtain. While the hymn singing covers the move, Elly-May, much smaller than her mother, stands beside the chair as Ruth sits once more. The costume is returned to Elly-May's bag. Ruth, now slumped forward and back in her ropes, then takes a small parcel of gauze folded very small from under her dress. Hidden in her undergarments, it was too small to be detected by Mrs Clovelly's examination. Ruth draws it out, ensuring

she doesn't break the black thread tied to her belt. Elly-May opens the curtains. Ruth starts slowly to unfold the gauze and drop it to the floor. Elly-May steps forward and picks a corner up. Slowly she moves the gauze up and over her body. As it unravels, the sitters see a figure growing from nothing on the floor. Elly-May takes the gauze up and over her head. The young girl has materialised before their eyes. She reaches out a foot and pulls on the string taped to the front leg of the cabinet. This pulls a wad of cloth blocking the key of the music box, releasing the wound spring and key, which turns and the tune emerges.

Elly-May waits until the tune and its effects have died from the room and in the silence slowly drops the gauze to the floor. As she does so, Ruth draws on the cotton and the gauze is drawn back into her dress. Elly-May releases the curtain and slips behind the back curtain of the cabinet. There she will wait, pressed against the wall until you have all left the room.

When Ruth is sure that Elly-May is hidden she groans and wakes from her trance. Holding her hands and feet firmly separated from the chair and legs, the binding still feels tight when you untie her.

When released, the medium is clearly exhausted. The lamps are lit and the room floods with light. The séance is over. Ruth is so exhausted that you are hurried from the room. Elly-May's presence is never detected.

The ouija board

Spelling out the messages with raps became less popular than the ouija board, a surface decorated with the letters of the alphabet, the words Yes and No and numbers. With all hands touching an upturned glass, the spirits would guide the glass to convey the message, letter by letter.

Testing showed that the glass was being moved by one of the participants. This may have been subconsciously as they concentrated on the letter, number or word they expected to

come next. But physical movement of the living was shown to be the real force.

The movements can soon be shown to be the work of a sitter consciously or subconsciously moving the glass to the desired letter. If you need any proof, just cover the letters and turn the board. Record wherever the glass finishes. When the message is finished uncover the letters and check what has been said. You'll get gibberish.

Can there ever be contact with the spirit world?

It can never be proven that all mediums used fraudulent methods some, or all, of the time. Ruth Brandon, in *The Spiritualists*, describes mediums who suddenly felt empowered with the gift. She writes: 'The experience sounds perhaps less spiritual than hysterical; but the boundary between mysticism and hysteria is notoriously ill-defined'. Without examining every case individually, it is impossible to state categorically that no medium has ever contacted the spirits.

We need tangible tests if the tangible claims of genuine messages and real ghosts are to be believed. One way would be for those in contact with the dead to produce something other than intangible philosophies or trivial facts. Maybe Fermat could let us know the proof to his Last Theory, which has eluded mathematicians for centuries. The proof now accepted took hundreds of pages and cannot have been the one of which Fermat boasted. Jack the Ripper could give the clues necessary to prove his identity, or the crew of the *Mary Celeste* could show us what we have missed and solve the mystery of their abandoned ship.

The failure of spiritualism to produce any tangible proof says nothing about the reality or otherwise of an afterlife. It merely tells us that, to date, no spiritualist has produced tangible proof of their contact with the spirits of the dead.

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GHOSTS AND POLTERGEISTS

Why are we scared of ghosts? Do you know of anyone who has been harmed by a ghost? So why is the automatic reaction to scream? What a fascinating chance to explore beyond what we already know. If you have the good fortune to be in a haunted house, ask them in.

The belief that people's spirits can exist independently of their bodies dates back to ancient times. Ghosts are the souls of those who have died but return to visit the living. This is said to be due to a traumatic death or unfinished business leaving them unsettled in the next world. Although the common image of a ghost is a see-through human, not all apparitions take that form. Some are purely light, some sound, while others have visible non-human forms.

The word 'poltergeist' means 'noisy spirit' and they are usually invisible, their presence being detected by either sounds they make or objects being moved. Poltergeists like to throw objects around and move furniture. They are claimed to be mischievous at times, teasing people. Some can be terrifying, causing children to go into trances and levitate. But when they never seem to actually harm anyone, why is the immediate reaction to scream?

Before we accept that haunting is automatically the result of a ghost, there are a few checks which should be made. Investigations of hauntings in the past have revealed many causes. Unfortunately, they have not led to the invaluable

opportunity to ask the ghost some of the questions about the afterlife which have fascinated humans for centuries. Curiosity, not fear, is the rational response to a ghost.

Before launching forth with questions of the hereafter, it is worth checking a few things first.

Check out the child

Tina Resch was fourteen and living in Columbus, Ohio. Early in 1984 her name was spread around the world when her family became the victim of loud banging, flying telephones and lamps which moved and crashed as a result of the Columbus poltergeist. The adopted Tina used the media coverage to plead for the identity of her biological parents. She was later discovered pulling over a lamp when she thought she was unobserved, by a video camera which had been left running. The reported events were identified as either trickery on her part, exaggerations by investigators or media inventions. In 1994 Tina Resch was sentenced to life imprisonment for the murder of her three-year-old daughter.

Poltergeists are usually linked to one person who is referred to as the 'focus'. The focus can be found in the vicinity of the flying objects and slamming doors. Commonly the focus is but a child, the 'poor creature' being most often in the eleven-to-sixteen-year-old age group.

It is a sad reflection on the past that it is assumed these children must be genuinely possessed because a child would not be capable of such fraud. If you have any doubts about the capacity of children, especially young teenagers, to be inventive and deceptive, spend just one day in a school. Magic books fascinate kids of that age and most of the quoted evidence resembles well-known magic tricks.

To add to the lack of credit given children, the focus is most often a young girl. As we well know, teenage girls are all sweet, innocent creatures without the merest notion of deception. Or so it was believed in the past. The trust in

the honesty of young girls reflects greatly on the naivety of the believer. Investigators often quote the girls to be embroiled in some kind of stressful family or social situation. In becoming the focus of a poltergeist, suddenly she becomes the centre of attention. A mundane, possibly neglected life suddenly becomes exciting. Isn't this enough motivation? Often it has been shown the child was unhappy with some aspect of the family situation and trying to force a change.

Natural explanations

Let's say we have totally eliminated trickery as a possible cause. Before drawing the conclusion that a ghost has taken up residence, there are a number of simple explanations which should be checked but rarely are. When a ghostly story is recounted as fact, just make sure the teller has checked out a few of the possible alternatives.

Sounds and temperature changes

Temperature changes can cause the expansion and contraction of various materials. The problem arises when the materials expand and contract at different rates. Wood, for example, will change size at a different rate from metal or stone, so wood structures next to metal or stone will cause friction when there are temperature changes. This can lead the adjoining pieces to move in little jumps and a creaking noise is heard. Vibrations can also be generated this way. Old doors, being a combination of wood and iron, have a particular tendency to do this.

In hot weather, the sun on one side of the house will cause that side to heat more rapidly than the cooler side. At night, the cooling down can similarly be more rapid on one side than the other. Noises are more common at night when the most rapid change in temperature occurs.

Sounds of central heating

Central heating is a wonderful source of strange noises. Many ghosts appear after the residents of an old house renovate. Pipes and radiators change size as they heat. The heating ducts will amplify the sounds beautifully and transmit them around the house, giving a variety of apparent sources for the sounds.

Mice scratching, rats nesting and human voices can all be amplified, distorted and transmitted. These are very effective sources of ghostly commotion.

Sounds of wood

It was a dark and stormy night. Or maybe a calm one, as the fog settled. Moisture makes wood expand. Wood is made of fibres and different fibres will expand and contract at different rates, leading to all sorts of squeaks and growls accompanying the drying out as well as the wetting of wood. As wood tends to be laid in planks, there are plenty of adjacent surfaces to rub together and groan.

Sounds and renovations

Where there is new timber against old iron the timber dries out when the heating, for the first time comes on or maybe the old bearings and rafters are taking up a new strain. As they adjust, they will speak volumes about their struggles. Ghostly volumes. Newly exposed beams are a common source of strange sounds.

Sounds and plumbing

Pipes of old made strange noises. They still do. Trapped air pockets and flowing water produce wonderful ghostly serenades. Like heating ducts, the plumbing can act as a transmitter and amplifier of the sound, making it seem like

it comes from unexpected places. Older houses are much more common sites for unearthly noises. The plumbing is much more varied, uneven and possibly leaking, so the chances of a disturbed water flow are much more likely. Renovations can put new pressures on old plumbing, introducing unfamiliar tones.

Radio without the radio

Strange voices and ghostly music can very rarely be heard when there is no radio turned on. Lead strips or other thin bands of metal can act as antennae, picking up the broadcasts. This will occur only when there is a specific relationship between the length of the metal and the broadcast frequency allowing resonance in the metallic strip.

Opening doors and windows

As new woods dry out or new structures settle, doors and windows can open by themselves as locks and levers become finer in their settings. As the ground settles after some movement, the slight change in the building structure can reset the door and window latches until they are poised so finely that it takes but a breath of wind or a vibration from a human walking past to open them. New underground pipes or any small structural modification can be enough to trigger this change.

Moving and falling objects

A change in a building's structure can cause previously level shelves and mantelpieces to become slightly sloped. Over time, objects creep down the slope, the movement usually unnoticed by the residents until the day they move that last millimetre and crash to the ground. The replaced vase continues to slip from the shelf. Auntie Vera gave you the vase and then passed to the other side. Is she trying to tell you something?

Images in windows

A newly cleaned window leads to reflections which are not usually present. Distortions in peripheral vision can lead to signs of movement which can't be detected when looking directly at the glass.

A slight repositioning of a mirror, a car parked in an unusual spot or a piece of broken glass reflecting light can lead to reflections in windows which haven't been seen before. The human imagination makes patterns and the human face, especially when shrouded in a loose hood, is a very simple shape. So faces appear at windows.

Swamp gas

If your ghost is an external one, then various atmospheric effects can feed the illusion. One of the most famous is swamp gas. Methane, CH_4 , and phosphine, PH_3 , are released by decaying matter in swamps and marshes. Occasionally the combustible swamp gas ignites spontaneously or as a result of electrical storm activity. This leads to luminous glows hovering over the swamp. These effects are known by various names including *ignis fatuus* (foolish fire), jack-o-lanterns or will-o-the-wisps. Sometimes they are called ghosts.

Car headlights

You would be surprised how often moving ghosts are the reflection or distorted vision of car headlights, often far away. These may be refracted or dispersed by fog or reflected by windows or mirrors within the house or nearby buildings.

Animals

Many ghostly phenomena have been investigated and the culprits identified as innocents from the animal world. Possums in the roof, cats, dogs and rats are the most frequent

offenders. One common story, taken as evidence of a ghost, tells of the dog or cat stopping at the same stair or spot in a room every time. When investigated this particular spot is often beneath a nest in the roof. Small quantities of possum or rat piddle which has dropped to the floor will attract the cat or dog on every passing. Such a lure will also draw them to places in the wall, or cupboards, cellars or other locations which can be interpreted as the exact place the poor servant girl was brutally murdered.

Sounds of screaming or whispering, calling or murmuring conversation are often quoted as evidence of the haunting of a house. How many people can identify the many calls of the night animals of the location in question, especially if they go to investigate in an unfamiliar location? Possums produce a guttural hiss, among their many calls, rabbits squeal when caught by a fox, and night birds howl and coo. Hunting birds will land on roofs and bash their prey to kill it. Thuds and thumps are heard which have never been heard before.

The calls of some frogs sound like human conversation. Even experienced bird watchers have been known to be scared witless by the piercing scream of a woman being murdered, when hearing the rare call of the Australian barking owl. Every country has its animal screamers.

Very few people sit silently and listen to the night sounds, and even fewer can identify them. Unfamiliar sounds are far more likely to be the result of a uncommon animal or an inexperienced listener than of a supernatural source.

Hallucinations

Hallucinations, whether auditory or visual, are vividly real to the person experiencing them. Brain scans have indicated that when having a hallucination the same area of the brain is illuminated as when hearing or seeing real images. Many ghosts can be explained by hallucinations. Sadly, it is only when more than one person has seen or heard the ghost that this explanation can be eliminated.

The cynical view

In 1974 the murder of a man, his wife and four of their children started a money-making spree which profited none of those in the house at the time. Ronald DeFeo murdered his parents and four of his siblings, using as his defence the excuse that the evil spirits made him do it. He was indicted for murder.

George and Kathy Lutz moved into the house in Amityville, New York, a town now synonymous with horror. They stayed only 28 days before fleeing the house, unable to stand the foul stench and ghostly rappings, green slime and demonic forces.

Jason Anson told their story in the book *The Amityville Horror*, which was published with the bold claim 'A True Story' on the cover. It was a bestseller. The subsequent film was a box office hit, as was *Amityville II*.

Meanwhile William Weber, the lawyer who had defended DeFeo, was preparing his own book about the trial. After meeting the Lutzes, he was keen to include their stories of supernatural horrors in his book. In an interview with the Associated Press, distributed on 26 July 1979, he told of how the whole story was created by George and himself over 'many bottles of wine'. Weber sued the Lutzes and the Lutzes unsuccessfully sued Weber. Judge Jack B. Weinstein concluded: 'It appears to me that to a large extent the book is a work of fiction'.

The subsequent owners of the house, Jan and Barbara Cromarty, sued Anson, the Lutzes and the book's publishers over loss of privacy. They expressed no doubt that the story was a hoax. They won their case.

Father Ralph Pecararo was portrayed as Father Mancuso in the book, and sued the Lutzes and the publishers for loss of privacy and distortion of the truth about his role. In fact, he had never attempted to exorcise demons, had a mysterious car accident or been afflicted by blisters. He had never set foot in the house. He won his case, too.

Final word should go to the man who owned the house

when the movie renewed interest in the story. Frank Burch said the real horror was the hordes of tourists.

There can be many motivations for ghost stories. It seems that fear, when we know it is harmless, is something many people enjoy. Hence the tradition of ghost stories around the campfire or late at night. So valuable is this love of fear and horror that it has led to many a profitable venture. How many tourist attractions are there which exist and generate income purely on their ghostly premise? And just how much money can change hands when there is a decent horror story to be told?

DIY GHOST PHOTOS

Moses A. Dow was the founder and editor of the *Waverley Magazine*, first published in 1850. Dow specialised in printing the work of young writers, much of which was offered to him free of charge, in the full knowledge that their families would buy the magazine. The circulation grew to 50 000 copies.

Mabel Warren wrote for Dow when she first graduated high school and became his assistant before her untimely death in 1870. Dow first felt her presence within a week of her dying, subsequently attending séance after séance to contact her. He was delighted with the portrait of himself with her spirit (see plate section) taken by the first of the many who made a living producing images of ghosts, William H. Mumler (1832–1884).

Mumler was an amateur photographer and engraver. He noticed ghostly figures in a print when he reused photographic plates which had not been properly cleaned. Realising he had a marketable commodity on his hands, he produced spirit photographs for clients, often with recognisable ghosts of well-known people or relatives who had passed on. At other times, the ghosts were shadowy and shrouded in drapery, but still recognised by his clients as deceased relatives.

Unfortunately for Mumler, some of the spirits were recognised as living Bostonians. He relocated to New York to continue his trade but later was prosecuted for fraud.

Mumler's methods soon spread around the world. In the early wet plate and dry plate cameras, the effect was achieved by using an already exposed plate when taking the second photograph. These were very popular with spiritualists at the end of the nineteenth century.

In France, the best known exponent of the practice was Edouard Isidore Buguet (b. 1840). He produced the famous photograph shown in the plate section. Reports of the time assured readers this photograph could not have been faked using a double exposure. Monsieur Leymarie, editor of the *Revue Spirite*, and Monsieur C. had bought the plates themselves. Buguet had not handled them at any time. In June 1875, Buguet and Leymarie were charged with the fraudulent manufacture of spirit photographs and found guilty. Witness after respectable witness testified to Buguet's bona fides only to be confronted by his confession. He had used double exposures on the photographic plates to generate his spirit images.

DIY ghostly portrait

With modern computer image manipulation it is very easy to produce a ghost photograph using the appropriate software. But it is also possible to do it using a camera and therefore produce the genuine negative for verification.

With modern cameras, all you need to do is to create a double exposure. The ghost can be photographed on a black background. The film is then exposed again with the required setting—the castle dungeon or the graveyard at midnight.

Some of the older cameras require hand winding of the film, so double exposures occurred when this step was forgotten. Deliberately failing to wind on the film enabled the photographer to capture the spirit world. The winding of the film is now automated so newer cameras need to have a multiple exposure facility in order for you to create your image in spirit.

My own ghostly presence is also revealed in the plate section. This photograph was taken by Damian Kelly with a camera set to multiple exposures. The camera was fixed in position using a tripod and the first picture was taken without my presence. I then moved into the frame and another exposure made.

You now have irrefutable evidence that I am a ghost.

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REINCARNATION AND PAST LIVES

Why is there so much suffering in the world? Why are some children born with such distressing deformities or succumb to such intolerable diseases? In fact, what is the point of them having lived at all? Why is it all so unfair?

Those who believe in reincarnation, the idea that this life is just part of a series of past and future lives, have an answer. In our previous lives our bad deeds may have gone unpunished. We are punished in our next life. We might be reincarnated as an animal or plant, or into suffering as a human. There are variations between belief systems, but basically the unfinished transgressions of the past are reflected in the adversity of the present. Live a good life and we will be rewarded in the next. Those who you see suffering today can earn a better life.

The Judaeo-Christian and Islamic religions have frowned upon claims of reincarnation. They talk of a single mortality on earth and eternity in the afterlife. They offer what, to many, are unconvincing answers to the big questions about how a just God can permit such injustice to prevail over the people He is supposed to love.

It is a seductive concept, appealing to the desire for fairness and control over our destiny. As disillusionment in the traditional religions increased during the last century, the western world was ready to explore traditional Eastern beliefs. Reincarnation was one of these, and a convincing story of a past life remembered generated unprecedented interest. The time was right for Bridey Murphy.

The case of Bridey Murphy

In this famous case, journalists started hunting for evidence to check the detailed past life which had been revealed by Virginia Tighe under hypnosis in 1952. And they found it. They found her previous life. They found the real Bridey Murphy. But that's for later.

Under hypnosis in Pueblo, Colorado, the slim, dark-haired American housewife began talking in Irish brogue and telling stories of her previous incarnation as a lively redhead called Bridey Murphy.

Bridey said she was born about 1798, in a white-framed house, and raised by her mother Kathleen in Cork, Ireland. She recalled a friend, Kevin, and marrying Sean Joseph Brian McCarthy. Virginia Tighe told of Bridey's life, and rose, still in her hypnotic trance, to dance the Irish jig. In strong Irish brogue, Mrs Tighe told of Bridey's younger brother's death at four, of her beloved Uncle Plazz and of being soundly whipped for scratching fresh paint from her metal bed frame. She told of Bridey's sad demise, falling down a flight of stairs.

So they searched for Bridey in Ireland. In Cork. Reporters and researchers travelled there and found links to the Irish folklore she quoted. They heard the same brogue and found evidence of a rare Irish Saint Blaize, surely the source of the Christian name for the remembered Uncle Plazz. But they couldn't find records of Bridey Murphy.

The *Denver Post* first told the world how an investment broker, Morey Bernstein, who also worked as a amateur hypnotist, had assisted Virginia Tighe recall her past life. Bernstein wrote the 1956 book, *The Search For Bridey Murphy*, which sold millions of copies in English and many, many more in other languages. They sold long-playing records of the trance sessions. They sold condensed versions and movie rights. Parties with a 'come as who you were' theme accompanied the songs using the Bridey Murphy story. Hypnosis regained popularity and reincarnation excited the world, so they sold more books on hypnosis and reincarnation.

Never should the truth be allowed to ruin a good profit.

Finding Bridey

They did eventually find Bridey Murphy, except it was spelt Bridie. She was still alive and living in Chicago, in the same house she had lived in when Virginia was a teenager being raised in the apartment across the road. There Mrs Anthony Corkell told them of her maiden name: Bridie Murphy.

Mrs Corkell had fascinated Virginia as a teenager, and spent hours telling her about Ireland. She even produced, among her sons, the Kevin of Bridey's friendship. Having had a crush on John Corkell, Virginia Tighe turned him into his Irish equivalent, Bridey's husband, Sean Joseph Brian McCarthy. Brian was Virginia's own husband's middle name, while the McCarthy was the surname of a character she played in one of her dramatic performances at high school, two of which were accomplished in astoundingly convincing (according to her drama teacher) Irish brogue.

The white-framed house was exactly as described, but it was the house she had been born in, back in 1922. Her lost mother, Katherine, became Bridey's mother Kathleen. At four, Virginia had been abandoned by her parents and sent to Chicago to live with an aunt and uncle. There she made pocket money by dancing Irish jigs in the street. Her sister had fallen down the stairs, while her brother had died when Virginia was five. She had been soundly whipped, a year or two later, for scratching the paint from her freshly painted metal bed frame, a story she told friends many years later. Her story became enmeshed in Bridey Murphy's.

And Uncle Plazz? Virginia's foster parents had a friend named Plezz who Virginia called Uncle Plazz. By the way, the rare Irish Saint Blaize was actually Armenian.

The lonely Virginia was also befriended by an Irish aunt, who told the child much about Irish folklore and fed her Irish potato pancakes.

Hypnosis is a notoriously unreliable way to gain factual

information. The patient is far too willing to say whatever seems to please the hypnotist. Professionals do not use hypnosis in this way. So was Virginia Tighe pretending, producing a story for her own amusement? Or was she unconsciously drawing on her past? That's the only mystery in the reincarnation of Bridey Murphy.

Jane Evans and the Bloxham tapes

Jane Evans's historical accuracy was astounding. In 1969 Cardiff hypnotherapist Arnall Bloxham uncovered the past lives of Jane Evans, the pseudonym for a 30-year-old Welsh housewife. The case was made famous by the subsequent BBC program *The Bloxham Tapes* and the book by Bloxham and the show's producer, Jeffrey Iverson, titled *More Lives Than One?*

Bloxham was a believer in reincarnation. He used pastlife regression to help Jane Evans with the pain of rheumatism. She recounted six extraordinarily detailed lives.

As Livonia, she was a tutor's wife with the family of a Roman legate, Constantius. She lived in Eboracum, the name for the British town of York in Roman times. She recalled the name of Constantius's wife, Lady Helena, their son Constantine and those close to the family, including Curio, Titus, Galerius and Diocletian. She described, in detail, the young Constantine's lesson in using Roman weapons, given by his 'military tutor', Marcus Favonius Facilis. She was able to recount the rejection of Lady Helena by Constantius so he could marry Theodora, the daughter of Maximianus. She named the children of the now Caesar Constantius and his Princess Theodora. And every detail which could be confirmed matched history exactly.

As Rebecca, she was still in York, married to a Jewish financier. Persecuted by the Christians, she recounted the traumatic events in the little-known massacre of Jews in 1190 CE. She described the Jews' suicides, and her own hiding in a crypt of a York church where she was found and

murdered. This surprised researchers because the churches of that era were not known to have crypts. Iverson was then astounded to receive a letter from Professor Barrie Dobson to say a crypt had been discovered in the renovations of a church, St Mary's Castlegate, identified to be the one most likely to fit Rebecca's story. The dating of the crypt by the historians put it as before Rebecca's time. Not surprisingly, Iverson considered this very convincing evidence.

As Alison, Jane Evans was an Egyptian-born housekeeper living in the home of Jacques Coeur, a wealthy financier in the French city of Bourges. Iverson's visit to Coeur's house revealed the fireplace decorations of animals and a shield, exactly as Alison had described it.

As Anna, she was a handmaiden in the Spanish entourage of Katherine of Aragon. She recounted her arrival in England in 1501 for Katherine's short marriage to Arthur, eldest son of Henry VII.

As Ann Tasker, she was a London teenager early in the eighteenth century. Working as a sewing girl, she described the poverty and filth of London in her day.

And as the arthritic Roman Catholic nun, Sister Grace, she told of living in Maryland, USA, around the start of the nineteenth century.

Iverson took the details provided on Bloxham's tapes and started searching the historical record. He found fact after fact matched. It is easy to see how it could be believed that, at last, conclusive evidence of past lives had been found. The documentary closed with Jane Evans stating emphatically she had no knowledge of detailed Roman history, the massacre of the Jews at York, the home of Jacques Coeur or any of the other details revealed by her voice on the tapes. As television personality Magnus Magnusson endorsed the past-life hypothesis, the logical conclusion drawn by the documentary was that firm evidence of reincarnation had been found.

Writer and broadcaster Melvin Harris was a prolific reader and collector of old books. He decided to try to trace her sources in historical fiction.

He found Louis de Wohl's novel, *The Living Wood*. In it was a lady-in-waiting called Livonia. Not only did the novel tell the whole story of Constantius's household, but every scene was exactly as Livonia had described it. Even the language was the same. But most revealing were characters such as the military tutor Marcus Favonius Facilis. He was a creation of de Wohl's in the novel published 22 years before Jane Evans described her life as Livonia. Other characters, unknown in the historical record, were all there in de Wohl's novel—his creations for the purpose of populating the Roman household.

Ian Wilson quotes this case in detail in *The After Death Experience*. Like Harris, he sought out the possible sources of Evans's memories. He spoke to three individuals who remembered Rebecca's story as a radio play about the York massacre. The Jewish ghetto described by Rebecca never existed. The street Rebecca named as the home of the poor was in fact populated by community leaders at the time. Wilson concludes the writer of the play was not as thorough a historian as de Wohl.

And the crypt? Professor Dobson has since revised his interpretation of the structure found during the excavations of St Mary's. It is now considered to be a vault built long after Rebecca's era. There were no crypts in the churches of York at that time.

The details of Alison's story can be found in Thomas B. Costain's 1948 novel *The Moneyman*. In telling the life of Jacques Coeur, Costain had chosen not to include Coeur's family because they added nothing to the novel. The real Jacques Coeur was married with five children. Alison stated Coeur had no wife or children. As a member of his immediate household, this family would have been a crucial part of her life. A photograph of the fireplace so fully described appears in the book *Life in Mediaeval France* by Dame Joan Evans.

There is no reason to assert Jane Evans, Arnall Bloxham or Jeffrey Iverson were anything but sincere in their beliefs in the past lives uncovered. They were only guilty, along

with the vast majority of the human race, of grossly underestimating the brain's ability to remember and create.

Dr Ian Stevenson collects cases, lots of them

Hypnotherapists, who often have little scientific training, are regarded with suspicion by many in the psychiatric community. Consequently, the work of Dr Ian Stevenson, a professor of psychiatry, is more compelling. Trained in medicine at McGill University, he went on to specialise in psychiatry, working at the University of Virginia from 1957. His work, comprising extensive and detailed case histories, was published in a number of books by the University of Virginia Press. Although not an easy read, there is no dispute that Stevenson was extremely diligent in recording over 2000 case studies detailing the interviews with not only the reincarnate, but also many people associated with their story. He claimed he could never prove reincarnation as a fact, but felt his work indicated its validity.

Case studies were collected on trips to India and Sri Lanka, among many other countries. He was dismissive of hypnotic methods such as those used to gain the story of Bridey Murphy and many since. He felt these could be simply the retelling of memories not immediately available to the person by normal recall. Or they could be pure fantasy resulting from the suggestions and prompts of the hypnotist. To avoid such memories Stevenson placed his faith in the stories of children.

One of his most famous cases is that of Sunil Dutt Saxena. Born into a poor family in the northern Indian city of Bareilly, his father was a shopkeeper who was often out of work. At about the age of three, Sunil started telling of his previous life. He described a much more wealthy lifestyle in Budaun, 56 kilometres away. The horse-drawn carriage was something the poor Sunil could never have experienced, yet he could describe it well. He refused to do housework, stating firmly that he had never had to do so in his previous,

privileged life. Seth Sri Krishna had lived in Budaun until eight years before Sunil's birth. The young Sunil's pronouncements were found to match the life of Seth Sri Krishna in many details.

Another well-known case is that of Ravi Shankar, who was born in 1951 in the city of Kanauj in Uttar Pradesh State, India. His father Ram Gupta told how his son, at only two years of age, said he was the son of the barber Jageshwar. Young Ravi bore the physical scar from the violent death of the barber's son, Munna, savagely murdered at only six years of age. His throat had been slit. A washerwoman, Chaturi, and another barber, Jawahar, had been charged with the murder, but the charge had been dropped. Six months after Munna's death Ravi had been born. When Stevenson interviewed Ravi he was thirteen years old but the scar was still clearly visible. Young Ravi confirmed the murderers as Chaturi and Jawahar.

I read of these stories in the fascinating book by Ian Wilson, *The After Death Experience*, and came across them in many reincarnation references. Wilson writes extensively on paranormal themes, and I often disagree with his opinions, which is not surprising given the description on the back of his book which concludes: 'Yet although Ian Wilson finds much that is both dubious and spurious, alongside this he presents compelling evidence that *something* of us might well survive physical death . . .'

In the case studies of Dr Ian Stevenson, Wilson finds little of this compelling evidence. He has analysed the cases from India and Sri Lanka and notes a very strong trend. The poor children are reincarnations of those who were rich. He explains why:

And in reincarnationist countries teeming with so many poor it is not difficult to guess that motive. Thus in India or Sri Lanka a poor family can have much to gain, and very little to lose, by representing their child as the reincarnation of a recently deceased member of a rich family. If the rich family can be

persuaded to believe the claim, then they are unlikely to let their unfortunate dead relative continue to suffer in his new incarnation. They will try to do something to improve the child's, and thereby the whole poor family's, lot.

(Ian Wilson, 1989, *The After Death Experience*, p. 35.)

Wilson goes on to tell how a local doctor had explained to Stevenson, who documented every conversation with his customary thoroughness, that Sunil had been coached by a man named Sheveti Prasad in the details of Seth Sri Krishna's life, and the family of the latter had not been convinced by the claim. Stevenson chose to reject this evidence against the validity of the case.

In Ravi Shankar's instance, there was no inequality of wealth, but at least three of the neighbours reported the child being taken to the barber Jageshwar to be coached in the story in the hope the murderers would be charged again with the distressing crime. There is also the chilling suggestion that the scar was inflicted deliberately for this purpose.

Further cases of Stevenson's involved children of British and American backgrounds who claimed the previous life of a much loved family member who died before the child's birth. The parents claimed the child cannot have known so much about the relative. Examination of these cases raises the obvious questions over how much had been talked about in the child's presence. The cases mention photographs and graveyard visits, so the deceased family member was not without physical reminders.

Many adults greatly underestimate how much a young child is absorbing when they appear to be occupied elsewhere or the conversation is considered to be beyond their comprehension. It is not difficult to find a motive for the family to grasp such a claim. The child gains attention, warmth and status. The family gains a loved family member back. All can be self-deceived, and therefore absolutely genuine in their belief.

T. Lobsang Rampa and his third eye

Reincarnation and the understanding of Eastern religions is often gained from popular works, such as those by T. Lobsang Rampa. Rampa's first book, *The Third Eye*, was enormously popular. The autobiography of a Tibetan monk, it told how as a child, Rampa was sent to a monastery by his wealthy Tibetan family. There a hole was gouged in his forehead through skin and bone, and plugged with wood until it healed. This gave him mystical powers. He talks of reincarnation, levitation and imparts a host of Tibetan wisdom before he escapes to England from Communist China following the invasion of Tibet.

T. Lobsang Rampa was exposed as Cyril Henry Hoskin, a plumber's mate from Surrey who had never been in Tibet in his life. T stood for Tuesday, the day on which he was born. He went on to write many more books, all of which sold extremely well.

The saddest part of this story is that many people read *The Third Eye* and subsequent Rampa books, believing they were learning about Tibetan religion. Tibetans will tell you otherwise.

Testing the talk

When verifying claims of past lives, historical accuracy is the first test. Many quote dates as 'BC', something which clearly indicates a recollection from a historical text, as people 'before Christ' could not have used this form of dating. Others relate literary versions or have rulers and events in a single lifetime which were far apart in history. Ancient Egypt is a favourite past-life era because it is such a dramatic time, taught in all schools and used extensively in fiction and documentaries. The era of the Pharaohs and pyramids spanned nearly 3000 years, yet past lives are recalled only from the best known stories.

Being able to speak fluently in the native tongue of the

past life, without ever having been exposed to that language in the present, would be considered compelling by skeptics. It seems few reincarnates have even the slightest knowledge of their native language, which is hard to rationalise if the subject is truly reliving the former life under hypnosis. As it is extremely difficult to converse in a foreign tongue unless you have been exposed to it for a significant time, such a conversation would dispel most doubts.

There are documented cases where the subject has spoken in a language to which they have no prior exposure. Again we return to the work of Dr Ian Stevenson, the most rigorous recorder of past-life cases.

'Gretchen' spoke English as her native tongue, but German in her past life. She had never learnt German, nor had any exposure to the language. When reliving her past life as a fourteen-year-old kitchen maid, she appeared to converse in German. When hypnotised by her husband, who spoke no German, Gretchen expressed fear related to her religious persecution and connection to Martin Luther. Stevenson noted the historical inaccuracies of her story and the unrealistic nature of the account, but found the speaking in German to be impressive.

Gretchen's case was examined with Stevenson's characteristic thoroughness. He visited her home town, interviewed many who knew her and was unable to find any trace of her having learnt German. In accordance with scientific method he published partial transcripts of the sessions for others to analyse.

Sarah G. Thomason, in *Past Tongues Remembered*, took up the challenge. A professor of linguistics at the University of Pittsburgh, she notes that a native speaker of any language has a vocabulary exceeding 10 000 words, usually significantly more. But even more definitive is the knowledge and application of the many grammatical rules and nuances which children have usually acquired by the age of four or five.

Gretchen produced no more than 120 words when hypnotised by her husband, and a few more when being

interviewed by native German speakers. She used words which are similar to their English equivalent, such as 'braun' in German for 'brown' in English.

More revealing, Gretchen didn't respond to the German speakers in sentences and produced no evidence of knowledge of grammar. She often merely repeated what the interviewer had just said. Some responses indicated she hadn't understood the question. She constantly repeated the same phrases about danger and people listening to her.

A quarter of the questions were answered with yes or no. Thomason suggests the reader ask 'Are you hungry?' and 'What do you want to eat?'. The upward inflection on the yes/no question is the same in German and English prompting the subject to the yes/no answer. Thomason rates the appropriateness of other responses much lower than does Stevenson and notes the high rate of 'I don't understand' and 'I don't know'. According to Thomason, Gretchen used no more German than would be available to anyone who has watched World War II movies or glanced at a German book.

Stevenson attributes Gretchen's poor language skills to her poverty and illiteracy. Thomason, as a linguist, claims this is a misunderstanding of language use. The poor may use different grammar and vocabulary to the more educated, but do not display a total lack of it.

Thomason has tested other past-life subjects and analysed further examples from Stevenson, and found similar results. It must be noted that Thomason considers none of these cases to be examples of fraud.

Although hypnotists and hypnotherapists have been convinced of the ability of a past-life regressive to speak a previous language, they were personally unable to speak this language and had to make that judgement based on the assessment that it 'sounded right'. A case which would convince a skeptic is one in which the incarnate could speak fluently in a language unknown to the reincarnate. To date, no such case has emerged.

Cryptomnesia or hidden memories

The phenomena of past-life recollections can be explained in terms of 'cryptomnesia'. Crypto (hidden) and mnesia (memories) refers to memories which are not consciously available. The term was first coined by the Swiss psychologist Professor Theodore Flourney around the start of the nineteenth century.

In his detailed and lengthy book *Hidden Memories: Voices and Visions from Within*, Dr Robert A. Baker explains many past-life experiences in terms of known psychological functioning of a 'normal' brain. A professor of psychology, who taught at MIT, Stanford University and the University of Kentucky, Baker explains the recalling of past lives as a mixture of cryptomnesia and confabulation (the creation of facts to fill the gaps in memory). By combining these two functions of a normal, healthy mind you can create past lives with vivid complexity. Baker argues that the brain doesn't store memories as a completed image, such as a film. It stores bits and pieces which are reconstructed when required. Memories are notoriously unreliable. The more often they are recalled, the more the brain has reconstructed, embellished, filled in gaps and created what is a very real, if at times inaccurate, recollection. Anyone who compares memories with others present at the same event will soon discover the variability in the details of the same incident when different brains reconstruct it.

Philip K. Dick, the science fiction writer, was at home when he spontaneously recalled a past life in ancient Rome. For weeks after his first memory other previous lives flooded back. In reading many books on this topic, I read case study after case study of anonymous people who had been questioned at length on details of the past life. What I didn't read was detailed questioning about the present one. Would any of these writers have asked Philip K. Dick whether he had been to the dentist recently?

Dick's first vivid memory started on the afternoon following an extraction of a tooth under the influence of sodium

pentothal. His many hallucinations, including those of aliens as well as reincarnations, were linked to visits to the dentist, excessive alcohol use, amphetamines, self-imposed stress and sleep deprivation. His sincere belief in these hallucinations is evidenced by his sending a letter to about 70 friends claiming he was Jesus reborn and now living in Sri Lanka. A year later Dick died of cerebral haemorrhage. He was only 53.

Hallucinations can be a vivid part of the recall and reliving of past lives. Baker writes:

The major characteristics of hallucinations is that they appear to be very real, and they can have all the sensory qualities of our everyday and ordinary perceptions including sight, sound, smell, taste, and touch. These hallucinations consist of previously stored memories or imagined fantasies or dreams that are tied together by our brain and projected onto the eye of the mind.

(Robert A. Baker, 1996, *Hidden Memories*, p. 17.)

Baker emphasises that hallucinating is common and not necessarily a sign of mental illness or psychosis.

Therapists need to progress beyond 'Have you been to the dentist?' before concluding a memory is a recollection of a real event in the person's current or previous life. There are many well-documented causes of hallucinations or errant memory function. Questions need to be asked. Questions such as: Have you been chain smoking? Have you been in flickering lights? Do you have high blood pressure? Have you been deprived of sleep or experiencing undue stress? Have you taken amphetamines, maybe for hayfever, or L-dopa, possibly for Parkinson's disease? Have you taken ketamine (vitamin K) and been in a floatation tank, which causes sensory deprivation? Have you indulged in excessive physical exertion? Have you indulged in extended sessions of ritual dancing, which is known to cause trance-like behaviour and hallucinations? Have you had a severely limited food intake, or been dehydrated? Have you suffered elevated or depressed oxygen

levels, maybe caused by deliberate rapid or slow breathing? Were you sad or lonely and just wanted some attention?

The last reason is too often neglected. I saw no indication of such questions being asked by the various past-life therapists quoted at length in the references.

Baker discusses extensive research, his own and that of others, showing the brain takes in a great deal of information, most of which is filtered off, with only a small portion ever reaching our conscious awareness. Therefore, we can consciously access only a small proportion of what is stored.

When something triggers a memory, the brain recalls scraps of information from its recesses and, the theory goes, reconstructs the memory. The brain will complete the missing bits and reject the extraordinary amount of other stored knowledge and images which are not relevant to the memory under construction. This all happens very fast. We do not monitor this process.

Tests have shown, time and time again, that the human memory is a fallible beast. The more unconscious the process, the less reliable the memory.

What if the brain were triggered by some suggestion to recall memories without the context in which they were recorded? Would we then be unable to recognise the memory? Would we attribute it to a life which wasn't our present one? Is that what is happening in past-life regressions?

Hypnosis and past-life regression therapy

Baker argues that hypnosis is not an altered state of mind but a very relaxed and susceptible one. He quotes from his own experience of having hypnotised more than 500 students, friends and neighbours in his research. He has encountered few who could not produce a past life, most of which were decidedly mundane. Very few could produce the richness of Jane Evans's six lives or Virginia Tighe's Bridey Murphy.

Highly imaginative and fantasy-prone individuals will produce more detailed past and future lives.

Past-life recollections are consistent with the current social structure of the person creating them. People from cultures which believe in immediate reincarnation will return to life locally and fairly rapidly, as in Stevenson's stories collected in India. Those from backgrounds with beliefs in multiple gods and demons, magical creatures and mystical beasts will incorporate these in their narrative.

In the recent western version, the past lives tend to correlate with popular eras for history classes, films and books. Ancient Egypt and Rome feature heavily, as do indigenous peoples, while less romantic countries and races fail to appear at all.

A sudden stream of recall in extreme situations has been reported often: 'My whole life passed before me'. In *Hidden Memories*, Baker recounts incidents of this phenomenon in support of the hypothesis of the brain holding a vast store of memories not readily available. He tells of patients reporting the flashing of childhood memories during epileptic fits, when drowning, during choking and when having artificial stimulation of the temporal lobes in the laboratory. Most such memories were unremarkable details 'forgotten' by the subject.

In likening hypnosis to highly imaginative role-playing, Baker quotes the 1958 research of Dr Edwin Zolik, of Marquette University, whose hypnotised subjects were able to recount convincing 'past lives'. On listening to their sessions replayed on tape, they assured him they had known nothing of these lives before. But Zolik went one step further. He re-hypnotised the subjects and asked them if they were now familiar with these life stories. They were all able to recall the sources they had used to construct the vivid experiences. It is a simple test which should be part of the normal practice of past-life therapists.

The Finnish psychiatrist Dr Reima Kampman took secondary school students in the 1960s and guided them, under hypnosis, back to previous lives. Again, he found this

was easy to do and most recalled many past lives. In all cases he was able to trace the details back to the original sources in their present lives.

Delusions are false beliefs. Most people can determine whether experiences or images of a past or future are rational, and use external clues to distinguish fact from fantasy. But sometimes the delusional belief provides a more palatable world than reality.

As one of Baker's clinical patients asked: 'What's so great about reality?'

The risks of instilling false memories

The experience of a past life can add pleasure and clarification to a present life. Although fictitious, it is probably harmless. In some cases it could add excitement to a dreary, mundane existence. It is a topic of dispute among psychologists whether 'cures' based on false premises are ethical. But there are reasons some consider the practice of past-life regression therapy to be highly unethical.

First, the obvious risk is of drawing people who are emotionally or mentally unstable even further from what is already a tenuous grasp on reality. Second, there is the risk of misdiagnosis of a psychotic state, such as schizophrenia. And, third, there is always a loss when glimpses of the complexity of the human brain are dismissed with simplistic explanations. For so many centuries the voices heard by schizophrenics were taken as evidence of possession and horrific 'cures' were inflicted.

The suffering of so many families due to the belief in false memories of abuse in the childhood of this life has now been widely exposed. How much suffering is experienced by those who have been given faith in a past life, only to find, once the source of the memories is uncovered, that their faith is unfounded? Is that why the real Jane Evans refused to talk to Ian Wilson after the discovery of the sources for her previous lives? What humiliation for a woman who

acted, at all times, in good faith? What harm has been done her?

Revisiting the evidence

Having absorbed Baker's arguments, I revisited two of the books I had read on reincarnation. Sylvia Browne is one of America's most famous psychics and a best-selling author on the topic. Her book *Past Lives, Future Healing* offers case study after case study, all anonymous, and all of which could be explained by Baker's hypothesis. Browne states she needs only one session with her patients, and nowhere seems to ask them about the extensive list of triggers for hallucinations. Nor does she ever seem to question whether these past lives are confabulations from other sources. Credibility is given by reference to mainstream doctors and psychiatrists who refer patients to Browne after their long-term work has failed. These are, again, all nameless. Browne asks skeptics to offer, with our dismissal, 'something equally credible, hopeful, comforting and reverent to believe instead'. Truth has no obligation to hope, comfort or reverence.

More compelling is Liz Hodgkinson's *Reincarnation: The Evidence*. Hodgkinson, a journalist, describes two sessions in which she undergoes past-life therapy. Neither involve hypnosis and both are fully compatible with Baker's explanations.

Describing the most famous cases of reincarnation, she provides arguments for and against the validity of the claims. Concluding that there is no concrete evidence for reincarnation, but much which she finds of interest, she has chosen to believe in it for reasons I find honest and attractive.

Reincarnation is the only answer she can find which explains the hardship, suffering and apparent unfairness of the world. It explains why our children may not turn out as we would wish, and offers hope in the next life for those who have not found joy in this one. For these reasons she believes in reincarnation. I sincerely wish I could do the same.

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ASTROLOGY

I sit across the table from you. Wearing coloured robes and masses of jewellery, I blend with the smell of incense to make reality seem a little less real, somehow. I have charts and images, drawings and numbers, which I consult during meaningful pauses. And this is what I tell you:

I don't see the happy person you show to the world. I sense an inner hesitancy. The world sees you as reasonably contented but that's not what is deep inside. It is your individuality which is being suppressed, partly by your own self-doubt. You are a practical person, but there is something deep within you which wants to express itself in less pragmatic ways. You have been able to subdue it until now, but the pressure is growing for you to follow your individual path. You are not like others and find the pressure to appear so is a dictum which is becoming more like a prison than you want to admit.

People like you, and mostly you like them. You are a friendly person who bends to accommodate others. In fact, sometimes you bend so much you nearly break. You try to do what others want of you and avoid confrontation whenever possible. Your need to do the right thing by family and friends restricts you so much. But you do the right thing—almost always.

There is much inside that you keep hidden from the world. You fear the rejection which may result if you were true to your real self. There are things you would wear, places you would go and assertions you would make if only you didn't worry so much about the feelings and opinions of others. The expectations others demand of your energy constrain you so much that you worry you may never reach your full potential.

The chance is coming soon and you need to be ready for it. The planets align in such a way that travel is a key word in your path. It may be that you will travel but I feel the planets may be indicating travel in relation to an auspicious person. Someone will travel onto your stage from afar—that person will be the link to your cadence. You must be ready for that eventuality—it isn't far off now and it is essential you recognise it. Those who realise their dreams are those who grasp the opportunity when the planets are right. Your time is very soon.

Using the reading

Ask for a date of birth and come back a day later with that date written on the top of your card with the star sign. I usually manage a 95 per cent hit rate with my one-size-fits-all astrology reading.

It's called the Barnum effect: a bit for everyone. We are far more alike than unlike. If the reading was totally positive, the client would reject it as unrealistic. It is essential that the 'negatives' also provide an excuse for behaviour and disappointments. People need to have a hope and recognise their uniqueness—none of us wants to be like most other people. As well, there is a real tendency among people to try to make descriptions fit. They will search for matches and find them.

Astrology is the most popular and widely used of the paranormal arts. It's fun and mostly it's harmless. So why not just let it be? That's for you to decide.

What is your star sign? Are you sure?

Astronomy arose from the division of the northern hemisphere night sky in ancient times into twelve regions of thirty degrees each. Images were made out of the prominent stars to enable early astronomers to recognise parts of the sky. They assigned names to these groups of stars—the constellations. They noted the regular patterns in the movement of the constellations across the sky over the passage of a year. Naturally there was a link to the natural cycles: harvests and rains, day length and weather.

Thirty degrees was a convenient way to divide up the sky, but not very accurate—for most of the time once allocated to Scorpio, the sun now actually rises in a constellation called Ophiuchus.

Why? The sun sign, also known as the zodiac, is allocated according to the constellation into which the sun rises at that time of the year. The constellations used are those that lie along the apparent path of the sun. If the sun rose in Aquarius at the time of your birth, then your star sign is Aquarius. The only trouble is that the range of dates which match the sun rising in each of the constellations has changed greatly over the millennia since they were first described.

Two thousand years ago when the zodiac was created, the sun rose in Aries at the March equinox. Now the sun rises in Pisces at the same equinox. This is due to the precession of the equinoxes and relates to the fact that the earth rotates on its axis over a period of 25 800 years. This has led to about a thirty-degree shift over the 2000 years since the zodiac dates were created.

The table opposite will let you know what your star sign is—now. The dates given in magazines and books are what your star sign would have been had you been born 2000 years ago, and under the Julian Calendar rather than the Gregorian one we now use.

Dates for the sun signs of the zodiac

<i>Sign of the zodiac</i>	<i>Official dates</i>	<i>Current dates</i>
Aries—the Ram	21 March–20 April	19 April–13 May
Taurus—the Bull	21 April–20 May	14 May–19 June
Gemini—the Twins	21 May–21 June	20 June–21 July
Cancer—the Crab	22 June–23 July	21 July–9 Aug
Leo—the Lion	24 July–23 Aug	10 August–15 Sept
Virgo—the Virgin	24 Aug–23 Sept	16 Sept–30 Oct
Libra—the Scales	24 Sept–23 Oct	31 Oct–22 Nov
Scorpio—the Scorpion	24 Oct–22 Nov	23 Nov–29 Nov
Ophiuchus—the Serpent Holder	Who?	30 Nov–17 Dec
Sagittarius—the Archer	23 Nov–22 Dec	18 Dec–18 Jan
Capricorn—the Goat	23 Dec–20 Jan	19 Jan–15 Feb
Aquarius—the Water Carrier	21 Jan–19 Feb	16 Feb–11 March
Pisces—the Fish	20 Feb–20 March	12 March–18 April

We have eighteen days in which the sun now rises in another constellation: Ophiuchus. As we have no charts for these, does this mean the poor people born on these days have no personality?

We have had a significant increase in Virgos (now 45 days) and a huge reduction in Scorpios (only seven days). It seems virginity is more valued now than a sting in the tail.

The usual argument when confronting astrologers is that simple sun sign astrology is not specific enough. We need to include the position of the planets. The type of reading you

find in books and newspapers, they say, is just a superficial generalisation. But that is what many people accept. 'I'm a really typical Gemini' and 'He's just like that because he's a Sagittarius'. If there are no common features among those within a given sign of the Zodiac, then doesn't the star sign become irrelevant?

Many of the descriptions given for the 'science' behind astrology include references to Neptune, Uranus and Pluto, whose existence was not known to the creators of astrology. Yet in the same breath, astrology's accuracy is convincingly sold on the fact it is 2000 years old.

There have been many statistical tests done to see if there is any correlation between the sun sign and the careers of people. John D. McGervey took the 1965 listing of 16 634 scientists in *American Men of Science* and tabulated them according to the star signs. He did the same with the 6475 listed in the 1973 *Who's Who in American Politics*. Surely these lists would have shown some skewing if there was any astrological influence on careers. The distribution was even, right across all twelve signs of the zodiac. No skewing in favour of one sign or against another could be detected.

Double blind testing the zodiac types

When shown their reading most people can identify with some, if not all, of it. They rarely look at the readings for the other signs. Scientific method dictates a double blind testing is required. That means the person selecting the appropriate reading and the person administering the set must not know the 'expected' outcome.

The following readings have been drawn from a range of references using the traits generally accepted as typical for each star sign. Selecting which is most accurate should, according to chance alone, match the expected star sign once in every twelve. As you read each description, note how specific, yet contradictory, they sound. Ask yourself if any, in any way, fit you. Are there some aspects of your

complex personality in each? Then choose the one which best suits you. We will check against the zodiac signs later.

One

Ones value freedom. Their quirky and eccentric natures make them individuals who see the next trend—they are often the ones who set it! Ones are our revolutionaries, marching to a different drum. They are our idealists and dreamers. But they are also rational, intuitive and logical. They often find it difficult to accept the limitations of a conventional society and clash with authority.

Internal conflict mixed with a conservative streak supports a conventional morality and lawfulness in their fight for social justice. Ones are often easy to identify by their unconventional dress and frenetic pace. Occupations which suit Ones include those which involve caring about others. Some love technology and are attracted to electronics or computing. The crucial aspect of any occupation for Ones is that they are challenging conventions and marching towards change.

Two

Twos are bold and confident people. They are motivated and can be very enterprising, showing leadership qualities. They like to take action, and can be headstrong and dynamic, impulsive and competitive.

Their fiery nature keeps Twos always active, rushing into new challenges but not always following through completely. Their confidence and speed lead Twos often to prefer to do things alone. Twos like careers with challenges, with the thrust of competition pushing them on. Dreaming of being racing car drivers or test pilots, they often end up in fire-fighting, selling, wheeling and dealing. They like things sharp, so a surgeon's job appeals. Twos like to succeed and are usually confident they will do so.

Three

Three is an emotional and sensitive sign. Threes tend to be home loving and family oriented. They like security and safety. Displaying an innate ambition they take a safer, more subtle path toward goals. Success is important but is balanced by their caring for others. They may appear to have a hard exterior, but are very soft inside. They have an unexpected tenacity and a deep and complex personality with which they hide their vulnerability. This can lead them to be very moody, their defensiveness often mistaken for shyness. Although a little prone to self-pity, they display enormous compassion for others.

They are born for the nurturing careers—social work, nursing, childcare and the service industries. Their tenacity makes them good in business, and their love of food, history and the sea often leads them to a career linked with one of these.

Four

Fours are the ambitious people—disciplined and hard working. They are determined to succeed. They are responsible people who care for society and abide by its rules. They often feel tied to obligations which may cause conflict with their determination to succeed and intrinsic ability to climb. With order dominating, especially financially, Fours are highly moral, seeking boundaries and clarity.

Childhood is often difficult due to their early maturing and then the tendency to be given, or take on, responsibilities beyond their years. Fours can be very depressed and pessimistic, but their good humour and wit helps them overcome this melancholic aspect of their personalities. Liking structure and order, they choose careers which emphasise these traits. They can achieve very high levels indeed.

Five

Fives are inquisitive and playful—eternally young. This is a sociable star sign—showing a strong desire to communicate, explore and talk. Entertaining, but easily bored, they enjoy intrigue. The duality of the sign shows that there are two sides to everything—Fives are always questioning. They gather people and ideas to feed their insatiable curiosity. They are restless and prone to nervous exhaustion, sometimes crashing into depression. They eventually spring back to repeat the cycle.

The careers which suit Fives are those based on communication such as journalist, teacher, broadcaster, writer, advertising, lawyer or salesperson. In fact, just about anything which isn't repetitious. Using their love of socialising at work, they will often achieve highly, polishing their ideas on their interaction with others.

Six

Sixes have a dramatic presence. They tend to organise everyone. Proud, enthusiastic and sharing, Sixes want to enjoy life and take everyone else along for the ride. They can sulk or become bossy if others refuse to follow. Sixes want to be special and to be loved. They are born to rule. Craving attention, they want to be singled out. Although they can become self-important at times, they are creative and generous. Their warmth is often tuned with a need to dominate, making them benevolent leaders unless opposition forces them to take a harsher line.

With a strong sense of justice, Sixes will fight for causes they believe in. Despite their strong personalities, Sixes are easily hurt but don't show their pain. Any career which allows them to control the situation and make use of their dramatic presence will suit them well.

Seven

Marriage and relationships are important to Sevens. They are in need of harmony and have a strong sense of fair play. Diplomatic, impartial and able to see both sides of an argument, decisions are often difficult for them. Sevens are often late but their charm ensures they are forgiven. They love balance in their lives, but may swing in their thinking before reaching a final stand. Avoiding confrontation, they often bend to accommodate others. Sometimes being too accommodating, they cause themselves stress. When pushed too far, Sevens demand attention, often shocking themselves and others by the unexpected outburst.

More than any other sign, Sevens need people and will adapt to maintain harmonious relationships. They tend to dress in understated good taste and choose careers which involve working with other people. They are skilled at acting in a conciliatory role while drawing on their creative and artistic natures.

Eight

Eights are described by words such as dreamy, romantic and imaginative. Their lives are controlled by the ebb and flow of their emotions. They are compassionate, impressionable and constantly concerned about the welfare of others. Eights are constantly fighting an inner struggle between emotional ties and the world's demands.

Moods rule Eight's lives. They are our artists and visionaries. Reality and illusion blend in their minds. It is their bigger picture, and their beautiful images of what life could be, which form a barrier between them and the mundane daily reality.

An Eight's compassion enables people take advantage of their sympathy, often demanding help beyond what the Eight is able to give, and causing enormous guilt when the Eight is

unable to do all that is asked of them. They are attracted to a career which enables them to express themselves in words or images—to dream about just what might be.

Nine

This is an optimistic and open-minded sign, always chasing a goal. Nines ask the big questions of life and set out to find the answers with enthusiasm. Their outgoing natures look for new adventures and new ideas. Sometimes devastatingly frank, they are always honest and tolerant, never intending to offend.

Nines value freedom of belief for themselves and others. Hating boredom, without a firm purpose they can become depressed but are usually having fun. Impulsive, innovative and intuitive, Nines often initiate but don't always follow through. They leave that to their less adventurous followers. Their vivid imaginations cause them constantly to seek new challenges and may cause a degree of dissatisfaction with life.

Nines dress casually. They enjoy sharing knowledge and continuing to learn. They love travel and sport. Due to their broad interests and constant search for new challenges, many Nines change careers mid-life.

Ten

Tens are the intense, magnetic and passionate people. They take risks without fear. Their forceful and dominant personalities rarely leave them unnoticed. Others find Tens difficult to know. They value their privacy and keep much of their personal lives hidden. Tens love power and breaking new ground.

Brooding and intense, Tens have a sharp insight. They display great empathy, preferring to understand than be

understood. They can be manipulative yet compassionate, compulsive yet discerning. They resist change and their entrenched thinking can become self-destructive. They display jealousy and resentment, often bearing grudges for a long time. Tens tend to have piercing eyes and a self-contained stance. Mystery, magnetism and sexuality define a Ten. They prefer careers which use their astute minds, often creating major change within their work environment.

Eleven

Loyal, dependable, enduring, steadfast, secure and stable. That's an Eleven. Elevens find security, and a reason for being, in their partner, home and work. Their practical side often overwhelms their more artistic traits. Although cautious, Elevens are stubborn, strong and determined. They enjoy an orderly routine without insecurity or risk taking, adhering to duty and routine. This may appear to be inflexibility, but they often cope with life's ups and downs better than other signs. Elevens have a jealous and possessive nature, but can be very generous. They have a love of fine things and can be self-indulgent.

Elevens' most striking feature is their voice. They often have a beautiful singing voice and tend towards careers in the Arts. Being practical and productive, Elevens suit careers requiring stability. The world depends on its Elevens.

Twelve

Twelves are modest, restrained and refined perfectionists. They expect high standards of themselves and others. Intelligent, organised and exacting, they tend to be very practical and efficient. The conflict between a strong sexuality and morality can lead to prudishness. The desire to serve others often dominates a Twelve's life, and they become stressed by their expectations of themselves.

Attention to detail makes Twelves invaluable colleagues, but also increases the work needed to get any job done to their satisfaction. They often become workaholics. They value common sense along with hygiene, tidiness and efficiency. Well groomed, they shine in careers which draw on their organisational skills and are often satisfied with supporting roles, which they do extremely well. They display great loyalty and discretion but can become frustrated when bored.

Which one are you? Are you sure?

A key to the 'correct' star signs for each of these descriptions is given at the end of this chapter.

Test as many other people as you can. Have them pick you out. Have them choose the one which fits themselves and others they know well. Then check them against their date of birth. Is there any correlation with the accepted star signs? With the true signs?

Due to chance alone, you should get one person in twelve right. I have rarely done that well.

Evaluating astrology

Most astrologers seem to genuinely believe there is a truth to what they are saying. Under test conditions, when they have been involved in the test design, many astrologers are genuinely surprised when their readings are no better than random chance predicts.

Perhaps there is something to it when we take in the complexities of the planets. Maybe we can ignore the fact that the gravitational effect of the planets is massively less than that of the table in the birth room. Gravitational pull reduces inversely with the square of the distance away. A planet is so far away it has significantly less pull than anyone

near you. I rather like the fact that my husband had more gravitational influence over our daughter at birth than Mars. But then others feel differently.

Astrologers complain that just considering the sun sign is too simple. Many have rejected simple sun sign astrology. But if there is no correlation with the sun sign, it is a rejection of the aspect of astrology that is considered to be the core belief for most of the population.

Astrology has wonderful language and fantastic imagery. It also makes people talk about their feelings and personalities. And it's fun. Viewed from that perspective, it's harmless.

Reference

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The Zodiac Key

One	Aquarius
Two	Aries
Three	Cancer
Four	Capricorn
Five	Gemini
Six	Leo
Seven	Libra
Eight	Pisces
Nine	Sagittarius
Ten	Scorpio
Eleven	Taurus
Twelve	Virgo

NUMEROLOGY

Tell me your name and I will tell you who you are. Give me your date of birth and I will show you your future.

Norman Shrine, 1994, *Numerology*

Numerology is defined as the psychology, philosophy and science of numbers. Intellectual credibility is accomplished by reference to mathematics and the work of luminaries such as Pythagoras and Plato.

Pythagoras said 'all things are numbers'. He popularised the link between music and mathematics, teaching that there is a mathematical basis to tone and pitch, something every physicist will verify. It is these vibrations, needed to be in resonance with the universe and individual, which are quoted as the basis of Pythagorean numerology, the most common version used today. There is no reference to Pythagoras ever adding the letters in his name or numbers in his birthdate.

Birthdates and the rhythms of the Earth

Calendars, like names, have no intrinsic, natural basis. They are human constructs which are rigged to synchronise with the sun. Since Pythagoras's day, there have been a few changes which may affect the accuracy of numerology calculations. Basing calendars on the time it takes the Earth

to travel once around the sun is problematical. The year is technically 365.242190 days long.

The Roman calendar consisted of twelve months of 29 or 30 days, and an extra month every three years. In 46 BCE Julius Caesar introduced the leap year. Augustus then renamed a month and pinched a day, so August had as many days as Caesar's July. February was the loser. About 10 BCE it was discovered that the priests responsible for the calendar had been adding a leap year every three years instead of the four decreed by Caesar. As a result of this error, no more leap years were added until 8 CE.

In 730 CE the Venerable Bede noted that a day was being lost every 128 years and, with the lightning speed typical of officialdom, this was corrected in 1582 by Pope Gregory XIII. The Gregorian calendar was introduced by eliminating 5 October to 14 October 1582. Those ten days just didn't happen.

Pope Gregory XIII adjusted the leap year method by skipping leap years on three out of every four centesimal years. So 2000 was a leap year, while 1700, 1800 and 1900 were not.

Over the centuries more and more countries have accepted the Gregorian calendar, but many other calendars are still in use. The Jewish and Muslim calendars are vastly different. The starting date, 1 January 0000, is an arbitrary date.

Does this calendar sound like something so specific that a single day can change your entire life path and personality?

A similar analysis of alphabets and names since Pythagoras's day defies imagination.

Testing numerology

The main claim of the believers when confronted with such an analysis is to dismiss the need for a causal link on the grounds that the readings work.

To test numerology, I collected every book I could find

from all local libraries and downloaded two sets of readings from commercial websites. These ten references are listed at the end of the chapter. I started to compare.

The most important number seemed to be the total of the numbers in the birthdate. This was, in nine of the references, found by simply adding all the numbers including the full year. However, Pither decided the number was better calculated using the sum of the values of the letters in the months, as suggested by his wife Eve. He explained:

I was open to considering this alternative because nowhere in the literature of Pythagorean numerology is the basis for traditional principles or techniques proven, justified or even explained. Most everything is simply presented as though its truth were self-evident. I have found there are even some well-accepted techniques in numerology that are incorrect, a claim I do not make lightly.

(Steven Scott Pither, 2002, *The Complete Book of Numbers*, p. 100.)

While most called the sum of the numbers in the birthdate the Life Path Number, Shrine called it the Fate Number, while Whitaker and Struthers called it the Destiny Number. Alana, McClain and Selene called the number found by adding the letters in the full birth name the Destiny Number while Baker called this the Inheritance Number, Shrine the Name Number and Ducie the Wisdom Number. Struthers didn't use it at all.

McClain and Alana said the Destiny Number could also be called the Expression Number while Struthers and Selene used that term for the sum of the consonants in a name.

Your birthday alone gives your Psychic (Shrine) or Birthpath (Whitaker) or Goal (Barrat) or Birthday (Alana) or Personality (Ducie and Baker) Number, while your Personality Number is calculated from summing the consonants in your name according to Pither and Alana.

Alana, McClain, Selene, Struthers and Whitaker used the numbers 1 to 9, 11 and 22, while Ducie added 33, 44, 55, 66,

77, 88 and 99, without giving actual meanings. Baker included them all with meanings. Barrat and Pither used 1 to 9 and 0. Shrine had so many number combinations in grids and patterns that there was no match to any of the other references. Pither acknowledged the use of the double-digit numbers by most numerologists, and wrote:

Nevertheless, they have no place in Pythagorean numerology. Numerology is a discipline based entirely on the meanings of reduced numbers. As we shall discuss at great length in later chapters, every number consisting of two or more digits has special meaning. There is no mathematical basis for selecting certain two digit numbers for interpretation while reducing, and thereby generalizing, all the rest.

(Steven Scott Pither, 2002, *The Complete book of Numbers*, p. 103.)

Ignoring the confusion of the names, I worked on the three most commonly used numbers, those from the full birth date, the birth day and the full birth name. I read every description of every number from each of the ten references, where possible, and gave it a mark out of ten, for accuracy. The vast majority were rated at about 9. I gave full marks in the three cases which mentioned something very specific, and correct, such as teaching or communicating. It did occur to me that I couldn't think of a job which didn't require communicating, but I let that pass. The few readings that got full marks didn't match my numbers anyway. To be honest, there were five ratings below 5 out of 10, only one of which matched my numbers.

I did charts for Adolf Hitler and Saddam Hussein but found no reference to brutal murders or torture among the spirituality, communication, leadership and pursuit of adventure qualities.

You are only given your own reading by a numerologist. You are not given those which do not apply. Hence, the chance of you rating the reading at 90 per cent or more is highly likely. A rating of 70 per cent or above is almost a certainty.

Choose your numbers

Numerology assigns more than one number to each person, some giving separate numerical interpretations for the different numbers, but many generalising as I have below. These descriptions are drawn from an overview of the references.

Select those which you feel match your personality.

One

Number One is the ego, the number of Being. A One personality shows strength, leadership, personal resources, identity and high achievement. Ones are highly creative and ambitious. They are prone to blood pressure hassles, heart disease or eye problems. Number One people are born leaders in any profession, but may also be inventors or creators of original ideas.

Two

Two represents duality. Number Two people are sensitive, intuitive and caring but also can sense a personal imbalance and confusion. Romantic and friendly, they recognise there are opposite views. Those influenced by the number Two tend to be careful of their health, but may suffer from digestive or stomach problems as well as depression. They make good judges or diplomats, mediators, counsellors, teachers and sales representatives.

Three

The number Three tells of personal creativity, of self-confidence, sociability, action and forcefulness. It represents initiative associated with competitive and exciting people. The outdoors attract, as do strong spiritual feelings.

Order isn't high on the list, nor is long-term commitment, but achievement is. Those with number Three have a tendency to skin diseases and stress-related illnesses. The entertainment industry is a great attraction, but they also do well in advertising and journalism.

Four

The number Four is a person who is dominated by logical thought, practicality, instinctive behaviour, the material world and the need for stability. Hardworking, serious, worried and often lacking confidence, they exude intellectual energy. Four indicates a tendency to headaches, neck aches or ulcers. People under the number Four will succeed in any career that requires dedicated work habits and efficiency.

Five

The five senses dictate to those influenced by the number Five. They are extroverts, adventurous, exciting, flexible, energetic, tolerant, resourceful and highly strung people who love travel and change. They thrive on learning, productivity and unpredictability. They hate boredom. Accident prone, they may suffer from insomnia or mental disorders. Number Five indicates a career in any field which draws on the Fives' communication skills.

Six

Intellectual creativity and the imagination dominate number Six. These are homebodies, who love fantasy, abstract thinking, theory and romance. Loyal to their families, they can be perfectionists. They are peace loving, sympathetic, harmonious and fortuitous—life's beautiful people. They tend to have poor circulation and may suffer from heart

disease, throat or kidney problems. They do well in careers drawing on artistic talents and creativity.

Seven

Time rules the lives of those influenced by Seven. They are intense, tied to the natural world and aware of the limitations of the material one. Intellectual and philosophical matters attract, while they tend to be impractical, imaginative, solitary, secretive and very private people. They have a tendency to nervous disorders or depression along with urinary tract or kidney problems. Careers which require contemplation suit the reflective Sevens.

Eight

Number Eight relates to the unconscious mind. Number Eight people do what has to be done but are conscious of a timeless space. Although ambitious, outspoken, materialistic and tenacious, they are loyal. As extremists, those influenced by the number Eight may be obstinate and arrogant but they also search for balance. Organised and efficient, they are successful people in the business or legal world. With a tendency to skin or teeth problems, number Eight people can also suffer from rheumatic complaints or depression.

Nine

Number Nine indicates a humanitarian person, one who hates violence but values a sense of justice. Sensual, passionate, supersensitive and determined, Nines can be possessive and volatile. Fairness is crucial and they care deeply. With energy and common sense, their teachings are often used as a guide. Problems with the genital areas may be common, as is a tendency to kidney disease. The number Nine leads towards careers which involve caring about others.

Checking the predictability factor

So which number or numbers best suit you? Or did you recognise something of yourself in all of them? Humans are complex characters, having many aspects to their personalities. Remember the usual method is to calculate the numbers then check with the readings. So a fit is pretty likely.

Full birthdate number

This is the most important number and represents your future, your potential and your 'karmic lessons'. It is calculated by adding up all the numbers in your full birthdate. I was born on 5 November 1951.

This is written 5/11/1951. The digits are added: $5 + 1 + 1 + 1 + 9 + 5 + 1 = 23$. The digits are added again and reduced to a single number: $2 + 3 = 5$. My birthdate number is five. Checking the readings above: yes, that sounds like me.

Full birth name number

The next most commonly used number depends on the spelling of your name. As one numerology writer explained: 'Names are mirrors, that is all. Maybe your mirror is a little cloudy. You can clean it, to see your reflection better, or you can get yourself a new mirror'. So changing your name can change your personality and destiny.

Some numerologists use your full name, some don't include your middle name, some use nicknames, some calculate all and compare.

One concept was that the number from your full name as given at birth is your personal destiny. The name you use daily gives your current status.

The letters in your name are assigned the values from the table given opposite. The value is then added and reduced to a single digit. This is your name or wisdom number.

The value of letters for numerology

1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I
J	K	L	M	N	O	P	Q	R
S	T	U	V	W	X	Y	Z	

My birth certificate reads Lynne Sandra King-Smith, which gives me Three. Yes, that sounds like me. Lynne Kelly gives me Nine. So my brush with kidney disease is my husband's fault. Nine is definitely me.

Birth day number

This is calculated using the reduction of the number of the day you were born. So my birth date of 5 November gives a personality or birth path number of 5.

If you were born on the fifteenth then your personality or birth path number would be $1 + 5 = 6$.

The doubling up of this number with your Destiny Number can lead to excess. An incompatibility can lead to problems. Yes, that sounds like me, an excessive Five.

Evaluating numerology

There are plenty more numbers to calculate and ways of arranging the numbers in boxes and grids to give more complex readings. With so many manipulations and so few numbers to choose from, it would be hard for a numerologist not to be able to match them to anyone. And, yes, most of them sound like some aspect of me.

The science of numbers is distinctly unscientific.

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ESP—EXTRASENSORY PERCEPTION

Extrasensory perception (ESP) takes many forms. The best known are **precognition**, seeing the future; **clairvoyance**, seeing things beyond normal sight; **telepathy**, the communicating between minds; and **psychokinesis**, affecting objects by mindpower alone.

ESP is an awareness beyond the five senses of sight, hearing, taste, touch and smell. When someone experiences something without using any of the five senses, it is said to be 'extrasensory'—beyond the senses. Hence ESP is often referred to as the sixth sense. The term 'psi' is used to mean psychic abilities. All forms of ESP are considered part of psi.

Anecdotes as 'proof'

What can you do with the many anecdotes you will be told of apparent ESP? You have three choices. You can reject the anecdote out of hand as a fabrication or misinterpretation. That would be naive. Such an attitude would leave you with no chance of glimpsing some new wonder. You could unquestioningly accept the anecdote. That would be equally naive. To do so would be to leave yourself vulnerable to every scam and delusion on offer. Or you can investigate. You can find out exactly what did happen, all that preceded the incident and how much the story has altered with each

retelling. You will also need to find out the details surrounding the event which you have not been told, due to the narrator's genuine belief that they were not significant. They may well lead you to a very different interpretation. Such an investigation is, in most cases, impractical if not impossible. So what can you do with an anecdote? Listen politely. It is of no more use to you than that.

So much of the evidence of psi is anecdotal evidence. When quoted out of context and in retrospect, coincidences always sound far too unlikely to be mere coincidence.

In fact, rare events are very common. Does this sound like a contradiction? Let's try a simple experiment. Take a pack of cards. Shuffle well and deal out four bridge hands, each of thirteen cards. Pick up the hand in front of you and look at the particular thirteen cards. The chances of you having *exactly* that hand are over 635 000 000 000 to one against. The dealing of that exact hand is an exceedingly rare event, and yet you just did it. And you can go on performing such rare events all day long. Beware of statistics of the likelihood of an event observed only in retrospect. Had you predicted exactly that hand in writing before it occurred, then I would be mightily impressed.

Premonitions of disasters are commonly quoted by distressed family members. Ask yourself: how many times has a mother or father imagined an accident of a child late home, or someone seen, in their mind, a plane crash when a loved one is about to fly or a derailed train when a loved one is about to travel by rail? Given the millions upon millions of such images playing in heads every day, is it any wonder that a few prove to predict a real tragedy? The millions of premonitions which failed to eventuate are soon forgotten, dismissed as natural worry. The few which, sadly, eventuate are recounted over and over, the images become more firmly fixed and the story unintentionally embellished and more firmly embedded in family folklore.

Unless such incidents are written down in advance, and the number which prove accurate outweigh the number which prove false, such anecdotes provide no evidence at all.

Precognition

Psychic predictions are interpreted in retrospect and announced as astounding premonitions. Nostradamus is such a famous case in point that he gets a chapter of his own.

One significant success by a media psychic can establish credentials for life. The woman who saw Kennedy's death. The man who named the child's murderer.

But then no one checks up on all the failures, do they?

No psychic warned us about the attack on America on 11 September 2001, Afghanistan's horrors or the Bali bombings. As each major event is reported on the news, ask yourself: did a psychic tell of it beforehand?

Every year we are blessed with the predictions for the following year by those who make a living as psychics for the mass media. The magazines and newspapers pay them to do it because we buy the newspapers and magazines to read what they say.

A royal will marry and another one die. A plane will crash and a city will flood. Weather will be extreme (it always seems worse than it's ever been before) and an actor will be caught out being naughty.

Then we get the claims of accuracy during the year, if there are any. A psychic gets a hit and it is lauded loud and clear. The misses are forgotten.

Then the new year comes again.

There is a simple test. Collect all the published predictions next year. Analyse them. First you need to select those which are specific enough for you to identify the hit or miss outcome. 'A year of turmoil for America' is not specific enough. 'Unprecedented storms' must be confirmed as truly unprecedented.

Check the predictions regularly and tick those which are hits. You will then get a firm feeling for playing the psychic statistics game. Hits will be rare, misses and vague statements common. That I will confidently predict.

The Jeane Dixon Effect

Sometimes the retelling of the evidence rather enhances its effect. Jeane Dixon (1918–77) made predictions about the election and assassination of President Kennedy which are often quoted. Typical is this account:

Jeane Dixon, a Washington real-estate dealer and highly talented psychic, had long been startling friends and acquaintances with uncanny predictions that had, often unfortunately, come true. As early as 1956, she had predicted that the 1960 presidential election would be won by a Democrat who would die in office. By November of 1963, Dixon was experiencing increasing feelings of foreboding concerning the Massachusetts Democrat who had won the 1960 election. The Sunday before the assassination, she said, she felt a 'black veil' closing in on the White House, and it continued to draw closer in the following days. On Tuesday, she told her luncheon companions, 'Dear God, something terrible is going to happen to the President, soon.' On Friday, President Kennedy was murdered in Dallas. (Dr Hans Holzer, 1997, *Are You Psychic?*, p. 37.)

In this retelling, you, as the reader, have no way of checking any of the claims. Almost all is anecdotal and provided by the claimant herself. Even the printed claim is difficult to verify. The original source of the prediction was the 13 May 1956 edition of *Parade* magazine and it said: 'As for the 1960 election, Mrs Dixon thinks it will be dominated by labor and won by a Democrat. But he will be assassinated or die in office, although not necessarily in his first term.'

That is the basis for her claim of accurately predicting Kennedy's assassination. Given the assassination threats to US presidents, the likelihood of ten years in which to do it and approximately a 50 per cent chance of a Democrat being in office, she was on reasonable odds. Labor did not dominate the election. It is not mentioned that in 1960 she also predicted: 'John F. Kennedy would fail to win the presidency'.

Despite the wide belief that she is one of the world's most

gifted psychic seers, she predicted, among many other flops, that the Russians would beat the Americans to the moon, World War III would begin in 1958 and the cure for cancer would be found in 1967.

In fact, the 'Jeane Dixon Effect' is a term used to describe the tendency for the mass media to exaggerate the few correct predictions of a psychic while choosing to ignore the multitude of misses.

The fraud of Tamara Rand

Most psychics are not perpetrating deliberate fraud. They genuinely believe in their gift and have many reasons to explain the frequent failures. Tamara Rand was different. Her prediction was amazingly detailed and accurate, and totally fraudulent.

On a talk show tape, dated 6 January 1981, KTNV talk show host Dick Maurice interviewed well-known Los Angeles psychic Tamara Rand about her prediction that there would be an assassination attempt on President Reagan by an assassin with the initials 'J.H.' and a surname something like 'Humley'. The assassin, with sandy hair and from a wealthy family, would shoot the President in the chest in a 'hail of bullets'. This would happen, she revealed, in the last week of March or the first week of April.

On 30 March John Wayne Hinkley did as predicted. On 2 April 1980 the tape was shown on three major American networks to an audience of millions with the astounding claim it was filmed in January. Associated Press reporter Paul Simon was skeptical. His research soon revealed that the recording was faked by Maurice and Rand on 31 March, deliberately making the previous day's events vague to make them sound more authentic.

How many people saw the original telecasts or heard of them over coffee the next day? How many of these have still not heard that the predictions were a fraud? How many of us have the opportunity to investigate as Paul Simon did? How do we know with whom to trust our precious beliefs?

Clairvoyance and clairaudience

Clairvoyance is the ability to see people and events beyond the range of the five senses. Yet no one has truly displayed clairvoyant abilities under strict test conditions.

One of the best-known clairvoyants of recent years was Doris Stokes (1919–87). To be accurate, Stokes only claimed to use clairvoyance occasionally. Predominantly, her skills were clairaudient. She claimed to be able to hear voices which could not be heard using the normal sense of hearing.

Born Doris Sutton soon after World War I, Stokes came from a poor, working class family living in Lincolnshire, England. The death of her father, when she was only thirteen, had a profound effect on her. After marrying paratrooper John Stokes she endured his return from World War II permanently impaired after a head injury. She then suffered the loss of her only biological child, a son John Michael, and adopted a son, Terry.

Stokes, understandably, became fascinated by death, attending séances and consulting mediums. While qualifying as a nurse, she also trained as a medium. Later in life she performed to packed audiences, filling venues such as the London Palladium and the Sydney Opera House. An eye witness account from paranormal researcher and author Ian Wilson describes what he witnessed at the London Palladium on 16 November 1986, after Stokes had taken her seat on the gilded red velvet chair centre stage.

Almost immediately she reported hearing from the 'other side' someone whose name seemed to be Kelly or Kerry, with a surname sounding like Stennett. It was enough for a gasp to come from a smartly dressed mid-thirtyish woman in the front row. Ushered to the nearby microphone, this woman emotionally explained that her name was actually Stenning, and that Kerry was her daughter who had been critically injured in a road accident, and had recently died from her injuries.

Then the detail seemed to come thick and fast.

(Ian Wilson, 1989, *The After Death Experience*, pp. 86–7.)

Stokes produced more names, then addresses and details of the accident. She predicted that Mrs Stenning, or her sister sitting next to her, was wearing something of Kerry's, which was correct. This is the usual practice of someone seeking to contact a loved one. Stokes offered the comforting words that Bill, Kerry's dead grandfather, was on the other side with her.

Stokes moved on to other audience members. Elderly Elsie Scott acknowledged Bill and Irene as her deceased husband and daughter.

Graham started to talk from the other side. His wife, Dawn, again sitting in the front, confirmed the many details about his accidental fall and subsequent death.

The rest of the show consisted of responses to the general audience, which appeared to be the standard cold-reading show. But the audience were now convinced. It was powerful, emotionally charged and convincing stuff.

Ian Wilson leaves his readers with no doubt he is a firm believer in the afterlife. But he also approaches the paranormal with a degree of skepticism. Here is what he said about his investigations that night:

With me on that occasion, in a theatre box from which the whole show could be carefully observed, were television journalists Beth Miller and Siobhan Hockton, deputed, as originally intended, merely to the task of collecting names and addresses of those audience members for whom Doris Stokes produced her communications, the intention being for these to be interviewed afterwards in proper depth.

But within a matter of a mere fifteen minutes Beth and Siobhan learned far more than they had expected, and on their return their reactions were of shock, disbelief and downright anger. For as they had questioned one after another of those for whom Doris Stokes had produced messages, it emerged that there was nothing either psychic or coincidental in the fact that these were mostly seated close to, if not actually in, the theatre's front row. Not only had the key individuals been known to Doris beforehand; each had been specifically invited to the show by none other than Doris herself.

As Mrs Stenning disclosed, a friend had written to Doris Stokes on her behalf, telling her about Mrs Stenning's loss of her daughter Kerry.

(Ian Wilson, 1989, *The After Death Experience*, p. 89.)

The researchers had also discovered Elsie Scott was a regular at Doris Stokes's shows, always trying to get a seat near the front. Bill and Irene had come through to her at least three times before.

Dawn had sought guidance at a very vulnerable time in her life. Her husband's fall had left him on life support at the London University College Hospital. Staff had gently suggested Dawn talk to someone about the issues surrounding the cessation of life support as he was effectively brain-dead. Dawn had asked to speak to Doris Stokes, who returned the call after contact was made through a hospital social worker. Stokes had talked to Dawn and her mother a number of times then sent free, front-row tickets to her London Palladium performance.

As long as we have pretence masquerading as ESP and pretenders masquerading as psychics, it is almost impossible to find out if there really are people with such abilities. The truth is obscured by the shining lights of the big stages and massive audiences.

I will leave it to you to decide whether the audience at Doris Stokes's other performances were witnessing true clairaudience or pure exploitation.

Clairvoyance and the Fairchild F-27

There are quite a few case histories repeatedly quoted as extraordinary examples of seeing events beyond our senses. The case of the Fairchild F-27 crash in the Andes, South America, is one of the most famous.

On 13 October 1972, 45 young men and women were travelling from Uruguay to Chile. Most of those on board belonged to a sports team heading for a game in Santiago. The

bad weather probably contributed to the crash into the rocky mountainside, breaking the plane into pieces as it slid down the mountain on its belly. Remarkably, 30 people in the main body of the plane survived. The Chilean Air Force Aerial Rescue Service searched for eight days and found nothing.

Some of the relatives wanted to keep searching, convinced there was a chance their loved ones were alive. One elderly woman approached an old dowser in Uruguay with a map of the Andes. The dowser pinpointed the area and the woman gave the information to her daughter Madelon, who passed it on to the rescue team, but she was told that the area had already been searched.

Madelon was not to be defeated. She approached the famous psychic Gerard Croiset, who is discussed more fully in Chapter 15, 'Psychic detectives'. Croiset Senior was ill at the time. His son, another Gerard, claimed he had his father's ability to help, and given a map of the area he replied with the information that there were survivors to be found 65 kilometres from the Panchon Pass. A search was started. Croiset sent further messages. He had seen the plane broken into pieces, heading for water, hidden under an overhanging rock with a village of white houses nearby. When this information led nowhere, Croiset gave up and said he now believed there were no survivors.

During the wait, some of the survivors died of injuries or from an avalanche which had added to their woes. Starvation forced them to their most famous action: they started to eat the frozen flesh of those who had died.

Ten weeks after the crash, two of the survivors managed to go down the mountain and made contact with village people. Sixteen of the passengers made it out alive.

How well did ESP fare?

Croiset had led them astray. There was no water, no overhanging rock and there were survivors. He had been right about the plane breaking into pieces and the village nearby. These are regularly quoted despite being highly likely anyway. The old dowser had pinpointed the position almost exactly.

Does this success give evidence of ESP? It has to be taken in context. How many predictions were given and how many visions claimed were not accurate? We only read of the claims which hold interest because of their apparent accuracy and repeated reference in the media. The many failures are soon forgotten.

To be considered as evidence, all predictions need to be taken from a given practitioner and then the success rate compared with what would be expected by chance. A consistent performance at above chance level is essential.

Unless you have access to *all* predictions made by a clairvoyant, then the measure of whether they are achieving better than chance cannot be made. The anecdotes of the few successes cannot be evaluated out of the context of all predictions.

Family affairs

It was during the writing of this book that I experienced a powerful event in my life. I had spent a great deal of the past weeks in a hospital ward as my mother fought battle after life-threatening battle. The family maintained a vigil, watching the dreadful little green screen which displayed the blips of her heartbeat. When that dynamic green graph appears in a movie, you know it is going to go flat and the character will die. I tried hard to convince that screen that this was not fiction and that was not a character, but my mother.

In the middle of the night I woke, unable to move. The vision was so real. I could see the screen go flat. I could see the nurses rushing and hear them discussing the appropriateness of resuscitation. I felt a connection with my mother through the wedding ring I had on my finger, where I'd put it for safe storage when her hands had become too swollen to wear it. I knew, without any doubt, my mother had died.

I stayed in bed, having turned on the light, and waited for the hospital to ring. The phone didn't ring. My mother had not died. When I checked the next morning, there had been no incident during the night.

It was a few weeks before I was able to tell her this story. But I did get to tell her.

Had I not been so immersed in these topics, I would have dismissed this as a nightmare, not surprisingly linked to the day's events. Had my mother died that night, nothing you could have said would have convinced me that my experience wasn't real. I wanted it to be real. I wanted that link with my mother and it would have comforted me through the grieving.

How often must this happen and the critically ill person die? Statistically, there must be many times when this clairvoyance becomes reality in the family folklore.

I really don't want to destroy other people's beliefs, nor the comfort they gain from them. It is a depressing side of being a skeptic to have to, at times, accept the fact that the evidence does not support something you would dearly love to believe.

Telepathy

Telepathy is the ability to perceive the thoughts of others. Many telepathic demonstrations are given, but most can be reproduced by magicians and are merely the result of cunning and trickery. The reality of telepathy is alluring, which probably contributes to the widespread belief despite the evasiveness of proof. Telepathy is so widely used in science fiction that at times recollections blur fact with vivid fiction.

Of all the paranormal claims, telepathy is probably the most widely tested in parapsychology laboratories. With no certainty we have yet found the right way to detect telepathic gifts, we can never prove they don't exist. In over 50 years of searching, however, the supporting evidence is scant, if not non-existent. Pity! So much could be done with controlled telepathy that an optimist has to hope the lack of evidence will some day be reversed.

Zener cards

Most testing of telepathy is done using Zener cards, more commonly known as ESP cards. When a sender is asked to draw whatever they think of, you will usually get a boat or house. They are easy to draw!

Designed by Dr Karl Zener, the cards make up a set of five symbols, chosen to be simple yet significantly different. They are a circle, a star, three wavy lines, a square and a plus sign. Usually in sets of 25, the sender and receiver are separated so there can be no communication other than telepathically. Chance says that the receiver should get a 20 per cent success rate, so parapsychology laboratories are looking for better than chance to prove the existence of telepathy.

This is a test you can do at home. Make a set of cards. Shuffle the cards and then attempt to send the images one at a time, for the whole pack. Try and send the images by thought alone. Have the receiver note the symbol they think you are sending and see if you can better the 20 per cent expected.

Laboratories have reported successes, but these have failed when test conditions were shown to be imperfect and cheating was detected.

Beware the Clever Hans Phenomenon

Clever Hans was a German horse, so he was really Kluge Hans. Owned by William von Osten, he went on show in 1891 demonstrating his mathematical ability by tapping the answers. He could add, multiply and perform other simple mathematical calculations.

In 1904 he was examined by a committee headed by psychologist Professor C. Stumpf. They found no evidence of direct signalling. With this credibility, Hans's fame spread.

Subsequently, Dr Albert Moll discovered Clever Hans was responding to unconscious cues sent by the owner, who

knew what number should be tapped out. Von Osten was not cheating. His cues were subconscious and the sensitive horse was detecting them.

People can also respond to some kind of subtle body language. The sender, anxious for a response at the appropriate moment, may quite unconsciously relax a little, breathe out or give a slight smile or head movement. The receiver, sensitive to the cue, may unconsciously detect it. Hence all tests of telepathy must be done with the receiver unable to see or hear the sender.

The process of involuntary or subconscious cueing is known as the Clever Hans Phenomenon and must be eliminated when testing for telepathy. It is only by eliminating cases of unconscious signalling or cheating, that we can ever know if there is anything real in telepathy.

Psychokinesis

Bending metal objects, starting watches and moving compass needles have made Uri Geller the most famous of psychics. These are all examples of psychokinesis—affecting physical objects using mind power.

Let me start by presenting a cautionary tale. John G. Taylor was professor of mathematics at King's College, University of London. A distinguished physicist, he received his doctorate from Cambridge University and taught at a number of prestigious universities in Britain and America. Defying the stereotype of a physics lecturer, he had also studied drama which he had used to advantage as a populariser of science in the media. So successful was he that in 1975 the readers of *New Scientist* voted him into the list of the world's top 20 scientists for all time.

In 1973 John Taylor met Uri Geller on a BBC-TV David Dimbleby program and was immediately convinced by Geller's bending a fork, starting a watch and reading a message sealed in an envelope. Taylor's verification of Geller's abilities was much touted.

Taylor went on to establish a research program into psychokinesis in which he identified hundreds of British children who could bend metal by paranormal means. Unfortunately the bending never seemed to happen while he was watching. He coined the term 'the shyness effect' to explain the failure of psychokinesis to happen when being observed. The term is now used more widely to explain why many paranormal effects cannot be detected when skeptics are present.

Like most scientists, Taylor had no training in detecting cheating. He interpreted the 'facts' as presented to him. Scientists are trained to analyse the natural world. Nature confounds but she doesn't cheat. Children are mischievous. Many adults greatly underestimate their abilities, especially those trained in fields which have little to do with them. The children were permitted to put paper clips into their pockets, to be withdrawn later in a bent state.

Rods in apparently sealed tubes were sent home with the children who returned the rods bent. Other objects materialised within the unobserved tubes.

Taylor published his astounding findings in his 1975 book *Superminds*, which caused a sensation and is still regularly quoted. Along with the reality of psychokinesis, Taylor proposed electromagnetic explanations for a wide range of paranormal phenomena. It is a fine example of what happens when a genuine scientist uses the tools of his trade to examine an area for which they are not designed—trickery.

Taylor was forced to acknowledge he had been fooled when scientists at Bath University tested six of his metal-bending children. The observer in the room had been instructed to relax observation after 20 minutes. Watched through one-way mirrors, the children were seen to take advantage of the lapse to bend the metal objects using the most normal of means. They simply used their hands and feet and bent them.

These results were reported in *Nature*, the most prestigious of scientific journals (volume 257, 4 September 1975). Taylor later retracted his electromagnetic theories, again in *Nature*

(volume 276, 2 November 1978). He also explained how slight air currents from a heater in the room had caused movement in a needle, while electrostatic effects had caused a compass needle to move. When stricter protocols were put in place on other experiments, the 'paranormal' effects disappeared.

In a subsequent article in *Nature* (volume 279, 14 June 1979), Taylor and a colleague wrote: 'We can only conclude that the existence of any psychic phenomena we have considered is very doubtful'. Yet *Superminds* is still available in large numbers in second-hand bookshops. It is still held up by believers as the evidence of a scientist.

Taylor is to be admired for his honesty, which was never in doubt. Parapsychology has a long and sad history of genuine scientists verifying events which are beyond their skills to explain. Extraordinary claims need an extraordinary team to verify them. It is an unfortunate comment on human behaviour that it is essential for scientists to include a skilled magician in that team.

The story of Mike and Steve

Mike Edwards was an American student and magician. Steve Shaw was an immigrant from England living in America, working as a model and part-time magician. Dr Peter Phillips was a physicist who really wanted to believe and use science to show that psychokinesis was real. It's also the story of James McDonnell, the engineer and chairman of the board of McDonnell-Douglas Aircraft, who donated \$US500 000 in 1979 to Washington University in St Louis, Missouri, to establish the McDonnell Laboratory for Psychical Research.

And it's the story of James 'The Amazing' Randi, full-time magician and debunker, who conceived of Project Alpha and set the ground rules.

Wanting to ensure such large sums of money were not squandered, Randi sent Phillips, now Director of the McDonnell Lab, guidelines to testing from a magician's

perspective. He was convinced the testing would not be sufficiently tight without a magician's input. Then he tested the protocols.

Edwards and Shaw were instructed to answer 'Yes, and we were sent here by James Randi' if they were ever asked directly if they were using trickery. They were then to answer all questions honestly. They were instructed not to get 100 per cent success rates; it was too obvious.

Using trickery and throwing tantrums to get experimental design adjusted, while manipulating equipment and people alike, Edwards and Shaw justified any failures as part of the ethereal nature of the paranormal. They were declared 'gifted psychics'. Over four years in the early 1980s they participated in 160 hours of testing. Eventually procedures were tightened at the McDonnell Lab and the boys found it more difficult to cheat. Randi reported they were delighted to find the magician's guidelines were now being applied.

Tested in other parapsychology laboratories as well, they maintained the deception, without ever being directly asked if they were using conjuring tricks, until Project Alpha was exposed in *Discover* magazine. The McDonnell Lab was closed permanently. Steve Shaw went on to become the world-class magician now performing under the name of 'Banachek'.

The moral of the story is the same as the John Taylor tale: scientists can be fooled because they are not trained to detect tricksters. To date, no psychokinetic claims have stood the test of a panel which included at least one skilled magician.

Parapsychology and the study of psi

Parapsychologists apply scientific methods to the study of psi and are as much angered by the frauds as are the skeptics. George P. Hansen published an extensive review in *The Journal of the American Society for Psychical Research* in 1990 acknowledging that psychic fraud has been extremely

damaging to the reputation of parapsychology, and making recommendations to avoid such tricksters. He strongly endorses the use of magicians to check experimental controls. Importantly he adds: 'parapsychologists are by no means the only scientists who must deal with subjects trying to deceive them. Psychologists often confront this problem' (p. 28).

To date, no firm evidence for psi has been shown despite the many, many hours of searching. Parapsychologist Susan Blackmore worked for many years in the field. Her book, *In Search of the Light: The Adventures of a Parapsychologist* (1996), is a wonderful story of rigorous research and constant disappointment when failure followed failure.

High scores in some ESP tests have been shown to be due to faulty design and high belief on the part of the testers. Consequently they can 'see' effects which are not really present. Scientific method dictates that the test must be able to be replicated by an independent experimenter using an identical procedure. This has never been the case with ESP.

Skeptics and parapsychologists are interested in the same effects. Skeptics, however, feel the evidence is so lacking that they have no reason to believe psi effects exist at all. In over 50 years of detailed research, there is no firm evidence of the existence of ESP. Does this prove that ESP doesn't exist? Absolutely not.

The proof of the non-existence of a phenomenon is impossible. If I claim there is a rare form of frog which when kissed at midnight turns into a prince, will you believe me?

I would assume most will say 'no'. I hope all would say 'no'. Then, I ask you to prove there is no such frog. I would be satisfied if you could just tell me how you could possibly prove there is no such frog. It is impossible. So is the proof that there is no such thing as psi.

Although the evidence suggests ESP is highly unlikely, there is still a slight chance such a phenomenon will be shown under test conditions. That would be an exciting day indeed!

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NOSTRADAMUS

How could you not be bowled over by predictions made by a sixteenth-century physician which tell accurately of things which happened so long after his death?

Living in Provence, France, from 1503 to 1566, Nostradamus made his living writing annual almanacs predicting the next year's fortunes. He was less well known, in his own day, for the prophecies for which he is so famous today. Written in quatrains, or four-lined verses, they were grouped into 'centuries' of 100 quatrains each. All are complete except Century VII, which has only 42 quatrains. Of the 942 prophecies a few are constantly quoted. The vast majority are ignored.

Interpreting quatrains

The two most quoted quatrains are claimed to predict the Great Fire of London and World War II. When considering my ability to interpret them differently, you need to consider whether, given enough effort and knowledge, many interpretations could be made from every quatrain. Have they any predictive value at all? Did Nostradamus deliberately write so vaguely?

The quatrains were originally written in an archaic form of French—archaic even for Nostradamus's time. Did he do this to add a degree of mystery to further his reputation as a prophet?

Translations vary slightly because of the version of French involved and the fact that different versions of the quatrains were printed in his time.

The Great Fire of London?

*Le sang du iuste à Londres fera faulte,
Bruslés par fouldres de vint trois les six;
La dame antique cherra de place haute,
De mesme secte plusieurs seront occis.*

*The blood of the just shall be wanted in London,
Burnt by thunders of twenty-three the sixes,
The foolish woman shall fall from a high place,
Of the same sect several shall be killed.
(Quatrain 51, Century II)*

This is a widely quoted quatrain which is interpreted as referring to the Great Fire of London on 2 September 1666. Many translators change the word *fouldres* to *feu* so it reads 'fire' rather than 'thunderbolts'. The key, say the Nostradamus supporters, is the 'sixes' which gives the year 1666. How 'twenty three the sixes' can be worked into 1666 is still a mystery. But it is done with confidence.

They claim the 'antique dame' is translated as 'old dame' and refers to St Paul's Cathedral which was known as the Old Lady. However, there are no references to St Paul's ever being called the Old Lady. It couldn't actually fall far, but that has been ignored, as has the fact 'antique' is more accurately translated as 'eccentric' or 'foolish'. Some have claimed there was a statue of the Virgin Mary on top of the cathedral, but this is also not true.

James Randi, in *An Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural*, explains how the quatrain can be interpreted (without manipulation) to refer to events taking place in Nostradamus's own time, when Bloody Mary I of England began burning Protestant heretics

at the stake, in groups of six. A 'merciful' addition of bags of gunpowder tied between their legs usually gave a more rapid, and thunderous, end to their suffering. Mary went insane while over 300 lost their lives in groups of six.

Nostradamus knew of these events before they were common knowledge and publication could be done in time to give him credibility as a prophet. As he gained his patronage and living telling the future, isn't that a more likely explanation?

Given the vagueness, this quatrain can be interpreted as foretelling many other events. Let's see if I can use it to predict the death of Princess Diana.

The blood of the just shall be wanted in London

Diana cared for the young and infirm, fought against landmines and was always seen to be honest and fair. In London (Buckingham Palace to be specific), we well know her blood was wanted.

Burned by thunders at twenty-three the sixes

The crash was a fiery job, but I can't just ignore the twenty-three and play around with the sixes, as many before me have done.

This line refers to the role of the media. At twenty-three, Diana had the second of her children, Harry, and her love affair with the press started to deteriorate. Her death at thirty-six (which you immediately noticed was the product of the sixes) was the result of being burnt by the thunders of the press and their vicious tongues. So obvious once it has been pointed out, isn't it?

The foolish woman shall fall from a high place

Diana was bulimic, not known as an academic and threw away the chance to be Queen of All England, all which can be interpreted as 'foolish'. She lost her right to ascend to the

throne. Fallen, well and truly, from about as high a place as you can get.

Of the same sect several shall be killed.

Yep. Dodi Fayed and Henri Paul went with her.

Can this quatrain be accepted as prophetic when alternative interpretations are possible?

World War II?

What about the pilots in oxygen masks and World War II? He saw that, didn't he? As there is no requirement on Nostradamus to be in chronological order, this one is from the first century of his quatrains.

*De nuict soleil penseront avoir veu,
Quand le pourceau demi-homme on verra:
Bruict, chant, bataille, au ciel battre aperceu:
Es bestes brutes parler lon orra.*

*At night they will think they have seen the sun,
When they see the half pig man:
Noise, screams, battles fought in the skies,
The brute beasts will be heard to speak.
(Quatrain 64, Century I)*

This has been interpreted and quoted often as referring to the battles of World War II when pilots wore oxygen masks, which Nostradamus, in his visions, would have seen as looking like pig faces. The battles were fought in the air, and the brute beasts, which were heard to speak, are interpreted as referring to the radios. Let's see if I can come up with an alternative.

It seems pretty obvious to me that the 'pig men' mean exactly that—men who have had a transplant from a pig. Xenotransplantations is the new technology of using animal

organs to save human lives. Most have been heart transplants using pig hearts. Surely that's a much more accurate interpretation?

At night they will think they have seen the sun

These operations take a long time, running into the night, and this line refers to the bright lights of the operating theatre which would look like the sun and daytime to Nostradamus, unused to electric lighting.

When they see the half pig man

Obviously this refers to the men who have had a transplant from a pig. You can't doubt it.

Noise, screams, battles fought in the skies

This is a very controversial procedure. There has been much outcry against it, battles fought over the radio, television and Internet. (I was tempted to have this the noise and battles fought in the *sties* on the piggy murder days. Pity it doesn't match the French at all.)

The brute beasts will be heard to speak

This must be interpreted from the understanding of anatomy available to Nostradamus. People feel with their hearts. They speak from their hearts. The pig men must now be speaking from the heart of the piggy donor.

So it is easy to interpret the quatrains—after the event. Any vaguely written verse can be interpreted many ways, but that doesn't mean they have any validity in predicting the future or give convincing evidence of Nostradamus's prophetic abilities.

Nostradamus myths

It is a common claim that Nostradamus was exhumed by soldiers during the French Revolution with a medallion lying on his chest predicting his exhumation. This was graphically re-enacted in a television program, *The Man Who Saw Tomorrow*, narrated by Orson Welles. It would be pretty impressive, except Nostradamus was buried in the upright position as was normal in his day and there is no record of this event ever having occurred.

There are many such myths quoted to sell books and TV shows. Some quatrains have been made up for political purposes, so always expect the century and quatrain number to be given before you accept it as genuine Nostradamus.

Deliberate mistranslations have also helped manufacture more credible predictions. 'Pasteur' is represented as a name, when it means 'leader'. 'Franco', too, was presented as a name when it can also be translated as 'messenger'. Which is more likely—that Nostradamus knew a name from the future or he used a common word in his own language?

Desperately seeking suitable quatrains

It was depressing to note that following the 11 September 2001 terrorist attacks on America, Nostradamus books hit the best-selling lists. References to such events are only ever interpreted in retrospect. With elation one was sent spinning around the world and sent to me by at least a dozen joyous fans of the ancient seer:

*In the city of God there will be a great thunder,
Two brothers torn apart by Chaos. While the fortress
Endures, the great leader will succumb. The third
big war will begin when the big city is burning.*
(Nostradamus, 1654)

The Australian *New Idea* magazine of 22 September 2001 even honoured the Americans with a full back page image of a burning New York and the words 'God Bless America' topped with this exact quote. When I contacted them I was told I was not the first to ring and point out their error. What is sad is that no one even noticed the obvious clue that this was a hoax. The given date is nearly 100 years after Nostradamus died. He didn't write this quatrain. It was written by a student about ten years before the 2001 disaster, to show how easy it is to create Nostradamus quatrains. He proved his point.

So did Nostradamus see the future?

You need to read the quatrains in the original, convince yourself the translations are legitimate and then decide if you believe the interpretations are accurate. Or are there so many possible interpretations that the quatrains are meaningless?

So what are we left with? A man who wrote 942 vague pieces of four-lined prose. A man who is still read and discussed hundreds of years later, making a lot of money for people who have a vested interest in keeping the beliefs alive. Nostradamus did well!

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THE PROPHECY THAT IS KABUL KHAN

Much is made of Nostradamus and his legendary ability to foresee the future. I maintain that much can be made of any vague and obscure piece of prose or poetry. I hereby offer a modest example.

In 1798 Samuel Taylor Coleridge wrote 'Kubla Khan'. I believe Coleridge not only describes the war in Afghanistan, but tells us quite clearly where Osama bin Laden is in hiding.

What is Kubla? Coleridge saw his great vision in a drug-induced sleep. It is obvious that he was referring to the capital city of Afghanistan, an anagram of those very letters: Kabul.

And Khan? Confirming the naming of Kabul, Khan refers to the very man who declared the province of Kabul in 1901 and ruled the great nation as its monarch: Amir Habibullah Khan. Do you really believe the title Kubla Khan can be a mere coincidence given these astounding facts?

In reading the poem, with the knowledge that this is a premonition, we can see with ease the warning we should have received.

*In Xanadu did Kubla Khan
A stately pleasure-dome decree:
Where Alph, the sacred river, ran
Through caverns measureless to man
Down to a sunless sea.*

Never was there a more clear portrait of Afghanistan and its once utopian (Xanadu) capital perched on the sacred Kabul River. The decree from the pleasure dome is a beautifully poetic way of describing the magnificence of the domed mosque, defining the Islamic core as a source of pride and pleasure. And so it was.

Alph, meaning beginning, is a strong detail, the Kabul River being a first stage, a tributary to the mighty Indus River which then flows through Pakistan to the Arabian Sea. Hearing the word 'Arabian' would immediately suggest the Arabian Nights to the literary Coleridge who thus described it as a 'sunless sea'. Even the vast caverns, so much a part of the western image of Afghanistan, are included.

Read Coleridge's description of a fertile valley:

*So twice five miles of fertile ground
With walls and towers were girdled round:*

It is immediately identifiable as the Bamiyan Valley, famously exactly ten miles wide. Can this measure be mere coincidence? There the two magnificent and proud statues of Lord Buddha stood until so wantonly destroyed.

*A savage place! as holy and enchanted
As e'er beneath a waning moon was haunted
By woman wailing for her demon-lover!*

Coleridge saw the destruction of the Buddhas by the Taliban. He heard the wailing of the women so suppressed by that hated regime.

He also saw what happened to the fountain in Push-tunistan Square, which sits at the heart of Kabul.

*A mighty fountain momentarily was forced:
Amid whose swift half-intermitted burst
Huge fragments vaulted like rebounding hail,*

In the words 'momently was forced' and 'half-intermitted'

he tells us of the identifying feature of this particular fountain, which did not flow constantly but was only brought to life for very special occasions. The bombing of Afghanistan has rained fragments upon this great fountain, now standing ruined.

Coleridge's poem goes on to describe Afghanistan's former beauty, but then abruptly states:

*And 'mid this tumult Kubla heard from far
Ancestral voices prophesying war!
The shadow of the dome of pleasure
Floated midway on the waves;
Where was heard the mingled measure
From the fountain and the caves.*

The war had been predicted, just as it happened: an ancient call threatening their beliefs. The Taliban in Kabul are symbolised by the fountain and those in the caves obviously refer to Osama bin Laden and his supporters. Who could deny that the utterances from the dome of pleasure were now seen as a shadow across the land? As Coleridge warns us, the power was not only the Taliban; their voices were mingled with that of bin Laden, over the air waves of radio and television. We, in Coleridge's western world, mingled the two issues until they were inseparable.

So where is bin Laden now? Coleridge tells us as clearly as he could. Indicating a second vision, now removed from Kabul, he writes:

*In a vision once I saw:
It was an Abyssinian maid,
And on her dulcimer she played,
Singing of Mount Abora.*

Abyssinia was the name by which Coleridge knew Ethiopia. Al Qaeda operatives are known to operate there. Its mountainous capital, Ababa (is that what he meant by Abora?), is one of the highest cities in the world.

*That sunny dome! those caves of ice!
And all who heard should see them there,
And all should cry, Beware! Beware!
His flashing eyes, his floating hair!
Weave a circle round him thrice,*

Is Coleridge telling us of the hiding place of bin Laden? In warning us of the danger of the man with 'flashing eyes', he talks of the floating hair, a clear reference to the turban wound 'round him thrice'. And the sunny dome, the caves of ice? The Sof Omar Caves are one of the most spectacular and extensive cave systems in the world. Now an Islamic shrine, representing the true beauty of the Islamic culture, they can be visited with local guides. Access is limited, and no foreign government would dare bomb them; the public outcry from around the world would be justifiably loud. Ah, but what a perfect hiding place.

The warning with which Coleridge concludes his prophecy chills my very soul. For bin Laden has now tasted success.

*And close your eyes with holy dread,
For he on honey-dew hath fed,
And drunk the milk of Paradise.*

Can you still doubt the prophetic truth of Coleridge's dream?

PSYCHIC DETECTIVES

We often hear of psychics who claim to have helped the police solve crimes. We often hear victims thanking the police for all their efforts. But when do we hear of a victim's family thanking a psychic for solving a crime? Never. Maybe there is a good reason for that.

On 19 August 2003, Genette Tate's parents returned, separately, to the site where their daughter went missing 25 years ago. She has still not been found. Britain's longest-running missing child case is that of the thirteen-year-old schoolgirl who disappeared on Saturday afternoon, 19 August 1978, in Aylesbeare, Devon. Nearly 2000 pieces of information were offered up by psychics and mystics. In a case which attracts such huge national coverage, the psychic has much to gain and little to lose. In this instance, however, all they achieved was to waste a great deal of valuable police time. If their actions seem harmless, then consider the words of Genette's father, John, a parent who has suffered the worst of tragedies—the disappearance of a child who was never found.

Many people came to us offering threads of hope. We clutched at them desperately in the early days . . . But the promises of the psychics were all lies. They raised false hopes in us. At times we really believed we were onto something. The suggestions and ideas preyed on our minds . . . But always, when it came to the crunch, the so-called leads and ideas led

absolutely nowhere but into a pit of despair . . .

We soon found that the psychics who came up our garden path were 'foot-in-the-door' types who, once they had wormed their way in, were very reluctant to leave again. They were strong characters who were not afraid to assert themselves. They rode rough-shod over our feelings—which were in a desperate state already. In one week, our emotions and normal grip on life had gone through a wrenching upheaval, and the influence of psychics started to have an unpleasant effect. Even when we didn't want them they were there, on our doorstep, always expecting to be met with an open door . . .

We discovered that the work of the psychics was not just ludicrous and laughable. It was sinister and evil. Once we got into that web of deceit—and that is what it was—we found it very hard to struggle free. None of it ever led anywhere except to despair and disappointment, misery and confusion. We had become enslaved to the suggestions of the psychics. (Melvin Harris, 1986, pp. 39–42.)

The Devon and Cornwall Constabulary Public Relations Officer, Robert Busby, told of the police willingness to accept any help to find Genette Tate. Given the high psychic interest in the case, the police decided to approach the Dutch clairvoyant superstar Gerard Croiset. He went to England and spent a day working with the police, but to no avail.

Given the number of clairvoyants who offer suggestions for every major case you would expect a reasonable hit rate. In his book *Investigating the Unexplained*, Melvin Harris, a broadcaster and professional researcher for the BBC, details his investigations into the claims of some of the psychic detectives widely reported in England. He found nothing indicating clairvoyance. More recently, Joe Nickell sent out a team of investigators to examine the best known psychic detectives, mostly American. Their reports were collected into a single volume, *Psychic Sleuths*. Again the evidence for the claims of the psychics was sorely lacking. In an afterword to that book, psychologist James E. Alcock concluded: 'careful examination reveals no successful crime solving but

instead only tangled webs of misinformation, generalisation, opportunistic credit taking, and, in some instances, probably deceit' (Nickell 1995, p. 173).

Both books acknowledge that the biggest name of all in the psychic detective game is that of Gerard Croiset.

Gerard Croiset (1909-80)

Croiset is still hugely admired the world over. His reputation was greatly enhanced by the public support of Professor Wilhelm Heinrich Carl Tenhaeff, of Utrecht, who held the first chair of psychical research at a traditional university. This gave great credence to Croiset's famous assertion that he helped solve hundreds, if not thousands, of crimes which have baffled police. He also claimed to heal the sick and see the future.

Piet Hein Hoebens, an investigative journalist with the leading Dutch daily newspaper *De Telegraaf*, studied Croiset's claims in depth, having unrestricted access to Tenhaeff's writing. Tenhaeff quotes Croiset as saying he was consulted by the relatives of missing persons on average ten to twelve times per week. That gives 500 per year and over 40 years in the trade. Yet the few famous successes, which don't stand up to Hoeben's scrutiny, are quoted repeatedly. It is essential that any successes are considered in the light of the huge number of failures.

Utrecht Superintendent Th. Van Roosmalen wrote, in the police journal *Algemeen Politieblad*, 9 January 1960, of the time Croiset was contacted by the distraught parents of a fourteen-year-old boy who had disappeared from home. He said he was desolate when he had to offer his sympathy as he pointed to the quay and told the parents that their son had died there. They contacted an undertaker and arranged the funeral. The boy was found alive and well. He had been hiding in a haystack. What a cruel act!

When Hoebens checked claims made by Tenhaeff of Croiset's successes he found many inaccuracies and some

'outright falsehoods'. Tenhaeff had been hailed as the new leader, the first genuine professor of parapsychology, a position which carried enormous prestige. His best evidence lay with Croiset and he had a great deal to lose if that was doubted. How strong a motivator that was for the man Hoebens claims was brilliant in his use of the media we can never know.

These findings have greatly dented the belief in Croiset in his homeland, but there are still many who choose to ignore Hoeben's meticulous research.

The Yorkshire Ripper

Croiset was involved in one of the greatest cases of all, that of the Yorkshire Ripper. Psychics had five years to ply their trade on this one, and many did. Those who were published were checked by Melvin Harris once the murderous spree, which took thirteen lives, ended with the capture of Peter Sutcliffe.

The more famous claimants included Doris Stokes, better known for her stage performances as discussed in Chapter 12. Her image of the Ripper was published in the *Sunday People* of 1 July 1979 and repeated on Tyne Tees Television. She had seen a man of five feet eight inches with a scar below his left eye, called Ronnie or Jonnie with a surname beginning with M, living in Berwick or Bewick. Clean shaven, he had long, straight, mousy hair and was balding. His mother, Molly or Polly, told Stokes he was married but his wife had left him. He had been in a hospital, possibly a mental hospital. Mr Ronnie Metcalf of Berwick Avenue, Sunderland, suddenly attracted unwelcome attention. Looking very much like the published sketch, he also drove a lorry. Police had said the locations of the murders would suit a lorry driver. Mr Metcalf was not a happy man!

Gerard Croiset also had a vision, which agreed broadly with that of Doris Stokes. His description, published in

The Sun, 28 November 1979, supported the long, straight hair and added a limp. The Ripper's home was seen as being in a large block of service flats over a garage. The Ripper had been in a home for disturbed children, according to Croiset.

David Walton and Joan Gricks were both quoted in *Psychic News* as saying the killer sometimes dressed as a woman, while other clairvoyants saw almost every variety of person filling the role.

When Peter Sutcliffe was arrested, every psychic published over the five years was shown to be wrong. A few select statements were taken out of context in retrospect to make ambit claims, but there was little to suggest that any of them had seen the dark, thick-haired, heavily bearded and moustached man, whose appearance hadn't changed for the whole five years and would have had a great deal of difficulty dressing as a woman. Married and living in a large house, he had no scars or moles or any of the other factors which had wasted hundreds of hours of valuable police time.

Australia's Beaumont children

Croiset not only failed in the Genette Tate and Yorkshire Ripper cases, but also flopped spectacularly in the tragic case of the Australian Beaumont children.

In 1969 an Australian committee, desperate to help find the three children, paid Croiset's expenses to come to Adelaide. The Beaumont children had gone to the local beach on a normal Australian summer's day, and disappeared without trace. Croiset was certain the children were buried under the floor of a new warehouse and 40 thousand Australian dollars were raised to have the building demolished. The investigators removed all the soil, to a depth of nearly four metres. Croiset encouraged them to dig a further metre and the bodies would be found. They dug and found nothing.

Why was his reputation not destroyed by such a public failure? Croiset would claim that the Australian authorities

had refused permission to search the spot, a claim which would be denied by the many Australians who will remember the tension as they waited to see if the mystery would be solved while the digging was done. It is still not known what happened to the three children.

Psychics and the American police

And what about the claim that police departments all over America use psychics regularly? Jane Ayers Sweat and Mark W. Durm contacted the police departments of the 50 largest cities in America, and reported their findings in 'Psychics: do police departments really use them?' Finding no support for the claim, they concluded: 'One could argue that the psychics pander to and patronise the police but in the end prove to be parasitic. In some instances . . . they may even hinder the investigations' (1993, p. 158).

The police are obliged to follow any lead offered. They are also human and naturally very keen to find the criminals and do the very best by the victims. It is not only the victims who are exploited by the clairvoyants but the police as well.

Become a psychic detective

The next time there is a widely publicised missing person's case make your clairvoyant claim loudly, dated, witnessed and signed by all and sundry. The missing person, you claim, is dead. Unfortunately you have a very good chance on that. Add that the body will be found buried in a shallow grave in open country or a lightly wooded area. Murderers tend not to leave bodies in populated areas, nor take time to dig deep graves. Add some other clue which can be reasonably deduced from the family situation. Then mention an image of water. Try to avoid specifying whether the corpse is in the water, or near it. That allows for a huge range in interpretation.

But please don't send it to the police. They are already inundated with the guesses of clairvoyants willing to exploit people who are at their most vulnerable.

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DIY TELEPATHY

Johnny can see through Freda's eyes. As part of the audience, he will tell you what she is looking at when he is clearly unable to see it himself. Johnny will be blindfolded. An audience member checks the blindfold. There is no way he can see. He has his back to us—in fact let's put him in another room. Another building. Another country.

Freda is in the lounge room with an ordinary family. She has never met them before. They all agree she has never been in this room before. After greetings and assurances that Freda is a total stranger and they have never met Johnny, the presenter asks her to begin transmitting. She will look at items and Johnny will be able to tell you what she is looking at. Amazing!

'It doesn't always work,' says Freda. 'We have never transmitted over such a distance before and so we are taking a bit of a risk. But we'll do the very best we can.'

Freda looks at the TV set. Her face is a picture of concentration.

'What am I looking at, Johnny?' she asks.

'Can you look at it harder?' he replies.

Freda asks everyone to keep still. She is having trouble concentrating enough to transmit strong signals over the distance. Everyone is silent. Tension grows.

The camera moves to Johnny. His brow is furrowed above the blindfold.

A pause and then he tells us: 'The TV!'

The family applaud. We applaud. Freda looks relieved. The presenter is amazed.

Freda turns to a chair and adopts a concentrated gaze.

'And now?'

'A chair.'

'What's in front of me?'

'A woman. Older age group.'

'Next?'

'A young man.'

'How many people are there?'

'Seven'

'See the green thing over here.'

'It's a door, but it looks black to me.'

Great applause and laughter. Freda laughs. She hadn't tricked him.

'How many dogs?'

'I can't see any, Freda—are you tricking me? I won't be able to trust you soon.'

'Yes, Johnny. It was worth a try!' and they all laugh.

There is no way Johnny can know. Is there? He must be seeing through Freda's eyes or picking up some form of psychic transmission from her.

Unless you can think of another explanation? Can you? Would you be convinced? Maybe you would if I give you this checklist which Johnny has memorised.

Telepathic memory aid

At	TV	How many (item)	None
Now	Chair	How many ... here?	One
Front	Older woman	How many ... in ..	Two
Next	Young man	How many ... over	Three
Here	Glass	How many ... have	Four
There	Dog	How many ... do	Five
Up	Fan	How many ... will	Six
Down	Table	How many ... there	Seven
What's this?	Window	How many ... (cough)	Eight
Over here?	Door	Now how many	Nine

What colour am ...	Red	Tell me the colour ...	White
What colour is ...	Blue	Can you tell ...	Yellow
And what colour ...	Green	See this green ...	Black

Enough key words for you? Johnny is perfectly capable of managing plenty more, especially with lots of practice. Johnny is blindfolded. He really can't see a thing. But he can hear.

So can you. Many stage 'psychics' have convinced audiences with this trick. If they were performing as magicians I would be delighted and silent. As they are using this trick to convince vast audiences of the reality of their paranormal powers, I feel obliged to reveal it. Anyone can be telepathic if this is all that is needed.

PSYCHICS ON STAGE

Uri Geller may have psychic powers by means of which he can bend spoons; if so, he appears to be doing it the hard way.

(James Randi, 1995, *An Encyclopedia of Claims, Frauds, and Hoaxes of the Occult and Supernatural*, p. 106.)

James 'The Amazing' Randi is a professional magician. He has taken an intense dislike to those he considers abuse the magician's trade in the guise of psychic powers. Most firmly in his sights has been former magician Uri Geller.

Born Randall James Hamilton Zwinge in Montreal, Canada, in 1928, Randi was bored at school and, despite his obvious academic ability, did not finish high school. Mostly self-educated, and painfully shy, he left home at seventeen to join a travelling show. As Prince Ibis, he was able to overcome his fear of facing an audience and use the skills he had taught himself as a child to make a living as a mentalist and magician. Randi was horrified to find that people believed he really could read their minds and predict the future, despite assuring them it was merely a conjuring trick.

Randi specialised in dramatic escapes. One performance, escaping from a straitjacket while suspended over Broadway, catapulted him onto the top television shows and nightclubs in America and eventually all over the world.

Having conquered the challenge from a couple of policemen to escape from handcuffs, he then accompanied the bemused officers to the police station. Left in the cells, stripped to his underwear, cuffed and shackled, he called

them back 20 minutes later to show them a fully dressed, freed magician, the cuffs and shackles neatly folded beside him. The *Quebec Solé* headed an article the next day: 'The amazing Randi escapes from the Quebec prison'. Randi retained the adjective and the misspelling of Randall, and performed as The Amazing Randi from then on.

A frequent guest on Johnny Carson's *The Tonight Show*, Randi was called in when Uri Geller was to perform. As Geller was claiming genuine psychic powers, Randi advised the producers how to ensure he was not using magic tricks. Under the resulting strict conditions, Geller's powers failed him. Joining with authors and academics with similar concerns about the proliferation of what he considered fraudulent claims, Randi helped found CSICOP, the Committee for the Scientific Investigation of Claims of the Paranormal, in 1976. The modern skeptical movement was born.

As a magician I had a pretty good understanding of how people are fooled and how they fool themselves. I was sufficiently angry and dismayed at the fact that so many people were being hornswoggled, and that the hornswogglers were using the same techniques I was using as a magician, but saying they had genuine 'powers'.

(Michael Shermer, 2001, p. 39.)

Randi went on to battle Geller over the years. His book, *The Truth About Uri Geller*, caused legal battles and heated arguments. It also launched his career as a writer. Randi still travels the world and fights against the misuse of the magician's art, along with many other causes he sees in a similar fraudulent light.

So what are some of the magician's tricks which have been exposed as being used by those claiming psychic powers? Hopefully this chapter will help you judge those which claim powers they do not possess. If a magician can do the trick, and it is performed on a stage, then it is probably pure conjuring. We need to look beyond these trivialities to find genuine psychic powers.

Bending spoons and keys

One of the most popularly accepted psychic skills is to make metal warp. Because it is so widely presented as a truly psychic gift, the methods should be revealed. The underlying physics is described in Chapter 18, 'DIY bending spoons'. There are two key approaches.

First, just bend the spoon. Some distraction is created and the magician bends the spoon, displaying it later, with flair.

The second method is to fatigue the metal first. Metallic bonds are broken by repeatedly flexing the spoon, which is thus weakened and ready to bend and break on command. An expert magician can hide and produce spoons at will. More often, they are among a mass of tableware available to the psychic to extract the desired implement.

Bending keys works in the same way. They are much easier to bend than you would expect and slight bends, caused by struggling with locks during normal use, go unnoticed. Then someone on the stage claims to have bent the keys in pockets and you withdraw one to note, for the first time, it is skewed. Credit is given to the psychic rather than the difficult lock.

Spoon bending is done either in person or a TV studio. When physically present, you are distracted by the presentation and won't be given a second chance to 'watch the other hand'. Watching a video of the TV show isn't a lot of help either. The camera operators are also distracted and the psychic is not in full view at all times. Repeats or clear videos are hard to come by. You need to be prepared to watch the hands with the spoon at all times. Don't be distracted.

Moving compass needles

There is only one thing which will move the delicately balanced compass needle without touching it and that is a magnet. The compass needle is a magnet itself, balanced lightly so it can turn and align with the Earth's magnetic

field. To move it, you need another magnet.

Psychics who move compasses 'with the power of their minds' use very small, rare earth magnets. These are very much stronger than those which come readily to mind—the bulky magnets of our school days.

The magnet can be hidden between fingers to move the compass. When the psychic moves close, concentrating with strained expression, urging the needle to move, within his clenched fist is the small magnet which is doing the work. Some are more subtle, having the magnet concealed in clothing, under the table, strapped to a knee or in a shoe. Or a convenient confederate may move close to observe. Presto! The compass moves!

Resisting the pain of fire and ice

A favourite with Indian god-men and psychics on stage is the ability to withstand pain. Fire is brushed over the bare skin and arms are held in buckets of freezing water. Don't try this at home!

A graphic description convinces you of the pain, but the truth is that the pain is not terribly painful.

The fire is usually generated by kerosene on wads of cotton. This flame is 'cool'. When passed over bare skin it will not burn. Moving fire does not have time to pass on sufficient energy for the skin to burn.

A bucket of ice is produced and you are reminded that ice can burn. The first time, the audience member is told it will burn and to remove the arm as soon as it hurts. They do. The second time, the psychic helps with healing warmth, and the victim can stay arm-in-bucket much longer.

Psychologically, people will feel pain more when told something is going to hurt, and less when told they will feel it less. Hence the first immersion, when you are told you are not being protected by the psychic skills, will feel more painful than the second, when you are under the guardianship of the psychic's gift. By the second immersion some

of the ice has melted, especially under strong stage lights, so the ice is surrounded by water. The skin has already experienced the cold once so takes longer to sensitise, so the psychic's 'help' is really a blend of psychology, physiology and physics.

Starting watches

Another perennial favourite is the ability to start dead watches, even beyond the constraints of the TV studio. Here we draw on the wonderful 'Queen of the Sciences'—mathematics. Statistically a given percentages of 'broken' watches will start again, if only briefly, when handled. Many have merely stopped due to grime in the workings. Out of the thousands in the audience, it can be guaranteed that some will start and they will call it out loud and clear.

Phone polls of those watching the show can be guaranteed to cause a string of ringing bells as the very small percentage of watches needed provides the impressive feat of starting watches over fantastic distances.

In the hands of a skilled magician, watches can change time instantly, start, stop and even flip dates. If the psychic handles the watch at any time, then anything is possible. I've seen the 'The Amazing Randi' manipulate a watch, and nothing about a timepiece will surprise me again.

Blindfolded yet seeing

Magicians can do a great deal when blindfolded, including see. The first to drive blindfolded did so guiding a horse and cart. Washington Irving Bishop (1856–89) also started the practice of a magician performing as a psychic—a far more profitable career. He was also one of the first to use the claim of testing by scientists as a promotional spin. Like those who would follow this trend, he ensured the testing was done according to his design.

Kuda Bux (1905–81) was a Kashmiri mentalist billed as 'The Man With X-Ray Vision'. He drove cars, shot rifles, reproduced handwriting and drawings and famously rode a bike down New York's Broadway—all while heavily blindfolded. Attracting international attention while trotting across pits of burning embers, Bux is claimed by the psychic believers as one of their own. Magicians claim him as well.

Martin Gardner, in his article 'Dermo-optical perception', gives a fascinating account of people alleging vision through paranormal means while blindfolded. Over the years there have been many famous cases, often of women and young girls. This may be because females were considered less likely to be able to deceive and the testing may have been less rigorous. Some of the tricks exposed when testing these claimants are explained below. There are much more sophisticated techniques than those described here which are in the domain of the professional magicians, where they should remain.

When a blindfold is applied, it is almost impossible to block out the small 'peek space' along the nose. Mostly, you get a glimpse of your feet, but it is a space which can be well used. If you are sitting at a table, that space is much more significant because the closeness increases the area of horizontal surface visible. Using distraction techniques, glimpses of objects can be made.

The innocuous movement of rubbing your forehead allows the mask to be lifted slightly at a strategic moment. Nodding in reply, scratching or laughing allows a slight lift of the head, momentarily increasing the field of vision. If the psychic provides their own mask, then there are designs incorporating strategically placed holes and methods to reduce the opaqueness after the check by the audience member.

Some claimants tape objects over their eyes, theoretically eliminating the possibility of gaining a peek. Pressed firmly against the object, the tape will lift the coin or wad of cotton wool from the eyes under the blindfold, often increasing the peek range.

Hidden messages

A popular trick is to read messages (billets) hidden within envelopes. A group of people are asked to write out questions which are then read paranormally by the spiritualist, telepath or channeller.

Placing the first envelope upon his forehead, or reading it from a distance, the psychic is able to respond to the question before having sighted it. He then takes the envelope, opens it and reads out the question, asking the audience member to validate his response.

One technique is the 'one-ahead' method. The performer first responds to a question belonging to a confederate in the audience. When the envelope is opened to check the confederate's question, it in fact contains the next question, a genuine one. The performer announces the question belonging to the confederate, who nods with apparent astonishment. Meanwhile, the performer has read the next question and proceeds to respond to it. The envelope held against his forehead does not contain the question he is dealing with—that has already been read and discarded. So the performer is always reading one question ahead of the answer being given.

In some cases, the billets are retained by the audience, while the pads handed out in advance are collected. The imprints on the next page of the pads can be read by assistants and the messages passed to the performer through tiny earphones from backstage or when an assistant has some reason to approach.

Psychic portraits

A convincing stage trick is to draw a detailed portrait of the loved one who has passed over and find the audience member who recognises the voice from beyond. The portrait tends to come attached to reassuring words about the after-life and a few cold-reading-type generalities.

These portraits are done of the elderly, children or babies, on the whole, although some manage success with fairly nondescript middle-age images. The distinctive features are less pronounced in the very young and old. Hairstyles, in particular, tend to be fairly similar. It is almost certain that someone in the audience will see the likeness and be convinced this is their dear departed on canvas, especially if they are very keen for the reassurance on offer. Just as unusual names are not used unless the psychic has prior knowledge, so unusual features do not appear in the portraits unless there has been access to prior knowledge. It is not unusual for a person to include a named photograph of a loved one who has departed when booking for a show. They feel this will enhance the chance of the psychic making contact. This touch can then be exploited and is not revealed during the show. One very strong hit then gives credibility to the vague ones.

The hot foil trick

A scrap of aluminium foil is crumpled and given to an audience member. The psychic or medium then transfers energy to it by paranormal means. It becomes very hot. Too hot to touch at times, and it is dramatically dropped to the ground. The psychic powers are strong! In fact, it is the powers of chemistry that are strong. The trick is to rub a chemical onto the aluminium foil when it is being crumpled and handed to the audience member. The chemical induces rapid oxidation of the aluminium, a reaction that gives off heat. In the past, the chemical was often a dangerous salt of mercury. Reputable magicians no longer use this trick, but some stage psychics and gurus have been known to do so.

Reading minds and signals

There are so many ways to do mind reading that many magicians create entire acts based on it. If you see a

convincing psychic reading minds, then make sure you also see a mentalist performance before you make up your own mind about what is really possible using the magician's art.

Those using these tricks and claiming to be psychics often rely on a confederate. Some have imaginative reasons for an associate to be on stage, ranging from needing a translator because they don't speak the language to needing someone to explain what is going on to the audience, because the psychic is so busy being psychic. In other cases, stage assistants are employed in that role. Contracts may include clauses and penalties should the methods be revealed.

Confederates also sit in the audience sending subtle signals with slight movements which are meaningless to others. A twitch or a cough can convey a host of clues.

Any equipment, from cards to envelopes, can be rigged in ways the uninitiated will never guess. Mind reading is highly entertaining when done by a magician but fraudulent when presented as a genuine psychic event.

Heart-stopping trances

The guru is going into a trance to contact the dead or channel a spirit guide. You check the pulse on his wrist. It is strong. As he goes into a trance you are allowed to check it again. It is becoming faint. When he is clearly totally in the trance you find there is no pulse at all.

This trick is often used by gurus in India, and the group known as the Indian Rationalists are keenly demonstrating the methods as they battle the charlatans who prey upon the poor and uneducated all over India. The trick is easily done. It merely requires a small ball of cotton wool or piece of fruit taped under the arm. When squeezed in the armpit, the pressure blocks the blood flow to the arm and the pulse is stopped. It is only done for the short moment the pulse is actually being read, so is quite harmless.

Conclusion

It is a common call of psychics that they have been 'tested' by scientists. It does not impress me and I apologise to the scientific fraternity for saying so, but they are not good at debunking psychics. Scientists are trained to test Nature. She does not lie and cheat. She often confuses, disguises and, certainly, confounds with overwhelming mysteries, but she does not deliberately deceive. As Einstein said: 'Nature hides her secrets through her intrinsic grandeur but not through deception'. Magicians deceive. But they are honest deceivers, never claiming any skill beyond deliberate deception. Those who use the magicians' tricks, but claim their deceptions are the truth, are committing fraud.

To debunk fraudulent psychic performances you need skilled magicians. They are trained in the art of deception. My training is in the sciences. I am very little use in investigating claims of the paranormal. If someone swears to my face that they are bending the spoon by psychic means, then I want to believe them. I am, by nature, gullible, although I prefer the term 'trusting'.

The magicians who debunk claims of the paranormal are essential partners to those of us with a genuine interest in the supernatural.

Removing the trickery from claims of psychic ability will benefit anyone who has a serious interest in research into the paranormal. The frauds not only discredit the entire paranormal field, but waste the valuable time of those in parapsychology who are genuinely searching for evidence of psychic abilities.

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DIY BENDING SPOONS

The time is ripe for you to bend the odd spoon. The trick is done by applying simple physics and nothing more. Performing it well is another issue.

Psychics' skills, they say, are unreliable and so may not always work. They ask their audience to help. Concentrate, they ask you, and let's see if, together, we can release the powers to mould the metal. Hence blame for failure rests with the audience. Success validates the psychic.

Some long-winded explanation incorporating these ideas should introduce your trickery. Skilled magicians use more sophisticated methods than those described here and can be astoundingly convincing even close up.

Unprepared spoons

The simplest way is just to bend them. You need some way to distract the audience and then swiftly bend the spoon. Here's a few ideas.

If seated, you can use the adjust-your-chair technique. The simple movement of adjusting your chair is one no one notices. Having displayed the unbent spoon, hold the bulb in your palm with the handle horizontal while you talk. Patter on with your explanations about not being sure if it will work and needing to concentrate. During the patter, adjust your chair to get into position to concentrate on the spoon. Keep waffling.

Having bent the spoon on the chair frame, continue to hold the bulb of the spoon in your palm with the handle horizontal. Slowly rubbing the spoon with the other hand, move your pressure down into the bulb and allow the handle to rise. The spoon appears to be bending as the handle rises from the vertical. Don't hurry! Eventually you can expose the whole bent spoon. Tell the audience they can watch it bend still more, and they will 'see' the bend increase, although nothing more is occurring.

Should you be standing, one method of distraction which works well is to give a member of the audience a spoon to bend as well. Have them hold it the way you do, taking time and attention to ensure they get the position just right. Demonstrate how to rub the spoon with the forefinger as you are doing. At some stage, point to their spoon with your rubbing hand to indicate where they should rub and where the bend should appear. While attention is focused on your pointing finger and the audience member's spoon, bend your own spoon against your hip or belt buckle with the other hand. Keep talking until your spoon has been back in place for a while.

Holding the spoon by the bulb with the handle horizontal, slowly allow it to rise as you rub, still referring to the audience member's spoon and comparing the two. Eventually expose the entire bent spoon. Your non-psychic assistant will have failed completely.

The more you practise and the better your patter, the more convincing your presentation will be. Never perform before you have mastered the illusion.

Prepared spoons

To prepare your spoon, bend it back and forth about the weak, narrow spot in the neck repeatedly. You will feel it get very hot very quickly. This is the process of fatiguing the metal and breaking the metallic bonds. At some point, which you will soon learn to recognise having destroyed half a

dozen spoons in the process, you will feel the spoon crack. It will be on the verge of breaking. This is the point at which you stop; your spoon is now prepared. (Do not start your patter with 'Here is a spoon I prepared earlier'!)

If you bash the spoon loudly on the table, it will not break and will give the impression of being strong. However, under pressure on the crack, it will soon snap. Hold the prepared spoon with your forefinger and thumb over the break point. With the other hand, hold the spoon by your finger tips. Gently start to bend the spoon back and forth. You will soon feel the spoon crack and break in between your forefinger and thumb. Don't react. Just go on with your patter as you get comfortable with the feel of the 'bending' spoon, slowly increasing the movement.

Draw attention to the fact your spoon is bending and be surprised and pleased it is working. You can make the movements quite smooth and it appears the metal is going soft. Don't hurry.

Comment on the heat generated by your psychic energy and the molten nature of the metal. Turn your hand so the spoon is now horizontal. Holding it very gently, shake it. The broken spoon will start to droop, looking very much like it is bending.

Suddenly drop the spoon, declaring it is too hot to hold. Ensure you keep pattering on to give the spoon time to 'cool' should anyone feel inclined to check your lies. Pick up the spoon and compare it to the unbent spoon of the audience member. Your psychic powers have astounded yet again.

Once you are confident with these techniques, you can embellish them and add your own flourishes. Some 'psychic' performers have been using the same illusion for years and years and it continues to be believed as real. Sad, isn't it?

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UFO ENCOUNTERS OF THE FIRST KIND—SIGHTINGS

What if you looked out the window one night and saw a huge, black triangular craft, floating silently overhead? About the size of a football field, it blocks the stars. You watch it for over ten minutes. I mean, what if you seriously, fair dinkum, really, really, truly did see it? Who would you tell?

You ring the military and they say no such thing appeared on the radar. 'Why don't you ring one of the UFO organisations?' they suggest politely, with barely a hint of a snigger.

This has happened to many people and they may well be the victims of a cover-up. The craft really did exist and it probably didn't show up on radar. The military did refuse to talk about it. But the cover-up isn't of extraterrestrial visits to our planet. There are many crafts in our skies which we, the general public, are not told about. Commercial and military secrecy abounds.

Although there are rational explanations for many of the UFO sightings, others are left as 'unexplained' and the ufologists claim this is evidence of the existence of alien craft in our skies. There is always the possibility that this is the case.

Before accepting an alien source as the explanation, however, it is essential to consider the more likely, less exciting, possibilities.

Many UFO sightings are the result of the inability or unwillingness of authorities to explain reports because this

would release information that is confidential for commercial or military reasons. In many cases, the report lacks sufficient detail to be identified, is totally imaginary or, frustratingly, is just another of the many hoaxes.

A UFO is an unidentified flying object. Unidentified does not mean alien. It means we haven't formally identified the source of the object or image.

Venus, strange weather patterns, clouds, balloons and high-altitude kites are all given as explanations. But what do they actually mean? How can Venus look like a UFO?

Are there aliens?

Given the several hundred billion stars in the Milky Way alone and then another hundred billion galaxies, give or take a few, and the possibility of planets around each one, there is a reasonable probability that we are not alone in this universe. And of the other life forms, there is a pretty good chance some are intelligent and able to communicate with us. It is one of my most sincere wishes that I am still alive when they do.

Encounters of the ordinal kinds

Let's start by getting the terminology under control. Dr J. Allen Hynek first categorised encounters according to three kinds, then the fourth and fifth were added by later investigators.

- An encounter of the first kind is a sighting of an alien craft. These sightings are explored in this chapter.
- The second kind involves physical evidence of the alien craft, such as a landing site, damage to plants or vehicles or frightened animals (see Chapter 20).
- An encounter of the third kind involves an actual sighting of, or contact with, the aliens (see Chapter 21).

- The fourth kind involves an abduction, where a human is taken aboard the spaceship and interacts with the aliens there (see Chapter 22).
- A fifth kind has been defined as the implantation of an alien–human hybrid (see Chapter 22).

Reality check

It is claimed that many governments are working overtime to keep knowledge of alien contacts from us. Given the way governments leak, especially at election times, and the huge numbers of people from all sides of politics who would have to agree to keep these secrets, it is difficult to believe. Any one of these people could sell the story for a fortune to the media. This is a conspiracy theory which is very hard to justify given the 50 or 60 years the secrecy would have had to be maintained.

Why are the governments so keen to keep it from us? The main reason given is the fear of mass panic. Think what happened, they say, when Orson Welles's radio dramatisation of H.G. Wells's *The Invasion From Mars* was played on Halloween night, 1938. Thousands panicked and fled their homes in terror.

That's a distortion of the facts. In reality very few panicked that night, but the film made of the panic showed the thousands. Governments do not maintain such monumental secrets because of the fear of a repeat of a fictionalised event.

A second common reason given for the cover-up is that the government is exchanging technology with the aliens and wants to maintain the secrecy to give a military advantage. Again, given the huge number of people who would need to know and have maintained the secret for so long, it is very hard to believe. More importantly, this secrecy is claimed to have begun in the middle of the last century and not a single device has emerged equipped with any technology which does not have a well-documented, Earth-bound

source. Given the rate of technological advance, 50 or 60 years indicates an inordinately sluggish research program. It is time to ask whether such justifications for a conspiracy can still be considered rational.

Close encounters of the first kind

By far the most common UFO reports are sightings of unidentified craft or lights in the sky. Many reports are generated by hoaxes, frauds and practical jokers, mentally unstable people or those willing to fabricate events due to a deep-felt desire to be part of the UFO phenomenon. If you want to create a fine UFO photograph, stick a coin to a window and photograph it, making sure the background is in focus, not the coin. It is unfortunate for those organisations sincerely interested in searching for the truth that they have to contend with so many reports before they can identify the few which justify their time and effort.

Genuine reports are those in which the individual involved could not explain something which they truly witnessed. These objects are 'unidentified' because the observer was unable to detect the source at the time. After many years of solid research by amateur, military and academic organisations, there has evolved a long list of explanations which need to be eliminated before an alien origin is worth considering.

The first flying saucer

The first case of a UFO creating media frenzy was that of Kenneth Arnold on 24 June 1947. A businessman and amateur pilot from Idaho, he was flying in unfamiliar territory in the Cascade Mountains, Washington State, USA. The goal was the reward of \$5000 for locating the crash site of a Marine Corps C-46, so Arnold was scanning the mountain-side from over 2000 metres up. On returning for a second

scan, he was blinded by light. In the clear sky, he counted nine bright objects flying very fast about 20 kilometres from him, beyond the peak of Mt Rainier. Each with a boomerang shape, they appeared to be performing complex manoeuvres in formation.

Arnold observed the objects for over two minutes and then landed at the Yakima airfield, reporting the sighting to the General Manager there, Al Baxter, thinking they were possibly secret testing of military aircraft. Returning to Oregon, Arnold was shocked to be confronted by a media throng eager for a story. In his response, he said the objects moved 'like a saucer would if you skipped it across the water'.

The name 'flying saucer' was born. Over the next few months an unprecedented number of flying saucer reports flooded the media.

So what does a reader do with Arnold's description? Would you think about the weather? There is no information about the weather conditions, and hence whether the sighting could be a mirage reflection of the cascade mountains in an inversion layer. Very few people have heard of inversion layers, let alone mirages created by them.

Would it occur to you to check out Mt Rainier? It is a dormant volcano which has associated cracks and fault lines. Pressure build-up beneath the Earth's surface can cause 'Earth lights'—bursts of energy which can appear as flashes of light.

Would you think to check out the nearby Moses Lake, only 120 kilometres away and the regular location for testing of missiles?

A widely accepted explanation is that it was a flock of birds, a surprisingly common source of UFO reports. Would you have considered an avian explanation? Flying in formation, manoeuvring as birds do and capturing the late sun, all in an unfamiliar setting for the pilot involved, this fits all the facts as given in Arnold's report.

It must also be remembered that pilots flying higher than usual without oxygen can become disoriented and see

images distorted by their brain. Again, the exact altitude and Arnold's own response to reduced oxygen would need to be known.

He may have seen alien craft, but the evidence is not there, nor is there sufficient data for us to ever know for sure.

Air Force involvement

The government bodies responsible for accepting UFO reports from the public are the Air Force in America and England. In Australia, the Air Force has now ceased involvement. Their official policy on UAS (Unidentified Aerial Sightings) as provided by their Community Relations section, states:

The Royal Australian Air Force (RAAF) formerly had a responsibility for investigating and assessing the validity of UAS. After careful examination of the factual data and historical records that have been gathered over many years, it was determined that the collective evidence did not warrant the continued allocation of resources by the RAAF to investigate and report on UAS. Subsequently the RAAF ceased this function.

Current Defence policy on UAS where members of the public may have questions on, or seek to report sightings, is to direct them to their local police authorities or civil Unidentified Flying Object (UFO) research organisations, through the relevant state telephone directory.

The Ministry of Defence for the British government ran a UFO desk manned by public servants, such as Nick Pope, who recorded his conversion to believer status, despite the obvious displeasure of his senior staffers. His book *Open Skies, Closed Minds* documents his time on the job and subsequent rise to hero of the ufologists. It is a fascinating read.

The US government was responsible for investigations into UFO reports. In 1969 the US Air Force closed down the

Project Blue Book office which handled American sightings. The University of Colorado was commissioned by the US Air Force to perform a detailed investigation which is published, in all its technical detail, under the title of *The Scientific Study of Unidentified Flying Objects*, edited by Dr Edward U. Condon. This report concluded that there was no evidence of extraterrestrial sightings, visits or other extraordinary phenomena.

The existence of government facilities for investigating UFO sightings does not give government validation to the existence of extraterrestrial visitors. It merely gives validation to the existence of UFO reports.

Unidentified aircraft

Think about Boeing's Stealth Bomber, the B-2, with its deadly, huge triangular wing which is so famously difficult to detect by radar. Now think about all the prototypes constructed by Boeing in the development stages. The B-2 might now be familiar, but there's the Boeing Bird of Prey, a top secret development with first pictures officially released late in 2002. From underneath it looks like nothing you would have seen before. The prototypes flew out of the famous UFO-sighting Mecca, the US Air Force's highly secure Nevada test site: Area 51.

In fact, over 50 years there have been many 'Flying Wing' designs and prototypes which never made it into production and hence into general knowledge. German aircraft designers Reimar and Waltar Horten developed a flying wing for the Luftwaffe towards the end of World War II. Delta and other flying wing shapes were being tested in the USA from the 1930s.

Think of the number of necessary test flights since that time. Then think of the secrecy surrounding them. Are you still surprised there are thousands of sightings of large craft which cannot be identified and whose very existence is denied by authorities?

Lighter-than-air technologies

More surprising to most people would be the prevalence of lighter-than-air vehicles, including balloons and blimps. Lighter-than-air vehicles have been capable of large payloads and endurance feats from early in the twentieth century. The familiar zeppelin has been replaced by the much less familiar lighter-than-air surveillance platforms.

Lockheed Martin has been involved in the development of: 'an unmanned lighter-than-air vehicle that would operate above the jet stream and above severe weather in a geostationary position to serve as a telecommunications relay, a weather observer, or a peacekeeper from its over-the-horizon perch'. This thing can carry a '4000 lb. Payload' according to Lockheed Martin's website www.lockheed-martin.com. And it is the cigar shape so often described in UFO reports.

Now think about the development and testing of this craft. It must have been near ground initially. People must have seen it. This is not a recent development. The website says:

Lockheed Martin NE&SS-Akron received its first production contract for a lighter-than-air vehicle, the rigid USS Akron airship, in 1928 from the U.S. Navy. Since that time, the Lockheed Martin unit has built more than 300 airships and several thousand aerostats.

And they all needed testing—the failed designs as well as the successful ones. So did the craft from other companies testing hovercraft, aeroplanes, helicopters and a myriad other vessels which didn't make it into production. Model plane makers and aviation hobbyists are forever mucking about with flying shapes of all kinds. Someone in a neighbouring field will quite rightly claim: 'it's unlike any plane I've ever seen'.

A quick look at the Boeing and Lockheed Martin websites will show you aircraft most people have no idea exist.

Lockheed Martin, among other companies, are claimed to have taken great interest in stealth blimps—huge airships—thought to be triangular—which could carry troops and their tanks into war zones.

Advertising blimps often fly over cities and can catch the light in unusual ways. Silent, and sometimes adorned with lights, they are often responsible for UFO reports from frightened watchers.

They don't always look like planes

A plane or blimp viewed from the front, travelling towards the observer, will appear to be disc shaped and hovering. When it changes direction, the craft appears to have suddenly taken off from a hovering mode.

The early days of jumbo jets caused many UFO reports around airports. Even experienced pilots can be confused by an unusual angle of observation. There are many cases of observers refusing to believe such a simple explanation when confronted with irrefutable evidence of the reality of what they've seen.

In fact, the likeness to UFOs has been exploited by the US Air Force. In their own report about the famous Roswell incident, *The Roswell Report: Case Closed*, they wrote:

Modern polyethylene balloons, some as long as several football fields when on the ground, expand at altitude to volumes large enough to contain many jet airliners. Polyethylene balloons flown by the U.S. Air Force have reached altitudes of 170,000 feet and lifted payloads of 15,000 pounds.

During the late 1940's and 1950's, a characteristic associated with the large, newly invented, polyethylene balloons, was that they were often misidentified as flying saucers. During this period, polyethylene balloons launched from Holloman AFB, generated flying saucer reports on nearly every flight. There were so many reports that police, broadcast radio, and newspaper accounts of these sightings were used by Holloman

technicians to supplement early balloon tracking techniques. Balloons launched at Holloman AFB generated an especially high number of reports due to the excellent visibility in the New Mexico region. Also, the balloons, flown at altitudes of approximately 100,000 feet, were illuminated before the earth during the periods just after sunset and just before sunrise. In this instance, receiving sunlight before the earth, the plastic balloons appeared as large bright objects against a dark sky. Also, with the refractive and translucent qualities of polyethylene, the balloons appeared to change colour, size and shape. (James McAndrew, 1997, *The Roswell Report: Case Closed*, pp. 40–1.)

Many top secret military exercises conducted at night have then been reported as alien landings. Harriers can hover and manoeuvre unlike any previous craft. It would be understandable that someone seeing these craft in the prototype stage could conclude they were beyond mere human creation.

It is impossible to imagine a more stereotypical flying saucer-like craft than the double-disk-shaped Viking Project space probes tested from Walker AFB. The drawings of a large triangular craft provided by UFO witnesses are identical to a sketch of the experimental tethered 'Vee' balloons. Not surprisingly, witness drawings of alien craft, such as those reproduced in the best-selling UFO book, *The Truth About the UFO Crash at Roswell*, look amazingly like these experimental balloons.

The majority of sightings seem to be, not surprisingly, clustered around military bases all over the world. Many witnesses will report the same sighting, but military sources will claim ignorance of it. Another conspiracy is born. Surely it suits the military to have anyone reporting the secret testing labelled as a 'UFO nutter'?

On 5 January 2000, for example, four police officers and more than a dozen others witnessed a large, silent, black triangular object flying low over Highland, Illinois, near the Scott Air Force Base. The multiple, reliable witnesses

indicate the sighting was real. The UFO interpretation, however, is much less likely than the probability that they were sighting a test vehicle being developed secretly for the army. There is a strong military advantage in ensuring the enemy don't know you can transport troops into a war zone in a newly developed silent blimp. If these are, as many suspect, stealth technology and nuclear powered, then there is even more reason for secrecy. The public aren't too keen on nuclear technology, in prototype, being flown overhead. And they won't appear on radar screens.

Commercial secrets are protected just as much as military ones. We have a 'cover-up' of huge proportions, a real conspiracy of silence, but not an alien in sight. With all these aircraft being tested and launched it is astounding there are so few UFO reports.

Weather balloons

There are many balloons in the atmosphere recording weather conditions. They are numerous, metallic and reflect light in peculiar ways. Most people are unaware of their existence. In unusual weather conditions, seen through mist, observed when being tested at ground level or crashing to earth, and in a myriad other situations, weather balloons are responsible for a significant proportion of UFO sightings.

Then there are other balloons up there: those for spying. And that gives a good case for a cover-up. A well known case is called the Roswell Incident. When reports of alien bodies were linked to the finding of a crashed balloon, a legend was born. The story is told in Chapter 21.

Weather conditions—mirages

We were driving along the road and this bright light appeared in the sky. It was silent and followed us. It was eerie. Definitely tracking us. Around the edges were flashing

colours. We watched it for many minutes. It wasn't a quick glimpse, and everyone in the car saw it. John is a policeman and Marylyn is a nurse. I am a scientist. So we are reliable witnesses. It followed us for ages, and hovered when we stopped to get a closer look. We took a photo. It is a bit blurred but you can clearly see the light in the sky. Then it suddenly disappeared. I've never seen anything like it in my whole life. I was skeptical until this, but now I have seen it for myself and I know what I saw.

The sky was clear, so it wasn't a reflection off clouds. There were planes flying in the area that day and none of them saw the UFO. It just hung there in a clear blue sky. We checked with the Air Traffic Controllers. So did the newspaper. Nothing had shown up on their radar.

We weren't imagining it. There's nothing else it could be—we really saw a UFO.

Confronting this hypothetical story, what is your response? Everything Jean said is exactly what happened and she is convincing because she is convinced. Everything is absolutely certain except the last sentence. What they saw was a UFI—an unidentified flying image.

Such lights were reported by a number of observers between 21 May and 24 May 1983 in the Bendigo area of Victoria, Australia. The media frenzy included newspapers, television and radio. A follow-up report from the RAAF (Royal Australian Air Force) received a small paragraph or two inside a few newspapers. Most people, bombarded with news of the event, would not have noticed the explanation from the RAAF discussing some obscure meteorological conditions. If they had, it would have meant little to them.

Very few people look at a bright disc in a clear sky with coloured lights around it and say: 'Hey, look! A total internal reflection from an inversion layer'.

The physics involved is taught at high school level and can be modelled using a clear bowl, some water and a coin.

Light refracts, that is, it bends when it goes from one medium to another. When you look at a coin at the bottom of a bowl of water it looks like it is nearer to the surface than it really is. The light has bent as it has gone from the water into air.

You 'see' the coin when you 'see' the beam of light coming from the coin. The light beam hits your eye and then a message goes to the brain for interpretation. The brain assumes the light beam has travelled in a straight line, hence the misinterpretation of the depth of the water.

If the light beam from the coin hits the surface of the water at a large enough angle, then the image of the coin will be reflected back to the bottom of the bowl. You will lose sight of the coin from above as you move to a more and more shallow angle. But crouch down and look through the side of the bowl and you will see the coin reflected from the surface of the water. It is floating up there—sort of like a flying saucer. In physics speak this is called 'total internal reflection'.

So how did the people of Bendigo end up on the bottom of a bowl of water? They were in an 'inversion layer'.

An inversion layer occurs when a cool layer of air is trapped beneath a warm layer. This can stay still for days and become quite stable. An inversion layer sometimes shows up as a flat mantle of pollution caught over a city.

Normally, the temperature of the atmosphere decreases as you go further from the ground. Occasionally, the reverse can be true and we get a temperature inversion. A cool layer gets trapped beneath a warmer layer of air. Cool air is more dense than warm air. The cool layer is the equivalent of the water in the bowl, trapped beneath the warmer, less dense, air. As the difference in air densities is much less than between the water and air, we need much greater angles before the total internal reflection occurs.

Wind will disturb the layer, so it is usually a feature of a still period of time with clear skies. In a real inversion layer, the light must hit the layer at two degrees or less to the horizontal to be reflected back towards the ground, so the source of the light will be quite distant.

The UFI sighting will be the result of a bright light source many kilometres away, perhaps the setting sun reflecting off a still lake, or, as was suspected in the Bendigo case, a set of search lights being used for advertising. As the inversion layer settled and became very stable in Bendigo, it is possible there was more than one light source being reflected.

Let's return to the coin in the clear bowl of water. Move your head towards and away from the coin. See how it moves with you? In a car, the light in the sky would follow you. It would be silent. It would not show up on radar. It would be present in a clear sky.

Because of the thickness and changes in density within the inversion layer, it is not like a simple mirror reflection as modelled with the bowl of water. Hence the image will be a distorted 'reflection' of the object, often enlarged and elongated.

Sometimes, the nature of the inversion layer will lead to multiple images. These will naturally travel together—in formation. Or one will be superimposed on another, giving the familiar double-disc flying saucer shape.

And the coloured lights around the edges? Inside the depth and variable density of an inversion layer there is a splitting of the white light into its component colours. Physics speak calls this 'dispersion'. Depending on the atmospheric conditions, this can cause the whole image to appear reddish or bluish (the two ends of the colour spectrum) or have various colours around the edges.

'Atmospheric scintillation' is caused by turbulence in the inversion layer causing rapid changes in the effects of the refraction and reflection. This means that the viewer sees rapid variations in the position, location, brightness, shimmer and colouring of the image. There can be a pulsating effect, or the image may disappear and suddenly reappear. Some of the sudden changes in position of the lights, interpreted as impossible speeds, are actually a result of scintillation.

Still not convinced? Think you have never seen such a reflection? The mirage formed on a hot day when the road

reflects objects that look like a reflection in a pool of water involves exactly the same physics. Just put that reflection up in the clear sky on a much bigger scale, and what would you think it was?

Venus and other celestial bodies

Venus can look very strange under rare conditions. Venus is our closest and brightest planet. When Venus is close to the horizon it can appear enlarged and bluish. The refraction of the atmosphere causes distortions. When a light source, in this case Venus, is straight above, the effects of refraction are minimal. As the light passes more and more obliquely through the atmosphere, the bending of the light causes greater distortions.

When Venus is refracted and then reflected from an inversion layer, you have a large light behaving in a most unplanet-like way. Double mirages of Venus have an eerily spaceship-like form.

In December 1978 a film crew in an aircraft near New Zealand filmed a UFO and their images were shown worldwide. The temperature inversion over the cold Southern Ocean had caused a mirage image of Venus.

The famous story of Captain Thomas Mantell in Kentucky, USA in January 1948 tells how he chased a UFO, with fatal results. The location of the sighting and weather conditions are completely consistent with a mirage of Jupiter. Following the mirage to the altitude he did, he would have entered a low-oxygen zone, a rational cause for plummeting to his death. We cannot know if this is the true explanation, however, because we can never be certain what he actually saw.

Pilots are not trained to identify such rare sights. Their inability to do so should not be a surprise.

Like Venus, the setting or rising sun, Mars and other celestial light sources can all be grossly distorted and so appear quite unlike themselves when close to the horizon.

You may be surprised to know that the moon is credited with responsibility for five per cent of all UFO reports. Nearness to trees and other land objects can enhance the effect and distort relative sizes and positions. Then there are the bodies that we humans have dumped up there. Satellites can also reflect light through atmospheric distortions to give pretty good reasons to claim a UFO sighting.

'But the object was following us!' Distant bodies, such as the moon and planets, do appear to be following. As you move, the direction of the very distant object does not change, as it does with nearby objects. Watch a low moon as you move—it will appear to follow. In fact, it is your own movement which is being witnessed relative to the buildings and trees.

Got enough to check out on that unidentified bright light? Not yet.

Meteors and space debris

Then there is the rapidly moving light. Just check out first if it is a meteor, another strong candidate from the outer reaches. Dust or rocks entering Earth's atmosphere burn up giving a flash of brilliant, fast-moving light. These are often reported by large numbers of witnesses, but tend to last only a few seconds.

Airforce tracking systems indicate that space is full of thousands of items of space debris which are most from satellites slowly decaying and falling back to Earth. A few of these will enter the earth's atmosphere every day giving rise to flashes and trails of light.

Hazy influences

Haze is a hassle. If the haze patch is localised, the observer may not be aware it exists between him and the light source. Bright light scattering in haze due to water particles in air

can make an object seem much larger. It also makes the judgement of distances very difficult. Small beams from torches have been reported as UFOs. The torch bearer moves about randomly and the UFO moves in unpredictable patterns—apparently searching for something. The torch bearer waves his arm and the UFO suddenly takes off at rapid speeds. These situations are rare, but fool even very experienced observers.

Lenticular clouds

There are photographs which look so like the traditional concept of a flying saucer it's astounding, but they are of a rare cloud formation called lenticular (lens-shaped) clouds. Upper and lower hemispheres around a central broad disc are a distinctive feature. A group of these clouds can look like the fleet leading an alien invasion. Quite a few famous UFO photographs have subsequently been identified as lenticular clouds. These rare formations tend to rise above hills and have a peculiar vapour concentration which gives them a reflective, metallic appearance.

But they are still just clouds.

More strange weather conditions

A rare weather condition which is said to be responsible for UFO reports is ball lightning. This forms a sphere of glowing light about 20 centimetres across, usually in stormy conditions. Judging distances and sizes in unusual conditions is notoriously difficult. Experienced observers have often been fooled when confronted with a rare light condition, so a small ball of glowing gas could be mistaken for a much larger alien vessel.

The sea or a large lake can cause a 'false horizon' in which something on the water appears to be in the sky. Boats' reflections have, on occasion, been mistaken for alien

craft. There are some reports which even describe the aliens aboard, but are later confirmed to be sightings of boats above a false horizon. Fishermen giving a friendly wave had no idea what they had just done.

Flocks of birds

Flocks of white birds in unusual lighting can be misidentified and are the cause of many UFO reports. Reflecting bright light from beneath, they can look most un-bird-like. Add a bit of haze or fog and you have an object which is very hard to identify. The rising or setting sun supplies a changing light source. In formation, often a triangular one, a flock of birds can be seen through the haze as a single object. Sometimes a group can be taken as the formation flight of an alien fleet.

At night, city lights can illuminate a nocturnal flock, creating a quite eerie effect against a black backdrop. It's hard to believe unless you have seen birds in these conditions, but many trained observers have been fooled this way.

Astronautical sightings

Much is made in the UFO literature of the sightings by astronauts. James Oberg, a Houston space specialist, painstakingly analysed these reports in an article in the *Skeptical Inquirer*, Fall 1978.

The most quoted example is that of Gemini 4 astronaut James McDivitt, who stated he saw a UFO and photographed it. That is quite true. But McDivitt uses the term literally. He reported an 'unidentified flying object' as part of the regular feedback astronauts are asked to supply. It is most likely that he saw either a man-made satellite (there are lots of them up there) or Gemini's own booster rocket. The much republished photograph is, as McDivitt states and analysis confirms, a reflection from his co-pilot's window.

Other flares, lights and cigar-shaped objects have been analysed and confirmed as flakes of ice off the super-cold fuel tanks, lightning-lit clouds, man-made satellites, bags of garbage released from space craft, light reflections off the nose cone, parts of the booster rocket, reflections of the moon on the ocean, deliberate misquotations and complete forgeries.

And jokes. Apollo 12 astronauts joked with the ground control room about a piece of their booster rocket which was tumbling and flashing. Their joking reference, misunderstood and taken out of context, became part of the UFO folklore.

Conclusion

Thousands of UFO reports are made every year. Those investigated almost always have normal explanations. The few which can't be explained are used by ufologists as evidence for something from beyond our understanding. It is more reasonable, although far less exciting, to accept that they are not explained because insufficient information was available to be able to work out the source. A lack of explanation can never be taken as justification for a theory which defies proof.

The evidence to date offers no support for the theory that we have been visited by alien intelligence. It is disappointing, but science is about truth, not about the most exciting conclusion. The only valid deduction to be made from the reams of reports, investigations and analysis is that we have not yet made contact with aliens.

Let's hope that changes soon. What could be more exciting for the human race?

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UFO ENCOUNTERS OF THE SECOND KIND—PHYSICAL EVIDENCE

On 2 October 1983 the British tabloid *News of the World* ran the front page headline 'UFO lands in Suffolk—and that's official'. The story of Rendlesham Forest could finally be told. Back in 1980 American airmen from the US Air Force base at Woodbridge in the east of England had witnessed the landing of a UFO. There was physical evidence—proof that the landing had taken place. And the incident was fully documented by senior Air Force staff.

On 26 December 1980 two patrolmen had witnessed a spacecraft crashing in the forest surrounding the high-security base, although they had not heard a sound. Having seen the bright light crash to earth, they gained permission to venture into the forest where they saw a large, triangular spaceship. As they tried to approach, it moved away from them.

Two nights later the deputy base commander, Lt. Col. Charles I. Halt, led a large party from the base to witness a pulsating bright light, varying in colour, and visible for hours. It then seemed to explode, leaving three star-like objects, which flashed red, then green, then blue, darting in various directions in sharp movements.

The following day the airmen revisited the forest. There they found three depressions forming a large triangle—the result of the footings of the triangular craft. There were burn marks on the trees surrounding the area. Records of radiation levels quote them as being ten times the normal reading.

Various reports quoted in media outlets also mentioned aliens and craft descriptions, but the light and the physical evidence were clearly documented in a memo written by Lt. Col. Halt and released under the American *Freedom of Information Act*. An 18-minute tape recording was also made by Halt and the group as they ventured out into the dark forest following the light. It is this evidence which convinced ufologists of the remarkable nature of the Rendlesham Forest report. No wonder the *News of the World* was happy to pay well for the story as told by one of the airmen present.

Sky Crash, a book on the incident by Jenny Randles, Brenda Butler and Dot Street, followed, then a TV documentary, and Rendlesham became one of the best known forests in England. Ufologist Nick Pope wrote of the case extensively in *Open Skies, Closed Minds*, leading to a battle of details with science writer Ian Ridpath.

A science writer investigates

Ridpath decided to follow up the details, interviewing airmen from the base and local foresters and checking out the evidence provided. Not surprisingly, he disagreed with the conclusion that a UFO had landed. In *The Rendlesham Forest UFO Case*, and later in *Rendlesham Follow-up*, he offers his theory as he reports the claims and counterclaims between himself, Randles and Pope. The essence of Ridpath's scenario is as follows.

Late on the night of 25 December 1980 the Russian Cosmos 749 rocket re-entered the atmosphere over northern Europe and was widely reported as a UFO. UFOs were on the news and in people's minds. Astronomical records show that shortly before 3 a.m. on 26 December, a brilliant meteor, close to the brightness of a full moon, was visible. From Woodbridge it would have looked exactly like a bright light crashing to earth. It was widely reported as a UFO. Consequently the crash, when witnessed from Rendlesham Forest, was reported by the patrolmen as being without sound.

Having seen the meteor, the patrolmen gained permission to venture out into the forest, not normally part of their rounds. They caught sight of the light from the Orford Ness Lighthouse on the Suffolk coast. Five miles from Rendlesham Forest, it is only visible from a small part of the forest, and is in precisely the direction indicated in the reports. The patrolmen reported the landing of a large metallic craft in the forest. Here we have to acknowledge the role of the human imagination.

The lighthouse is on the coast, at a lower altitude than the forest, and so the light appears to be hovering above the ground. This is not what a witness looking for a UFO expects of a lighthouse beam.

Lt. Col. Halt's party went out two nights later and saw the lighthouse beam. The description he gave on the tape recording and in the memo exactly matches the images gained by the TV crew which went out with Ridpath. The timings of sightings on the tape exactly match the five-second period of the lighthouse beam. Close to the horizon, colour distortions in lights are common.

Ridpath interviewed forester Vince Thurkettle, who explained that locals had believed all along that the airmen had seen the lighthouse. He had identified the three depressions as rabbit diggings, dug at their usual angle into the ground and lightly covered with pine needles. The burn marks on the trees were cuts made by foresters indicating which trees were to be felled. Ridpath was shown the pine resin, which bubbles into the cuts, looking very much like a burn.

Checking out the radiation readings with the manufacturer of the radiation monitor used, a PDR 27, Ridpath was told that that particular instrument was designed to measure workplace levels, and those after a nuclear incident. The figures given were at the bottom of its range and below the calibrated accuracy possible for this particular device. So the readings were within the range expected for normal background radiation.

The star-like objects, which replaced the lighthouse beam

as it disappeared, were in the exact locations of three bright stars, Sirius, Deneb and Vega, all setting near the horizon that night. Distortions of bright objects near the horizon are well known in UFO reports. The colour changes and apparent movements are often mistakenly reported as UFOs.

Ridpath claims to have explained logically all the documented evidence for an alien landing in the Rendlesham Forest. With the usual imagination and elaboration which occurs in the telling and retelling, there is little left after his rational investigation. As he comments, if a UFO of this magnitude was visible for many hours over two nights in the English forest, surely someone else would have seen it.

Australia's evidence in the Nullarbor Desert

Mention UFOs in Australia and someone will soon tell you of the Nullarbor case: the dust which defied analysis; and the dents left on the car by the spaceship which lifted it from the road. As Australia's best known encounter, the evidence left by the aliens makes it an encounter of the second kind.

Many Australians remember the news stories, such as that in Sydney's *Daily Mirror* on 22 January 1988. The headline of 'UFO dust "unknown substance"—police test results' was followed by the astounding revelation: 'An Adelaide police spokesman said extensive tests at their laboratories yesterday had failed to identify it. They have now sent the grey-black substance to Adelaide University for further examination by scientists specialising in geology and biology'.

A traumatic trip

The trip to Melbourne for Faye Knowles and her three adult sons, Patrick, Sean and Wayne, became a veritable feast for the Australian media, and was widely reported internationally. On 20 January 1988, along with their two dogs, the

family was travelling along the long, straight road which crosses the desert known as the Nullarbor Plain. Having left Perth, Western Australia, the day before and driven continuously, they were now near to the South Australian border.

With Sean at the wheel and Patrick beside him, they were all awake. The tiny town of Mundrabilla was only 40 kilometres down the road when they noticed a bright light and started talking about whether it was a truck or a spaceship. Sean sped up to get a better view.

The light appeared to be travelling with the car and, while only a metre wide, it was now about 20 metres away. It was blocking their view of the road. Sean swerved to avoid the hovering light, now swaying in front of him. He almost collided with an oncoming Holden station wagon and caravan, the driver of which has never been located.

Bright and yellow, egg shaped as if in an egg cup, as Sean was later to describe the metre-wide light, the object grew larger, disappeared, appeared behind them and then in front.

Sean made a U-turn to try to escape the UFO but it continued to follow. Then it landed. Right on top of the car. It lifted the blue 1984 Ford Telstar, with its frightened occupants, off the ground.

Reaching out of the window, Faye felt a 'spongy' object on the roof. Sean recounted how she described it as like a suction cap. Hot, but not burning, she found her hand covered in a dark dust. As the dust entered the car, they were overcome by the pungent smell. Strange noises, crazed dogs, feelings of disorientation, slow and deep voices replacing their normal ones, fears of madness and death, loss of control to an alien force all contributed to the frightening story. Patrick's description of the feeling that their brains were 'being sucked out' added much to the narrative.

The car was dropped and the rear tyre burst. Sean blacked out. Soon the family escaped and hid in the bushes watching the UFO around their car for a few more minutes. When it had left, the family tried to flag down a truck, the occupants of which have since come forward to say they saw no strange lights.

Graham Henley, a friend of the Knowles family, was also driving the road that night. He saw the large bright light in his rear vision mirror. Despite media reports that he also saw vehicle lights beneath the large bright glow, he made no such claim.

At Mundrabilla, Henley met the Knowles family, who told their frightening story. He observed the black dust on the outside and inside of the car, the four dents in the roof and the burst tyre, which looked most unusual to him. Henley returned to the site of the sighting, observed the skid marks, footprints and tread marks and went on to advise the police at nearby Eucla of the story. The traumatised family passed the Eucla police station, only 100 kilometres away, to drive another 600 kilometres non-stop to Ceduna where the police were expecting them.

Sergeant Jim Furnell, with a forensic officer from the Port Lincoln Crime Scene Section, confirmed that the Knowles family were visibly shaken and contacted UFO Research Australia (UFORA) in Adelaide, the South Australian capital.

Evidence at last

There was physical evidence. The foul-smelling dust and the dents on the roof were crucial. Added to the family's testimony, this gave a rare encounter of the second kind. Channel 7, Adelaide, had heard the news and met the Knowles family en route to Adelaide, at the small town of Wudinna. Although Faye explained they were not motivated by money, they accepted a fee of \$5000. Headlining the morning news in Australia, the story was on the front pages worldwide by the next day.

The dents on the roof were examined and made much of in the press. Four of them, one at each corner—just right for lifting from above.

This was a traumatised family who had undoubtedly experienced something extraordinary in the desert that night and had the evidence to prove it.

Or so the story goes.

The follow-up

Ufologists were quoted day after day in the media. Unlike the restrained desire of UFORA to investigate, other groups claimed obvious authenticity, explaining that the aliens were probably doing scientific tests on the family and dogs.

Overseas UFO organisations, such as the Texas-based Mutual UFO Network, were impressed by the physical evidence and multiple witnesses. Their fame spread.

But slowly other details emerged. Paranormal writer Bill Chalker documented the story, along with many other Australian UFO cases, in *The Oz Files*, while Tim Mendham and Keith Basterfield documented it for *The Skeptic*, Australia's skeptics' journal. Most of the versions tell a similar tale.

Stories from the family and witnesses conflicted. Sometimes the tyre burst when the car was dropped, at other times it was when they were travelling at high speed to escape the light—speed acknowledged to be up to 200 kilometres per hour.

Faye's hot hand and the spongy object were not mentioned to police, but only to journalists later.

Although it was claimed by Channel 7 representative Frank Pangallo that the family were far too traumatised to talk to other media, they travelled on to Victoria and then to the capital Melbourne. Suzanne McDonnell of the *The Sun* found this claim difficult to accept having spoken to Sean. He was quite happy to talk to *The Sun*, he said—for \$5000.

And the dents and dust?

Superintendent Schulz of the South Australian Forensic Police was succinct in his analysis of the 'unknown substance' reports. 'That's all bulldust!'

The famous samples were taken from the car. Three sets were sent to laboratories, one by the South Australian Police

Department, a second by the Australian Mineral Development Laboratory (AMDEL), when commissioned to do so by Channel 7, and a third by the Victorian UFO Research Society, after the family had driven on from Adelaide to their Victorian destination, Melbourne.

They found nothing unusual. The dust was typical of road dust, and there was evidence of burnt rubber from the tyre blow-out and brake linings from the sudden stop from high speed. Brake linings and burning rubber create a particularly putrid smell, just as described by the family.

The dents predated the incident. They looked very much like the consequence of a roof rack.

The results of these tests did not make the headlines. The story was dead by then. Many people still believe something very strange happened out there that night.

Was it all, as many now believe, just a hoax, generated during those long, boring miles by a very tired family who had seen a light, panicked and experienced a close encounter with death when a tyre burst at excessive speed?

Conclusion

There are very few cases of encounters with alien spacecraft which leave physical evidence to be checked. As yet, none has been found which could not be readily explained by earthly reason. The two best known cases did not stand up to rigorous investigation. Such investigations take time and resources, which are hard to justify in a world which usually rejects UFO claims.

Sightings offer very little which is convincing when compared to hard, physical evidence. Should evidence be discovered which cannot be readily explained, let's hope resources can be found to check it thoroughly.

The evidence and subsequent investigation should be transparent. There should be no secrecy, no cover-ups. Otherwise we will have the sort of mystery which is Roswell, the most famous case of all: a crashed spaceship in the

Nevada desert, then the revelation of the alien bodies. The actual contact with aliens makes it an encounter of the third kind. Time for the next chapter.

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UFO ENCOUNTERS OF THE THIRD KIND—ALIEN CONTACT

One incident stands out: Roswell. Everyone seems to know something about it. It is the most quoted and the most convincing. There was an alien spaceship crash in the New Mexico desert, alien bodies sighted and later a film of an alien autopsy was smuggled out of a top-secret military facility. There has been a massive military cover-up of what really happened in the Nevada desert. Those are the facts known worldwide.

The landing in 1947 near Roswell, New Mexico, now so well documented, does not appear in books on UFOs until the late 1970s. Strange.

What is even stranger is that when you try to track down the story of the Roswell Incident you'll find lots of versions which contradict each other. This account is an amalgamation of the various versions.

The story

On 2 July 1947 at the Foster Ranch, New Mexico, rancher Mac Brazel heard a loud explosion. Used to summer storms, he assumed it was thunder. When checking his sheep the next day he saw strange reflections in the valley below. They looked like the wreckage of a plane.

Three days later, in a bar in nearby Corona, amid the general hubbub he heard of UFO sightings by locals. Brazel

decided to report the wreckage in his valley to Sheriff George Wilcox, questioning whether it might be a UFO. The sheriff rang the local army air base at Roswell.

Major Jesse Marcel, an intelligence officer from Roswell Army Air Base (AAB), was sent to accompany Brazel to the site. Marcel made the famous claim that what he saw was nothing like anything he had seen before. The wreckage seemed to be made of a very light material like foil. When he tested the debris, he found it couldn't be cut, didn't burn and when crumpled returned to its original shape.

The next day there was a press release from Roswell AAB. There had been a 'flying disc' crash in the desert. Very quickly, this release was withdrawn and the press were told, with photos of Major Marcel to prove it, that the wreckage was the remains of a weather balloon. The material from the balloon did not match the description of what had been found at the crash site. Subsequently, the army has refused to talk about the incident. Brazel was taken into army custody and later confirmed the weather balloon version. Clearly, there was a cover-up.

Grady Barnett was working in the desert at San Agustin Plains, 280 kilometres northwest of Roswell when he found a strange, disc-shaped craft which had crashed into the side of a hill. He could clearly see the bodies of the crew around it. Abnormally thin with enlarged hairless heads, their large eyes overshadowed their small slit-like mouths. Well under 1.5 metres, with long thin arms, he had no doubt they were not human.

An army troop arrived very soon after Barnett and immediately sealed the area and collected every scrap of evidence. Barnett was told to leave immediately and to keep the finding secret. More evidence of the cover-up.

The bodies were transported to Roswell AAB where an autopsy was held in the hospital. W. Glenn Dennis, a 22-year-old mortician from the Ballard Funeral Home in Roswell, claims he was called by staff at Roswell AAB who asked about child-sized caskets and procedures for preserving bodies.

In a lengthy set of recollections, Dennis describes taking an airman to the hospital and seeing three military ambulances guarded by military police, one of which appeared to contain wreckage, two pieces of which looked like the bottom of a canoe. Bumping into a military nurse he knew, he found her upset, covering her mouth with a cloth. She warned him to leave before he got into trouble. He also met a paediatrician, whom he knew well, and who was assigned to the Roswell AAB hospital. When Dennis asked what had happened, he was threatened by a large, red-headed colonel accompanied by a black sergeant, and escorted from the hospital by military police.

The next day, Dennis's friend appeared upset and ill. She told him how she went into a room where there were doctors she did not know doing autopsies on three very burned little bodies. The overpowering smell made her and the doctors ill. The bodies were flown, she said, to Wright Field (now Wright-Patterson Air Force Base in Ohio).

Dennis never saw the nurse again. She was shipped out the same afternoon. He later managed to communicate with her in England. Years later, Dennis tried to contact the paediatrician, but he had left the military and moved to Farmington, New Mexico. When they did talk, the paediatrician said only that it was 'completely out of his field' and no more. There was clearly a cover-up.

In 1995 the Fox Network showed a film of an alien autopsy, apparently taken at the time for the US Army. Some of the canisters of film had not been collected by the army and had been kept by the cameraman who, despite fear of prosecution, sold the film to Ray Santilli, head of the Merlin Group, a British video production company.

The Roswell Incident became the focus of UFO interest, and the world had now seen the aliens for itself.

Roswell becomes famous

The US Army and Air Force had maintained their silence, mainly because the story of the first UFO, at Corona, soon

disappeared. There was no mention of alien bodies and hospital cover-ups until 1978, when Stanton T. Friedman started investigating and publicising the events. Locals were interviewed and the stories emerged, based on memories now over 30 years old. The Roswell Incident became a gripping tale, providing fodder for two best-selling books, TV shows, a movie, magazine articles and countless radio interviews.

Roswell became a tourist Mecca, the Chamber of Commerce website listing the annual UFO Festival on its front page. The International UFO Museum & Research Center, gift shops and tourist accommodation are big business in Roswell. There's good reason to keep the story alive.

Eventually the endless publicity forced the Air Force to order a full investigation. The findings were published in 1997 under the title *The Roswell Incident: Case Closed*.

Three become one

The main ingredients are the amalgamation of three incidents and three locations.

The first incident is Mac Brazel's finding of the crashed craft near Corona. The second is Grady Barnett's witnessing of the four bodies at San Agustin Plains. The third is a conglomeration of W. Glenn Dennis's hospital observations based on a number of other events blended into a single event, recalled after many years.

Roswell has three Air Force bases in the immediate vicinity. Walker Air Force Base (AFB) was previously called Roswell Army Air Base. Holloman AFB was the home of the Balloon Branch while White Sands Proving Grounds was the test site for radar-guided missiles.

Incident one—the crash at Corona

Mac Brazel found the remains of a polyethylene 'weather' balloon which had been launched as part of exercises by the

Holloman Balloon Branch. Although usually referred to as a weather balloon, this has now been revealed as part of the top secret Project MOGUL. The long trains which dangled nearly 200 metres below the balloon supported acoustic sensors used to detect Soviet missile launches and nuclear explosions. This was in the early days of the Cold War.

On receiving the message from Sheriff Wilcox, Major Marcel was sent from the Roswell AFB, the home base for the air combat unit being trained to drop nuclear bombs. Hence security was tight.

Polyethylene, laminated with aluminium, was a very new material, first tested in high-altitude balloon technology in 1947 as part of Project MOGUL. It is unlikely anyone, including Major Marcel, would have been familiar with its properties outside the scientists testing it. Polyethylene regains its shape when crushed and has a metallic appearance when laminated with aluminium. Project MOGUL was classified Top Secret and based at Holloman, not Roswell. The staff at Roswell AAB would not have known about it.

On 8 July Lieutenant Walter Haut, showing all the exuberance of youth, sent an unauthorised press release. The young public information officer was unlikely to have had such exciting news to report before. The 'disc' was actually one of the radar targets suspended from the balloons to eavesdrop on Russian nuclear tests, hence the secrecy. It was not, as so many have pointed out, part of the balloon.

When Brazel saw the other balloon trains, he knew that this was what he had been shown. But his story, linked to the many UFO sightings in the area, had caused a media frenzy. Everyone wanted to talk to him, but they didn't want to hear that the UFO was a non-story.

When interviewed for an article in the 9 July 1947 *Roswell Daily Record*, Mac Brazel was described as 'harassed' and said: 'But if I find anything else besides a bomb, they are going to have a hard time getting me to say anything about it'. His subsequent silence merely adds to the conspiracy theories. But for the next 30 years there was little interest as the story just joined thousands of other in UFO folklore.

Incident two—test dummies at Holloman

Interviews conducted more than 30 years later revealed other details which, when linked with the balloon crash, made for a more exciting story. Grady Barnett probably *had* seen bodies in the San Agustin Plains. His eyewitness account was delivered by two friends, because he was now dead. They could not recall the year, being so long ago. All details of their story, and those of others who recall the bodies, are entirely consistent with the appearance of the test dummies being dropped by the Holloman Balloon Branch during various trials of equipment being developed for commercial and military payloads.

What we now call test dummies were unfamiliar to most people at the time. Anthropomorphic dummies equipped with a variety of instruments to take measurements were used as human substitutes in situations deemed too risky for the real thing. Thin and grey, bald with sunken eyes, these dummies fit the descriptions of the bodies seen under a crashed 'alien' craft.

They were first used in New Mexico in 1950. Dropped from aircraft and various balloons and blimps, they were often the victims of crash landings. Surprisingly, the most common damage sustained was the loss of the little finger, hence the witness accounts of the bodies having only four fingers. Sometimes they lost lower limbs, which may account for the small size mentioned in some accounts.

Holloman Balloon Branch procedures required an Air Force recovery troop to secure the area and keep civilians clear until all debris had been collected for analysis. The dummies were often transported in wooden caskets or on stretchers, as described by witnesses. The black or silver insulation bags which were used for early models of these dummies could easily be identified as body bags when recollecting back over so many years.

All debris was carefully collected, as related by witnesses, to maintain good relations with local landowners, who had

some quite reasonable objections to having their cattle choke on bits of rubbish.

The Air Force report states that Air Force personnel would never have been abrupt with civilian witnesses, as described in the recollections; however, we might be permitted a little skepticism about that!

Incident three—burnt bodies at Roswell

Among W. Glenn Dennis's extensive accounts, the most commonly referred to is that of the smelly, small, burnt bodies being secretly autopsied in the Roswell AFB Hospital.

Dennis claimed to have worked at the Ballard Funeral Home, although records and phone directories list him with other funeral homes. Records show he worked as a drug store supervisor and on an oil field during the time he claims to have been at Ballard.

Dennis refers to those he transported in the ambulance by the rank 'Airman', a rank which was not introduced until 1952. His big red-haired colonel was accompanied by a black sergeant, but in 1947 the US forces were still segregated, so it is likely he is recalling a later date.

On 26 June 1956 near Walker AFB (formerly Roswell), an aircraft crash left eleven Air Force members dead. As the plane was fully laden with fuel there had been an intense fire. Their bodies were transported to the Walker AFB hospital. The overpowering odour of the charred, fuel-soaked bodies made medical staff sick, and the remains were moved into a refrigerated compartment. Autopsies were performed on three of the victims by the local Roswell pathologist at the Ballard Funeral Home. All three bodies, horribly injured, had lost their lower extremities, and hence appeared short.

Procedures required full identification of the victims before any information was given out, even to Air Force staff, who would have been distressed at the time. A young mortician inquiring about what was going on would not have been well received. There was a big, red-haired colonel,

and there was a paediatrician assigned to the hospital who moved to Farmington, New Mexico. He was the only paediatrician ever to work there. He had no recollection of Dennis.

Only five army nurses were in the Army Nursing Corps at Roswell. One nurse does fit the physical description and religious affiliation of Dennis's friend. She did later serve in England, the only nurse from Roswell at the time to do so. Her personal records show she did depart Roswell AFB suddenly, to be admitted to hospital with a medical condition, serious enough later to have led to her retirement. A non-family member would not have been given details of her illness out of respect for her privacy.

Did Dennis's testimony, taken decades later, involve memories of this crash?

The alien autopsy film

And the alien autopsy? The film is now widely accepted as a hoax. Sold for a great deal of money, it shows little that would indicate an alien, and details such as the missing limb, six fingers and robust body do not match Roswell witness descriptions. Although it is often claimed that the film was dated by Kodak, the company has denied this, while pointing out that dating from the marks would not be conclusive.

Questions arose soon after the showing. Why would a photographer be flown in when the Army had their own? Why was the film in black and white when the army had been using colour for autopsy films during the war? Why was the filming so shaky and amateurish when the army had professionals available? Why were the pathologists so tentative about cutting, and doing so in such an unprofessional manner? And, most importantly, why did the film canister, labelled 'July 1947' and 'Process Internally', clearly show a Department of Defense seal which was not in use until many years later?

Reality check

Unlike the UFO versions, the Air Force data can be externally verified. Most were not secret projects. All documents were released under an executive order from then President Clinton. Military personnel have been granted exemption from their non-disclosure agreements. That such a huge number of people would be able to maintain secrecy over so many years is just impossible to believe.

Governments would never manage to keep a real alien story secret for so long. And where's their motivation for doing so?

Evaluating other alien contact reports

Roswell is the best known and most recorded story. It took significant resources to investigate by the Air Force, after the revival of interest in recent years. It is hard to imagine justifying such extensive resources to track down the sources of other alien contact stories without credible evidence.

Until we have that evidence, we still have no reason to believe contact with alien intelligence has been made. Conspiracies and cover-ups are not convincing reasons. Such a mind-boggling event as real alien contact would be impossible to contain.

We need to keep communication open between the various groups who have an interest in the reality of alien contact so that evidence, if and when it appears, can best be evaluated. Otherwise we end up with a Roswell type myth, built from faded memories and dubious evidence.

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ALIEN ABDUCTIONS

Nick Pope, in his fascinating book *Open Skies, Closed Minds*, puts the case for the reality of UFOs better than any other I have read. He was a civil servant working for the UK Ministry of Defence (MoD) and personally responsible for the UFO desk. Here he took the reports for UFO sightings and replied according to the ministry's policy: it would only investigate if the UFO posed a threat to national security.

Pope talks about the way that he, unlike his predecessors and against the better judgement of his bosses, worked with the major UFO organisations to investigate further. He became a believer. He no longer works for the MoD.

In his final chapters Pope justifies his belief that not only are a small proportion of the sightings real, but they pose a serious threat and there should be an international investigation at the highest level.

Unfortunately, his arguments still avoid the simplest explanations, such as his dealing with the issues of the abductee reports. The most damning aspect of alien abduction stories is that the technology they describe closely matches that which is either in reality on earth or in recent science fiction films or TV series. Pope wrote:

The abductee accounts of the 1960s featured talk of control panels, switches and reel-to-reel tape recorders. There was no mention of liquid quartz read-outs until we'd invented them

ourselves. This might simply be a question of humans relating to things they recognise and ignoring what they don't, or it could mean that in some respects alien technology is only one step ahead of ours, and they may have to develop quickly to stay that one step ahead.

(Pope 1996, p. 221.)

Or it could mean that humans cannot dream or hallucinate technology with which they are not familiar.

Isn't the third possibility by far the most simple and logical? There have been abductions for nearly 50 years. One would think that someone would be able to report something unknown to humans by now, but all reports are of technology which accurately represents the state of human technology at the time of the abduction. The need to dismiss this logical hurdle often leads believers to create explanations which ignore the obvious.

Betty and Barney Hill

Alien abduction stories started with that of Betty and Barney Hill. On the night of 19 September 1961, hurricane warnings caused them to drive all night to get home to Portsmouth, New Hampshire. Heading south on Highway 3 through the White Mountains, Betty saw a bright light which she thought was following them. On the section of road known as Indian Head, outside the town of Lancaster, Barney slowed the car to identify the light. He stopped and turned off the engine. Through binoculars, he saw a bright object hovering at tree level. He would later describe it as a disc-shaped alien craft, and he believed it to be about 15 metres away.

Barney left the car to walk towards it. Betty called him back, but Barney just kept on walking. There was a row of windows in the craft and alien figures looking down. Barney fled back to the car and drove home, diverting to smaller roads to avoid the main highway.

Betty, who had a previous interest in UFOs, reported the

experience to a local ufologist. When questioned later, Barney and Betty realised their journey had taken two hours longer than it should have done although this could simply be because of the alternate route taken. Betty started having nightmares. A Boston psychiatrist used hypnosis to gain details from Barney and Betty, who told a similar, but not identical, story.

The highway had been blocked by aliens, shorter than humans but humanoid, with bald, pear-shaped heads. The Hills were floated up into the spaceship. The aliens then performed various medical examinations, one of which involved inserting a long needle into Betty's navel, a painful experience which was central to her subsequent nightmares.

The aliens communicated with Barney and Betty telepathically, in English. Showing Betty a map of the stars which formed their trading routes, one alien informed her she would remember nothing of the interaction. She replied that she would.

The frightened couple were returned to the car and the spaceship departed in an orange glow. These memories were only discovered after hypnosis.

Barney died in 1969. Betty went on to report many more alien abductions.

The era of alien abductions had begun.

Travis Walton becomes a legend

Travis Walton was abducted on 5 November 1975. He was a member of a team of forestry workers in Apache Sitgreaves National Forest, Arizona. The leader of the team Mike Rogers told the story.

The team were heading back to town after a day in the forest when Rogers noticed a large disc-shaped light. He stopped the truck and they all froze as they watched the amber glow. At 22 years of age, Travis was a pretty confident guy and he left the truck to approach the UFO. It vibrated. A laser-like beam of blue-green light hit Travis and lifted him

into the craft. The remaining crew sped off as Travis was enveloped by the light.

Reaching the town of Snowflake, the crew reported the event to the sheriff. A search party was launched, but three of the crew were unwilling to return to the site.

Six days later, Travis's sister received a phone call. It was Travis. His brother found him huddled inside the phone box, wide-eyed, bedraggled and exhausted.

He told how he woke up on a table in a bright room, being examined by three alien beings. Bald, with huge eyes, slit-like mouths and humanoid form, they are a typical description of what ufologists call 'greys', the most commonly reported alien.

Later he could see the stars and realised he was on a spaceship. A helmeted humanoid alien took him to a huge room where he met others of the second form, the tall blonde, golden-eyed aliens often referred to as 'Nordics'. Eventually, he was returned to earth. He had lost five days.

Subsequent investigations turned up a few other facts which may be of interest. Two weeks previously, NBC-TV had first shown their movie of the Hills's abduction case. Walton had discussed alien abductions with his brother and advised his mother not to worry if he was abducted by aliens.

Mike Rogers was late on a logging contract, so the UFO abduction occurred at a most convenient time. After the event, Walton was accused of holding his breath to fool the lie detector test, which he failed.

And most interesting of all, the tabloid newspaper *The National Inquirer* was sponsoring a UFO sighting competition. Walton's abduction story won the \$5000 first prize. Is it still a convincing story?

The aliens

Geographic location tends to contribute to the experiences, greys being more common in America, while Nordics seem to abduct the British. Non-English-speaking humans have

only been abducted more recently, after the stories have been translated into their languages.

TV shows and films bear amazing similarities to alien descriptions. During a hypnosis session on 22 February 1964 Barney Hill recalled wraparound eyes, which are extremely rare in science fiction. However, there were such aliens in an episode of *The Outer Limits* shown only twelve days before. Betty Hill's reports of a star map, a needle in the navel, large noses, a feeling of relaxation caused by some procedure on her eyes, a medical examination and a notebook offered as a remembrance all match the 1953 film *Invaders from Mars*. This film also introduced the idea of brain implants and aliens seeking to save a dying world, so often the message given to abductees.

Have you been abducted?

There are many more stories, less famous than these two classics but sharing the common alien abduction threads: lost time and medical examinations. Hence there are many lists of signs available to check to see if you have experienced an alien abduction. Here's an amalgamation of the most common traits mentioned on the checklists. Have you ever:

- felt you were special or chosen?
- felt fear or anxiety when UFOs were mentioned?
- sensed that issues about the environment are crucial?
- abnormally monitored your surroundings because of a fear of kidnapping?
- had unexplained sleep disorders?
- been paralysed with fear when in bed, and unable to move?
- had dreams of alien ships?
- had dreams of being the subject of medical procedures?
- felt you were being watched?
- seen unexplained lights or heard unidentifiable noises when in bed?

- had unexplained nosebleeds?
- found unexplained bruises or soreness in genital regions?
- found scars you can't remember seeing before?
- felt a fear of medical procedures?
- had an experience of lost time?
- heard telepathically transmitted messages?
- heard voices controlling your thoughts?

Apparently, if you answered 'yes' to some of these questions, you are a candidate for an alien abduction of which you have suppressed the memory. Then, under hypnosis with a believer in alien abductions, those repressed memories can be recalled.

I find it hard to imagine many people who wouldn't answer yes to most of these questions, due to normal human psychology. In the hands of a hypnotist who believes these are indicative of alien abductions, the hypothetical can then be elaborated into an apparent reality.

Hypnosis—the favoured tool

Recollections drawn out by hypnosis by a practitioner who is a believer in alien abductions are hardly convincing.

Research shows that hypnosis is probably not so much a recalling of the truth, but a desire by the patient to feed the hypnotist what they want to hear. Hence leading questions could result in recollections of alien abductions which are pure fantasy.

Being highly suggestible myself, I imagine it would be easy for a hypnotist to extract such memories from me. I then have a reason to feel special. Suddenly, I am not just one of the hordes of people leading ordinary lives but a chosen individual, part of a small group who now claim me as one of their own. My mundane life will never be mundane again. There is a strong attraction in this path, especially for those already involved in UFO groups, as many abductees are.

More frightening is the number of such reports which ring so strongly of well-known psychiatric disorders. The hearing of voices suggests schizophrenia, often difficult to diagnose and terrifying in its effects.

Perfectly normal people can have a strong ability to fantasise. They probably had imaginary friends as children, and oscillate between real and imagined worlds with ease. Adults who are fantasy prone are more likely to see ghosts and aliens, accept images as psychic realities and experience vivid dreams. As a fantasy-prone individual, I have no desire to lessen that aspect of my life, but I know what is fantasy and what is real. It is when that line becomes blurred that people believe so strongly in their imaginary worlds.

Anyone can experience what psychologists term hypnogogic or hypnopompic experiences. Hypnogogic hallucinations occur on going to sleep, hypnopompic on waking. They are more commonly known as 'waking dreams' or 'night terrors'. These dreams are extremely vivid and real and can continue to be so as the person rejoins reality, hence creating a real memory. They do not fade like normal dreams. Most of mine feature spiders, although sometimes non-existent people are present in the bedroom.

When extrasensory perceptions are perceived on the fringes of sleep, the most likely explanation of the alien abduction scenario must be the well-documented waking-dream phenomenon.

People approach therapists because they have problems. Are some of the practitioners in this field, and groups determined to find truth in these experiences, effectively withholding treatment from mentally ill or emotionally disturbed people?

Questions and concerns

Are some alien abductions just a wildly imaginative way to talk about sexual fantasies or deal with past sexual trauma? The aliens are often reported to be trying to interbreed with

their human abductees. Many of the stories are sexually explicit and sexual violation is a common theme. Stories of women who talk about being impregnated by the aliens often tell of emotional problems which caused them to seek help. Then, under hypnosis, the alien abduction is revealed to them. Are they talking about a blocked trauma or only an unfulfilled desire?

Two animals are defined as being of the same species if they interbreed in the wild and produce fertile young. The offspring of rare interspecies matings are always infertile. Given the almost certain sterility of the human–alien crosses, would not that defeat the purpose of these breeding programs? If the aliens are so advanced technically, why have these experiments now been conducted for over half a century with no apparent changes and no apparent outcomes?

To procreate with an alien species would be truly extraordinary biology. Never the less, the abductees are often shown their hybrid babies. Again, there is a sad note of longing to this aspect. Aliens are keen, it seems, to install implants inside human bodies. Medical science has never been able to locate one of these implants. Those who have been implanted will usually refuse to be examined. Why?

Reality check

Not one abductee has managed to bring back an item from the spaceship which is not readily available on earth. None can tell us of anything which doesn't match widely known technologies, either real or from science fiction. Almost all abductions occur when the abductee is either on the verge of sleep or extremely tired, such as in the Hills's case. And there are no reports by impartial witnesses of the abductees having gone missing.

Alien abduction reports increase rapidly when the media has featured this theme recently. Those abducted usually have a considerable collection of UFO literature and have

expressed interest in the field before their experiences.

Abductees cite convenient reasons why the stories sometimes don't correlate. When predictions fail to eventuate, the aliens have 'lied'. When the recollections lack consistency, the aliens have 'blocked the abductees' memories' or 'are controlling their brains'. There is always an answer.

And sadly, the stories tell of current social trends not future ones. In the 1960s the aliens were trying to teach us about the need for peace on earth. Today they concentrate on environmental issues.

When we move away from politically correct aliens, who so strongly resemble those depicted in science fiction and who use human technologies, then the stories might be more convincing.

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THE BERMUDA TRIANGLE

'Devil's Triangle disaster' screamed the headline in *The Globe* on 1 April 1980. Despite the date, it was not intended as a scam. Charles Berlitz, author of *The Bermuda Triangle* and *Without a Trace*, dragged the issue back into the public eye and sold even more books. 'Fifty planes vanish in two years' we were told, and words like 'eerie' and 'mystery' added to the effect. Larry Kusche's rational retort in *The Bermuda Triangle Mystery Solved* didn't sell nearly as well.

Have you got time to check the examples given or are you forced to accept the facts on face value? After many hours of research, Michael R. Dennett published his analysis in the Fall 1981 edition of the *Skeptical Inquirer*. Only twelve of the incidents were actually described and, of these, only three occurred in the Bermuda Triangle. One of the three was a simple case of air turbulence and incurred no loss of life, while the other two are too vague to verify. As Dennett says of one:

It has all the hallmarks of such an occurrence; namely, an unidentified vessel, with three unnamed people on board, vanishes on an unspecified date. The local newspapers carried no report of this incident and the Coast Guard was unable to confirm that a vessel matching this description had been lost in October.

(Dennett 1987, p. 48.)

Nebulous claims are typical of the quality of research and reporting which have fed the myth. The Bermuda Triangle

myth tells of an expanse of water in which people go missing in the strangest of ways. Is there some unexplained power lurking there, perhaps devilish aliens, forces from the lost city of Atlantis, anti-gravity fields, vile vortices or distorted magnetic fields? Or is it just some twist of fact which engulfs reason?

Reality check

When did you last hear of a disappearance in the Bermuda Triangle? Given the millions of passengers passing over or through it each year, you would expect to hear of a few at least. Wouldn't you?

The facts

Bermuda is a group of small islands in the Atlantic Ocean, once known as The Devil's Islands. The Bermuda Triangle is usually taken to refer to an area of ocean from Bermuda, south to Puerto Rico and west to Miami. This is a massive region of over a million square kilometres of open ocean.

In February 1964 American journalist Vincent Gaddis wrote 'The deadly Bermuda Triangle' for *Argosy*, a magazine which published mostly fiction. A myth was born.

Ask about the Bermuda Triangle and most people will quote, as examples of the enormous number of doomed craft, one of four cases in particular: the loss of an entire patrol of navy bombers, the wonderfully mysterious *Mary Celeste* or the loss of the *Spray*. Oh, and something about Christopher Columbus's compasses going crazy and spooky lights circling the ship. One at a time.

Flight 19

Flight 19, a patrol of five Avenger torpedo bombers, took off from Fort Lauderdale Naval Air Station, Florida, at about 2.10 p.m. on 5 December 1945.

On a clear, sunny day, or so the story goes, an experienced crew took the bombers on a routine two-hour mission. All preflight testing went normally and the planes were well equipped with radio communications. Fully fuelled, they took off. Then came the famous message: 'Control tower. This is an emergency. We seem to be off course. We seem to be lost. We can't make out where we are'.

The tower replied: 'Head due west' but they didn't know which way was west, despite it still being daylight and, even if their compass had failed, the sun was still hours from setting.

'Everything looks wrong, even the ocean looks strange,' the leader said to the tower. At 3.45 p.m. the leader radioed to say they were still not certain where they were. Then there was silence.

A Martin Mariner flight boat with a crew of thirteen went out to search for them. After several routine messages, it too was lost without trace, and all its crew with it. Search parties found nothing, and the navy continues to have a standing order that crews look out for Flight 19.

And it's true. Mostly. The pilots were experienced but, according to the Department of Navy report on the incident, they were on an 'authorised advanced overwater navigational training exercise'. They were *students* of advanced navigation, not *experts*. Due to a compass malfunction, the instructor was uncertain of his location. The patrol follows the instructor's plane. Communications with base were hampered by interference from Cuban broadcasting stations, static and atmospheric conditions.

The 'clear, sunny day', according to official records, consisted of scattered showers and limited visibility. This was considered safe for the training exercise, but the sea, described as moderate to rough, was considered unsafe for ditching in an emergency.

Sighting the sun for navigation would not have been possible and hence the tower would not have expected them to do so. Many of the quotations from the pilots do not appear in any logs and so, it is assumed, have been fabricated for effect.

The flight lost direction and almost certainly ran out of fuel. By 8 p.m. they would have run dry and been forced to ditch into the rough seas.

One of the many search aircraft, a Mariner, blew up in an explosion witnessed and reported by a merchant ship in the area. The ship also passed through an oil slick at the place of the explosion. The Mariners were known to have a problem with fuel leaks and be at risk of such explosions.

Was the loss of Flight 19 a mystery? No. A tragedy? Most certainly.

The *Mary Celeste* and a problem with geography

The case of the *Mary Celeste* faces a slight geographical dilemma. She famously lost her crew and kept sailing for ten days until found near the Azores, with a breakfast serve of boiled egg just cut open and a full bottle of medicine still uncapped. A fascinating story which I would love to relate in detail, if only it was relevant. Unfortunately the Azores are way outside the Bermuda Triangle and the *Mary Celeste* cannot be considered a victim of this strange place.

In fact, it is estimated about 75 per cent of Bermuda Triangle incidents aren't. They fail the simple test of geography. For example, The *Bella* was nearly 5000 kilometres south when it sank, while *The Atlanta* left Bermuda travelling away from the Triangle. The *Freya* wasn't even in the same ocean; it was lost in the Pacific. The *Cyclone*, the *Raiku Maru*, the *USS Scorpion* nuclear submarine and the *V.A. Fogg* were not near the Triangle, although often quoted as evidence of its horrors. Some famous aircraft losses should also be disqualified. The *Globemaster* went down off the coast of Ireland while the British York Transport never entered the Triangle on its fatal flight from The Azores to Newfoundland.

Christopher Columbus and the Bermuda Triangle

There is a story oft told about Columbus's compass and the strange light which circled his mast and spooked his crew.

Magnetic north and true north are different. In Columbus's time, north was measured by the North Star. Columbus became aware, as was proven later, that compasses varied from true north as you travelled west or east. This was what he recorded in his log. There is no mention of the much quoted crazy movements of the compass.

The bright light was recorded and identified as a meteor which landed in the sea. It was much larger than usual, hence the record in the log. Again a light circling the ship's mast seems to be a fabrication.

The 'spooking' of the sailors appear to be more linked to the fear of not reaching land before rations ran out. The sighting of birds, usually associated with land, added to this despair and stories circulated among the traditionally superstitious sailors. But nothing in Columbus's log, which is readily available to the public, supports circling lights or crazy compasses.

The loss of the *Spray*

In 1909 the small boat *Spray* was sailed out to sea by Joshua Slocum, who had previously circumnavigated the world. She was only 11 metres long and had a beam of 4.3 metres. And Slocum took her out to sea and right around the world. There is no doubt he was an extremely experienced and skilful sailor, although his stories of one of Columbus's crew acting as helmsman when Slocum himself was ill and delirious does leave a little doubt as to his definition of reality.

At 65, this intrepid sailor set forth again to sail around the world. He went out into the open ocean and he wasn't heard

of again. Now does that strike you as requiring a strange force, or as a likely outcome of an elderly man tackling the open sea in a very small boat?

So the anecdotes go on. And on. And on.

Rational explanations for the losses

To lose ships in an expanse of over a million square kilometres of open ocean is no great surprise. Statistically the Triangle is no worse than any other large expanse of ocean. You want proof? Based on data and statistics, Lloyd's, the major shipping insurer, charges no more to insure ships which go through the Bermuda Triangle. They claim it is statistically no more dangerous. We are talking money here. What further proof do you need?

There are reasons why ships and planes disappear and no trace is found.

The Bermuda Triangle includes a small portion of the Sargasso Sea, but tales of ships lost anywhere in this sea seem to get into the Bermuda folklore. In the Sargasso Sea there is little wind or current, a higher salt level, warm water and seaweed—lots of seaweed. Seaweed is rarely found in the open seas and this phenomenon has caused many sailors to think they have found land. This particular seaweed, known as Sargassum weed, can be a real trap. The sea also rotates slowly, clockwise, in the middle of the Atlantic. Before powered craft, the ships could be caught without wind and a circling current. They never got out again. They were doomed.

The Gulf Stream is an extremely swift and turbulent flow which will quickly remove any evidence of a disaster in parts of the Triangle.

The Caribbean–Atlantic weather is notoriously unpredictable, subject to sudden storms and water spouts. The ocean floor includes some of the deepest marine trenches on the globe and hence makes tracing sunken vessels or aircraft close to impossible.

Reefs, shoals around the islands, strong currents and unpredictable weather all add to the risks. Then please don't forget human error. Sadly, it is a common cause of accidents.

The only real mystery about the Bermuda Triangle is how it ever became a mystery.

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LEVITATION

Science, by its very nature, is always being adjusted. Science, unlike much of pseudoscience, is always questioning its tenets and revising them. Sometimes it has to reject openly a long-held belief. Such is science. But one long-held belief which is pretty well entrenched is that if a body is at rest then all the forces acting on it are balanced. So how can anyone or anything levitate? Float happily on air with no means of support? When suspended mid-air, there is a force that pulls you towards the Earth called gravity. To stay put and not fall to the ground, you need something holding you there—a push upwards to balance the downward pull of gravity. A chair does the trick well, according to classical physics. Mind power doesn't.

So I tell my physics students there must always be a balancing force and they say 'except when . . .'.

The most common 'except when . . .' offered by students relates to the photographs they have seen of men, cross-legged in the lotus position, floating while in a meditation-induced trance. Others support this with stories they have heard quoted of mediums floating at séances, and tables levitating despite all the sitters having their hands upon them. Excitedly, at least one student in every class tells of the time four or five of them lifted a heavy person seated on a chair with just their fingers. Initially they had been heavy, but after some ritual the lifters defied gravity.

The more prosaic, having scoffed at these enthusiasts, ask

how magicians levitate women on stage, and then assure me that the same method cannot possibly explain the famous Indian rope trick. Traditionally, this involves a piece of rope rising vertically above the stage, which is able to support humans climbing it. Bloodied limbs are then tossed from its heights to the ground below.

Surely, in the face of all these examples, I have to admit gravity can be defied and the laws of physics require modification? Not before I put up a fight.

Transcendental Meditation and levitation

You have probably seen photos of men in the lotus position apparently poised mid-air. Now I admire anyone who can get into the lotus position. I admire even more anyone who can bounce up and down on a mattress in that position. But my admiration dissolves when that is publicised as being evidence of levitation. Yet this is the well-known claim of Transcendental Meditation as proposed by the Maharishi Mahesh Yogi.

The TM movement, as it is usually known, offered highly priced courses on performing miracles. These miracles included the much photographed ability to levitate.

On the *Merv Griffin Show* in 1978, the Maharishi claimed that 40 000 students had enrolled in these courses, and thousands had learned to meditate. On 9 July 1986 over 120 journalists were present in the Capital Convention Centre, Washington DC, for the first official demonstration of TM-sidhi techniques and a promise of levitation by some of the thousands who had undertaken the courses. After a lengthy introduction by the Maharishi, there were just 22 practitioners who bounced in the lotus position on mattresses. They were bouncing very vigorously and hence may well have felt a sense of levitation, but the journalists were not convinced.

In 1986 the first International Yogic Flying Competition attracted an audience of 10 000 and 70 sidhas (perfect

beings) came and hopped on mattresses. None actually remained stationary in mid-air even for a few seconds. In the ensuing years, little has changed.

Consider the photo of yogic fliers in the picture section, which appeared in our local paper in 2001. Again, they are just bouncing on mattresses. The entire mattress can be seen. The mattress was unidentifiable as such in the trimmed photograph used for publication. More convincing photographs with less sign of motion have been produced by the TM movement and skeptics alike, using a strobe flash on the camera. Excellent examples are reproduced in James Randi's book, *Flim-Flam*, where he discusses TM in more detail.

Practitioners appear to be suspended in mid-air. However, their vertical movement can be clearly seen in the blurring of their image. It is not a blurred photograph, as the perfectly focused background testifies. The moving figures are blurred in the vertical plane only, because they are moving up and down.

After so many decades, it must surely surprise the believers that they have yet to see anyone actually remain stationary. TM practitioner Peter Mason quotes the Maharishi as saying:

We teach our students that by concentration through meditation they can create an impenetrable field of energy between the ground and their bodies. The greater the field of energy, the higher the meditating man can rise. It is simple QED.

(Peter Mason, 1994, *The Maharishi*, p. 249)

Without proof of this ability to levitate, it is difficult to justify belief in a 'field of energy' as yet unknown to physics.

The ability to levitate, according to the teaching of TM, is developed in stages. Another practitioner, Peter Russell, explains:

According to the *Shiva Samhita*, an ancient Indian text, the ability to fly through the air develops in three phases. First there comes the change in breath and sensations of warmth and

vibration up and down the spine. Second comes the 'hopping like a frog' experience by many people practising the TM Sidhis [powers]. Finally there comes the ability to stay floating in the air. This stage of 'flying' is still a comparatively rare occurrence. At the time of writing very few, if any, people on current TM courses seem to be experiencing it (Russell 1978, *The TM Technique*, p. 171).

I suggest there are still none who can truly levitate using this technique.

Finger lifting

Four people stand around a heavy person. They place crossed index fingers in specific positions around the subject: under the left and right arms and under the left and right knees. Using two index fingers only, they try to lift the subject. They are too heavy for them.

The lifters then perform some ritual, which usually involves raising the hands or pressing on the subject's head. They repeat some rhyme. Again they will try the lift. On the count of three, they are told. One. Two Three. And the subject is lifted with such apparent ease that there is no doubt they have defied gravity and levitated.

This feels very real for the participants. It has been recorded over the centuries. Samuel Pepys, in the entry for 31 July 1665 in his famous diary, recorded the trick being performed by French schoolgirls and related to him by a friend who witnessed the event. A poem was used. If you wish to add some historical significance to your next party, try the game using their words:

Voyci un Corps mort,
 Royde come un Baston,
 Froid comme Marbre,
 Leger come un esprit.
 Levons te au nom de Jesus Christ.

James Randi, in *Flim Flam* (p. 215), translates the verse as:

Here is a corpse,
Stiff as a stick,
Cold as marble,
Light as a ghost.
Let us lift you in the name of Jesus Christ.

Pepys comments: 'This is one of the strangest things I ever heard, but he tells me of his owne knowledge, and I do heartily believe it to be true. I enquired of him whether they were Protestant or Catholique girles; and he told me they were Protestant, which made it the more strange to me'.

An 80-kilogram man lifted between four people is only 20 kilograms per person. Using two fingers, that is 10 kilograms per finger.

In the first attempt, the need for strict unison in lifting is not emphasised. The participants are expecting they will be unable to lift the subject. It is unlikely all would move at exactly the same time. So the lifters are not perfectly synchronised. If only one of the other participants is behind schedule by a fraction of a second, then the weight felt will be significantly more. It is likely more than one of the others is not lifting at that instant. It all happens very fast because often the subject becomes unbalanced. All agree, the subject is too heavy to lift.

Some form of ritualised counting the participants in will synchronise their timing. Repeating a rhyme and then counting has them all concentrating on the precise moment for the lift. Having been told the lift will now be easy, all the participants lift in strict unison as a result of the ritual and counting. And so they take only their portion of the weight, far less than on the previous attempt.

The effect is usually enhanced by desensitising the brain to the arm muscles. To feel this effect, stand in a doorway. Press your hands hard against the sides for at least a full minute. Then step out of the doorway. Your arms will feel light and float a little.

Psychic Uri Geller has participants place their hands above the head of the subject for a minute, while others have the hands pressed on the subject's head.

With desensitised detection of the weight, and its even distribution between participants, the subject feels much lighter than in the previous attempt.

The forces are all in balance and I don't have to revise my teaching, yet.

Levitating tables and mediums

During the séances we visited earlier, it was common for tables to move under the spirit guide, or even lift themselves from the ground. Some mediums even levitated themselves. Astonishing stories are told.

The most common story is of the table moving from side to side and lifting when all hands are placed upon it during a séance. Depending on the skill of the medium and their preparation, this may be a small or large effect.

One method used can be simply demonstrated on any light table such as a card table. Many séances were conducted around small, light tables. Press down on the side of the table and then draw your hands, still pressed firmly, towards yourself. The far legs will lift. It looks as if your hands are just resting on the table. It was usual to have the sitters just touching their little fingers, rather than holding hands, when this method was going to be used.

When the table was to be swayed first one way and then the other, another method was used. If the medium wanted to sway the table to the right, lifting the left-hand side, they would press down on the right-hand corner and out to the right of the table. Lifting the left-hand leg slightly, the rim of the sole of the left shoe could then be placed under the leg of the table to lift it. Dropping the left leg and repeating the move on the other side allowed the table to sway or even rock back and forth. Many mediums were caught doing this.

A more impressive effect was when the entire table lifted when all hands were on it. The sitters had to stand up to keep their hands on the rising table.

To do this, an array of hooks was used. Metal hooks were attached to the medium's sleeve with rope. The concealed hooks could then be attached to the table when hands were being joined. A confederate on the other side of the table was similarly attached. When the medium and confederate claimed the table was rising, they would lift their wrists slightly and it would rise. As they rose to keep their hands on the table, so the table rose with them. The effect was, in fact, the cause.

This may have been the method used by the most famous levitating medium of all, Daniel Dunglas Home (1833–1886). D.D. Home was never caught cheating, or so his supporters claim. It is always mentioned, as evidence of his bona fide talent, that he worked in a fully-lit room, which enhanced the respect in which he was held. What is often *not* mentioned is that he always requested the lights be dimmed for his most famous trick of all: levitation.

In the darkened room, recorders of Home's séances would report the way his voice seemed to come from on high and that they could feel his shoes at face level. This indicates just how dark the room must have been. The smell of boot polish enhanced the effect. All of this could easily be achieved by Home standing up, so his voice would come from higher in the room. With shoes on his hands, held at face level, the effect would match the descriptions of those who wrote down their experiences.

Sometimes writing would appear on the ceiling. Other mediums were detected using chalk attached to rods to perform this feat. Although we may consider these methods clumsy, it must be remembered that they took place under the influence of the power of the personality of D.D. Home and other mediums in an atmosphere of belief, and probably more important, a desire to believe.

Home's most famous levitation took place at Ashley House on 16 December 1868. It was described in detail by

Lord Adare, with whom he often stayed, and executed in the presence of Adare's friends Lord Lindsay and Captain Wynne. Home apparently floated out of the window of another room to enter the séance room through the window. Both rooms were on the third floor and connected only by a narrow ledge.

The three sitters had been instructed to stay in their seats, which they did. Home later took Adare to the other room where the open window was evident.

Given the dark rooms and strong suggestion placed in the minds of the sitters, is it possible Home merely went out of the room and slipped back, in the dark, to draw attention to himself by the window in the faint light? He could then open the window, appearing to climb in.

Gordon Stein's *The Lore of Levitation* covers a wide range of levitation claims. He quotes Adare's own report in *Experiences in Spiritualism with D.D. Home*, published around 1870. Adare writes that the windows were eighty feet above the ground and that there was a gap of about seven feet between the windows. Stein acknowledges that the building is no longer standing but, from the photographs of it, the two windows were only about thirty-five feet above the ground and, which is far more important, only about four feet apart. In addition, a small ledge connected the two balconies, making passing between them feasible.

We can never know what really happened that night. We can never prove Home didn't levitate as claimed. But there is certainly insufficient evidence to be sure he did. Also, although we have photographs of D.D. Home and his séances, there are only drawings of his famous levitations. Is that because the room was too dark, or because a photograph might reveal a different story?

Levitating ladies

The magician has an assistant—a lovely lady, as tradition holds. She lies down on a table while, one by one, all visible

means of support are removed. The magician passes a ring over the body to show there is nothing supporting her.

This is a very effective stage trick presented in many formats. It is usually impossible to explain by merely watching from the audience. Anyway, why spoil the fun? Magicians don't claim to be using paranormal means. We all know it is just clever conjuring.

There are a number of ingenious ways in which this effect is manufactured. In all cases there is some means of support. It may be from below and covered by draping material or some other block. It may be from behind a back curtain, or from above, hidden by the stage fittings. Some magicians use expensive hydraulic devices, others rely on more simple deceptions, such as false shoes held out on a horizontal table. Interestingly, while the body levitates, the hair and dress fabric don't. They still hang down under the conventional force of gravity.

The movement of the ring is also done in such a way as to appear to completely encircle the prone figure, but there are various ways to avoid having to pass over the support.

Magicians have come up with better and better deceptions for levitating assistants. They are magic tricks and should be enjoyed as such. They offer no challenge to gravity.

Stage levitations do not usually involve sending groundward the chopped up and bloodied limbs of the assistant. That is the unique feature of the most famous levitation trick of them all: the Indian rope trick.

The Indian rope trick

It is just after dusk and the Indian fakir stands before the crowd, resplendent in flowing robes and turban. The outdoor stage, lit by the fires and lanterns around it, is a magical sight. The fakir takes the coiled rope and tosses the weighted end into the air. It is a long rope and the top is barely visible in the dull light beyond the fires. The end disappears and there it stops.

The fakir's young assistant runs to the rope and climbs it with ease. The fakir instructs him to come down. No assistant. Again he calls his assistant. And then a third time with growing anger. The fakir climbs the rope until he, too, is barely visible. Soon the poor assistant is torn, limb from limb, and the bloodied limbs drop to the ground. An arm, then a leg, thud on the soil before the astonished crowd.

The bloodied fakir returns down the rope. He gathers the limbs and places them in a large basket. After a short time the assistant, intact, climbs from the basket to the relief of the applauding crowd.

So dearly did a member of the British Magic Circle want to see the famous rope trick that he offered five hundred pounds to anyone who could perform it. In 1919, when the offer was made through an advertisement in the *Times of India*, this was a princely sum. No one claimed the prize and the magician concluded the trick was merely a rumour. As Indian fakirs were not highly represented in the *Times of India's* readership, it is likely his conclusion was in error.

Some claim the trick never existed, but was just a journalist's hoax. However, an explanation of the trick has been proposed which not only explains how it could be done, but why it is performed so rarely, if ever.

The site for the performance of the trick needs to be an open area between hills. Therein lies the difficulty. The trick requires a black wire to be suspended between the hills such that it is invisible to the audience, which is admitted at dusk. The height of the wire needs to be at least ten metres above the ground.

A ball on the end of the rope acts as a weight. The fakir must toss the rope and ball so it hooks over the wire securely. Some writers suggest that a small child in black crawls along the wire to catch the ball. Others say the fakir tosses the rope a number of times until the hook is secured to the wire.

The rope is then suspended from this wire enabling the ground-based assistant, who is always a small child, to climb the rope. There he waits for the fakir. The latter then climbs

the rope to meet the assistant. From under his robes, the fakir takes the shaved limbs of a monkey and drops them to the ground. He bloodies his robes. The assistant clings to the fakir and descends with him, hidden by his voluminous robes.

As the fakir places the monkey limbs in the basket, the assistant slips from beneath the robes and climbs into the basket, ready to emerge.

As required, the assistant then steps from the basket to well-deserved applause.

No wonder it is rarely performed.

Conclusion

Despite many varied claims of the ability to levitate and hence defy gravity, no one has done so under test conditions. I feel confident in continuing to teach my physics class without having to include any exceptions.

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DOWSING AND DIVINING

They came. They dowsed. They conquered.

They didn't conquer the laws of physics or the skeptics. But despite a complete failure to demonstrate any dowsing effect whatsoever, they did conquer the evidence and left with their faith intact.

On Sunday, 10 March 2002, 30 water diviners arrived at the small Australian town of Mitta Mitta in the state of Victoria. Twenty-five bottles, containing either sand or water, were covered and arranged on tennis courts. Two further bottles, one of sand and one of water, were available for the diviners to check and confirm that their rods and pendulums responded as they should. As they approached the test bottles, the rods jerked towards the water, while the pendulums spun. None responded to the sand filled bottle. All was recorded for the Australian Skeptics' 'The Great Water Divining Video'.

Diviners checked the test area for underground streams or other interference, but declared all was fine. Signing documentation agreeing that the test was fair, they expressed their confidence that they would have no trouble determining which bottles held which substance.

So they divined all day in the hot sun. Rods twitched and pendulums swung. One even hooted a horn which would change pitch depending on the substance. Some used two rods which moved together, others relied on them moving apart. Some used double rods, some used single, some used

forks of green wood. Some used coat hanger wire and one dowser became so agitated when near water his hands spun until he was physically hurt. None made any attempt to cheat. Twenty-five readings for each dowser were made and the twenty of which the dowser was most confident were scored. All was documented, on video and on paper.

The resulting bell curve was beautifully balanced around the mean of ten correct readings. They had performed exactly as predicted by chance. Confronted with their failure to show any dowsing effect, there were reasons galore. The water was too still. The water was moving. The water had lost its static or had too much salt. It differed between bottles or was rain water or wasn't rain water. The fence interfered or the underground streams got in the way. The water had lost its pull out on the hot tennis court, and so the bottles should have been shaken. Or not shaken. Or it was just an off day.

These people have an identity tied closely to their ability to divine water. It is not surprising they did not willingly relinquish their claim to being special.

Testing dowsers

The Mitta Mitta Muster of 2002 was not the only such gathering of skeptics and dowsers. In March 1979 magician and skeptic James Randi went to a site near Rome to test dowsers with the Italian television producers, RAI-TV. They tested three dowsers who had negotiated with Randi and agreed to the conditions. Signing the agreement, they all confidently predicted their success in detecting water flowing in buried pipes. They all said the presence of skeptics would not affect their art.

None were able to demonstrate an ability to dowse despite their extreme confidence, even after the testing had occurred. When the results were revealed, their failure to perform any better than by chance was a shock to them. All claimed they had never failed before.

In 1980 Randi came to Australia to join adventurer and businessman Dick Smith in testing dowzers in Sydney. Again written agreements were signed to verify faith in the test design. Again supreme confidence dominated and again they were shocked when they failed to perform better than chance.

In 1992, carefully controlled tests of dowsing took place in Germany at Kassel, a town to the north of Frankfurt. Conducted by the scientific group *Gesellschaft zur wissenschaftlichen Untersuchung von Parawissenschaften*, the 30 dowzers from Germany, Denmark, Austria and France dowsed for three days producing masses of data and predicting they would score 100 per cent success.

Here dowzers confidently showed they could detect water flowing through a pipe when they knew the water was flowing. The rods didn't react when they knew the water was not flowing. But as soon as the tests were performed without this knowledge, they scored no better than would be predicted by chance alone.

Under test conditions, dowzers have been consistently surprised by their own lack of achievement. So why would they so readily accept the challenge of testing?

The dowzers' belief in their abilities is genuine. Bob Nixon, Chief Investigator for the Australian Skeptics and a member of the Dowsing Society of Victoria, claims he has never met a dowser he did not like. Nor has he met one he didn't believe was absolutely genuine.

There are various financial rewards totalling millions of dollars on offer for any demonstration of true paranormal abilities. Offered by skeptic organisations, they are available to claimants from all over the world. The majority of claimants are dowzers because their sincere belief in their abilities is unquestionable. Although the prize has never been awarded, Nixon hopes that if it is, it will be to a dowser.

Tools of the trade

A divining rod is merely a rod, wire, twig or pendulum

which is in poor equilibrium. It is held in balance, but the poor state of equilibrium means that very little pressure is required to cause a movement. So little, that the dowser is unaware they are providing this movement themselves.

A forked stick is the ancient favourite. A freshly cut green twig with two slim branches is held by the branches, with the stem facing away from the body, the dowser's palms up and thumbs resting firmly on the forks. The thumbs face away from the stem. With elbows tight to the side, and the twig positioned horizontally, the rod and the human muscle are held tense and finely balanced. It is difficult to keep the twig horizontal.

This is a state of so-called 'unstable equilibrium'. A slight movement and the twig will suddenly jerk up or down, depending on the movement. The suddenness and force of the movement is surprisingly convincing of an external force.

A coat hanger is often used. Sometimes cut to the shape of a forked twig, it can be used as described above. Often, however, coat hangers are cut and bent to give two L-shaped rods. Each has a handle of about 12 centimetres and a long section of about 30 centimetres. The two parts are bent to be at right angles to each other. The handle is held gently in the hand as if the rod is a pistol; the long section is horizontal and free to move. When the item of interest is detected, the rods will suddenly move outwards or inwards to cross. Again, the movement is sudden and feels as if it is driven by an external force.

If a pendulum is used for divining it can be made from any heavy object suspended on a thread. The longer the thread, the more sensitive the pendulum and the more dramatic the movement. Held vertically, the pendulum bob will move according to the location of the substance or object of interest.

DIY divining

Try it yourself. Using any of the techniques described above, take your divining device and walk near an object of interest. Concentrate on keeping the rods or pendulum still. When you reach the object, concentrate on the fact that the time has come for the device to respond. And it will.

I am constantly astounded by how real the feeling is and how easy it would be to believe some external force has moved the rod. But hide the object and my skill in detecting it disappears. My divining skill depends very much on my expectation of the rod moving, despite every effort to keep it from doing so.

Try holding a pendulum still. Try even harder to hold it still while thinking of a swinging pendulum. You will move it even though you are unaware of doing so. The more you concentrate on that swing, the bigger the swing will become.

The rod or pendulum is balanced so lightly that the slightest movement will produce a large response. A small muscle movement of which the dowser is not conscious, called the *ideomotor effect*, can cause a large reaction from the rod. The control mechanism is the human brain, not some force or field unknown to science.

Testing the theory

Would you like to test this theory? Give a dowsing rod to a person, explaining it will move to a magnetised rock. Explain that dowsing is claimed to be some kind of link between magnetic energy and the subconscious brain. Show them your magnetised rock and move it nearer to the dowsing rod. The rod will turn to it and the holder will swear they didn't do it. Revealing that you lied, and the rock is not magnetised should remove the effect.

Pendulums are used to divine water, gold, oil and almost anything over a map, as well as the gender of babies still in

the womb. But it is only anecdotal evidence, where successes are quoted and misses forgotten, which gives the 'evidence' so many accept as real.

You can test a pendulum diviner. Using a stationary horizontal bar, allow the thread from the dowser's hand to go over the bar and then let the pendulum hang above the target. If there is a force unknown to science causing the swinging then it should still move. The dowser is still holding the thread and the pendulum is still free to swing. But it doesn't move. This is because the dowser's muscles are no longer able to cause the movement.

Underground water

Dowsers talk extensively about underground streams, but despite thousands of holes being drilled all over the world none have been detected by engineers. Water does not run in underground streams except around limestone caves. It oozes very slowly through rock or stays still. Otherwise, our precious subterranean water tables would have flowed to the oceans long ago. Most underground water is stationary. For geologists and all those who dig for mines, bores and wells there is no such thing as an underground stream. For dowsers alone they are a fact of life.

Australia, like much of the world, covers a huge water table. You could drill almost anywhere and eventually hit water. Only the depth will vary. Detecting places where there isn't water is far more difficult. (Yet dowsers will often pinpoint an exact location for water.) If it wasn't so expensive, drilling in one of the many spots in which the rod did not detect water would be most instructive. I confidently predict water would be struck in the location a metre from the position where the rod reacted so suddenly.

Why it 'works'

The dowser is usually an intelligent and practical person who operates in their own locality. It is likely that local knowledge and instinct helps locate good sites for locating the water or precious ore. Some work for nothing, genuinely believing their skills are doing good for others. Some charge hundreds of dollars per hour. Some high-profile psychics will dowse for a price very much more than that.

The only explanation for dowsing which matches all the non-anecdotal evidence is that there is a self-delusion, a tendency to retrospective elaboration and an unconscious use of local knowledge. All greatly sustained by the fact that there is so much underground water to detect.

Testing of dowsers using running water, stationary water or any of the many materials they claim can be detected has never produced results other than those predicted by chance. There are as many pseudoscientific theories on what causes the dowsing effect as there are dowsers. Perhaps one will prove to have substance. Perhaps one will demonstrate a true dowsing skill. But it hasn't happened yet.

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YETI, BIGFOOT AND OTHER APE-MEN

Of the many beliefs which are not yet accepted by the scientific fraternity, the existence of a primate species unknown to man is the one most likely to be justified. To prove there is no such creature would require clear felling all forests on Earth.

Creatures unknown to science are constantly being discovered. The depths of the oceans, previously unexplored, are delivering dozens of new species every year, including quite large animals. New mammals, as well as a myriad of invertebrates, are being found deep in forests which have been little explored in the past. To accept the existence of a creature still undescribed by science, however, there needs to be evidence. So what evidence has been found for the yeti, Bigfoot and other ape-like men?

The yeti, or abominable snowman

The yeti is the name given to the human-like beast which some believe inhabits the Himalayan mountains. The local word, *metoh-kangmi*, means filthy or abominable snowman. Western climbers have reported sightings and the British climber Eric Shipton has even photographed tracks.

The mountain areas are worshipped as the home of the gods and yetis, so there is a rich mythology to draw on. The Sherpas have a festival to drive out evil spirits in which a

villager is adorned with yeti scalps. He represents the spirit of the yeti. One such scalp was given to Sir Edmund Hillary, an event recorded in a photograph of the great climber with the village elder Khumbo Chumbi, the keeper of the scalp.

Disappointingly, on testing the scalp was found to be made from the skin of a Himalayan goat. In 1966 Sir Edmund Hillary led a six-month scientific expedition of 22 scientists and mountaineers, funded by the *World Encyclopaedia*, to search for the elusive creature. They concluded the story of the yeti was a myth.

There has never been a photograph of a yeti, or any physical evidence that they really exist. The area is huge and inaccessible, so the possibility is there but, at the time of writing, the evidence is not. Despite many long and well-supported expeditions, not a single hair, dropping, bone or lair of this unknown beast has been found.

Lack of oxygen is known to contribute to hallucinations and humans are known for their sense of fun and tendency to hoax. Is this, mixed with an ancient mythology, the source of the beast's folklore?

Some fascinating theories have been proposed. Possibly the yeti is a relative of *Gigantopithecus*, a huge ape which lived in China and India millions of years ago but became extinct about 500 000 years ago. Maybe it is a Neanderthal who has somehow survived. Perhaps the yeti is a new species of great ape. However, it is unlikely a great ape could survive in the harsh conditions of the high Himalayas, where the temperature falls to -20°C . This is too cold for a primate. All other mountain animals hibernate or move to lower ground. It is possible, but seems pretty unlikely.

Bigfoot

Bigfoot is the cause of thousands of reported sightings, the first being by frightened miners in Washington State in 1924. The term 'Bigfoot' was coined in August 1958, when the *Humboldt Times*, Eureka, California, ran a front-page

story about the huge primate footprints found in the forest by a bulldozer driver working for Ray L. Wallace's company, Wallace Construction. Wallace's death on 26 November 2002 has allowed his family to reveal the carved wooden feet he strapped to his own to create the footprints. He perpetuated the hoax for years, typical, his family say, of his prankster nature.

Bigfoot is best known from the images caught on film. The ape-like beast is seen disappearing into the forest, glancing back at the cameraman as he flees. Rodeo rider and amateur photographer Roger Patterson took the one-minute footage in Bluff Creek, North Carolina, in 1967. He was sent to that area by none other than Ray Wallace. Wallace's wife Elna, the family say, has admitted to being filmed dressed in a Bigfoot suit.

In 1969, it was loudly claimed, an American was attacked by a Bigfoot, shot it and had it frozen. Since then, the body has been displayed for all to see—at a price. According to the showman Frank Hansen, zoologists were convinced it was a genuine early human. Regularly exhibited since then, usually in shopping centres, Hansen—who charges an admission fee—claims he shows it for the millionaire owner, who doesn't want it destroyed by scientific investigations before people have had a chance to see it.

The story is spoilt by the family of the late Howard Ball, an expert modeller working for Disneyland, admitting he made it. Ball specialised in prehistoric creatures, but had nothing to do with the hoax.

A partly decomposed carcass was found in 1978 at Lewiston, New York State, near the Canadian border. Dismissed by locals as a decomposed bear's head, it made newspaper headlines across America in 1980 when a Lewiston teenager told Jon Beckjord, head of Project Bigfoot, of the photograph of the beast's strange protruding teeth. Scientific tests later showed it was the remains of a black bear which had been hunted in Canada, and the remains dumped in Lewiston. Decomposition can lead to distortions such as protruding teeth, giving the animal a

most unfamiliar look. Not surprisingly, this conclusion did not make the headlines.

In 1987 Bigfoot hit the headlines again. In Mill Creek, in the Blue Mountains of Oregon, footprints measuring up to 40 centimetres in length were found. Even more amazing, the prints showed dermal ridges, the foot's equivalent of fingerprints. They were clearly too detailed to be fakes. They had been discovered in 1982 by Paul Freeman, a forest service patrolman, and plaster casts had been made by Grover Krantz, an anthropologist at Washington State University. All pretty impressive stuff.

Wildlife biologist Rodney L. Johnson examined the casts and pointed out that pine needles had been brushed aside to allow the print to be made in the soil. Animals do not tend to do this. There was no sign of toe or heel slippage on the slope, which was a steep gradient. The prints didn't sink to the bottom of the mud, as they should have done if a heavy animal had made them. Joel Hardin, a US border patrol tracker, found the tracks suddenly appeared and just as suddenly disappeared. The prints were a hoax. Freeman had worked for an orthopaedic shoe company which created enormous shoes for men with oversized feet. He was certainly capable of moulding prints with dermal ridges. Reputable media, such as *Newsweek*, 21 September 1987, claimed 40 fingerprint experts agreed the prints were authentic, but these experts could not be located or their statements verified. Bigfoot enthusiasts were rightly upset. The most impressive set of prints to date was a fraud.

Not all strangely large footprints are the result of hoaxes. Many of the recorded footprints from America, Canada, Nepal and other sites are made in snow. As snow melts around a warm print, say that of a bear, the print becomes larger. A print left in the snow will thaw a bit during the day and re-freeze at night. This can lead to distortions of the original print. For this reason, snow prints are not reliable evidence.

Other ape-like creatures

There are many ape-like creatures reported from around the world. Russia has the Alma and the Chinese have a Wild Man. Sumatra claims the Chang-pendek, whose shortness suggests there may be an unknown breed of orang-utan in the region.

Not to be left out, Canada has the more romantically named Sasquatch, a local native-American word meaning 'wild man of the woods'.

Australia has a beast, too: the Yowie. Its teeth marks are left in trees. Unfortunately these marks are indistinguishable from those left by the yellow-tailed black cockatoo.

This confusion of signs with those of other animals is a common problem with the ape-men hunters. Although many claim to be experienced bushmen, it takes expertise to recognise damage or remains from every animal in a given region, including feral species. It's hard to avoid genuine mistakes.

Why the doubters doubt

Bigfoot, the yeti, and all his mates must have a community. Animals cannot breed alone, nor can they survive for as many years as these reports indicate without a population large enough to sustain the gene pool. A group of animals must leave evidence of their existence. They must defecate, die, be born, have shelter and eat. No species of the size we are talking about can do this and leave no trace of its presence.

Extremists like to claim that the lack of tangible evidence of Bigfoot relates to its paranormal existence, its alien origins or its psychic means of blocking detection. More rational Bigfoot/yeti/abominable snowman/Sasquatch/Yowie/Alma/Chang-pendek proponents search for evidence of a species as yet unknown to science. And they might just find it.

THE LOCH NESS MONSTER

Saint Columba first sighted the Loch Ness Monster way back in the sixth century. The monk's disciples were frightened, but a mere sign from Saint Columba scared it away. So it is said. Lots of things are said about the Loch Ness Monster.

One hundred years after the event, Saint Columba's biographer wrote that the saint had seen a monster in the River Ness and described the effect of the sign. Miraculous claims were part of the biographical style of the time and the River Ness is not the loch, but a shallow waterway which adjoins it: far too shallow for a creature of Nessie's magnitude. In truth, stories of a marvellous monster are only relatively recent.

There may be a monster in Loch Ness. Short of draining the immense loch almost dry, it is impossible to prove there is not.

Prehistoric survival

The most popular theory is that the monster is an unknown prehistoric animal which has somehow survived without science detecting it. Comparing this hypothesis to the discovery of the coelacanth puts the likelihood into perspective.

The coelacanth is a prehistoric fish thought to have died out about 70 million years ago. In 1938 a live specimen was found in the Indian Ocean. A very small fish in a very large

ocean. Subsequent searches have actually located further specimens.

Yet 70 years of intense hunting by hordes of investigators—amateur and professional—around, above and below a loch which is only a fraction of the size of the Indian Ocean has yielded not a single piece of solid evidence. Nothing.

The loch

Loch Ness is located in the Scottish Highlands and is Britain's largest lake. It is 36 kilometres long, over 1.5 kilometres wide and 290 metres deep. That is a very big and very deep lake.

The loch dates back over 300 million years and is filled with peat. The water is naturally murky, which makes it difficult to see much and so enhances the possibility of an elusive monster.

Sightings and blurry images

Although some believers report earlier claims, the first documented report is from 1933, when Mr and Mrs John McKay reported a disturbance in the lake, possibly caused 'by two ducks fighting', which only Mrs McKay had seen. By the time journalist Alex Campbell had elaborated the story for the *Inverness Courier*, Mrs McKay had seen a monster, humps and all. So the legend, and tourist industry, began.

Reports flowed in regularly, feeding the story and the intense public interest. On 12 November 1933 Hugh Gray Walker produced the first of the famous blurred photos to appear in newspapers. Although dismissed by zoologists, these first images increased public interest enormously. Analysis of the well-known photograph of three humps produced by forestry worker Lachlan Stuart has concluded they were probably three rocks near the lake's edge, but public enthusiasm rose yet again.

In April 1960 Tim Dinsdale used a 16 mm cone camera to film a hump swimming away from him. Analysis by the British Royal Air Force Joint Air Reconnaissance Intelligence Centre is quoted as confirming it was animate. This means moving, not necessarily alive. Although Dinsdale claimed it was definitely not a vessel, the film evidence does not rule out a dully painted motor boat moving at about 16 kilometres per hour. Dinsdale was fatigued, late in a day of searching during which the staunch 'Nessie' believer had already reported a floating log as the monster. Computer enhancement found other shapes which might be part of a giant beast. But then again, they might not.

Meanwhile, universities mounted searches and biologists arrived in expeditions. Scientists and film makers and throngs of tourists boosted the local economy. Books boosted some personal economies and the coffers of the publishers.

British naturalist Sir Peter Scott formed the Loch Ness Investigation Bureau to explore the lake systematically. Using search lights and sonar, their long watches yielded only a few sightings of large objects, but no firmly identified monsters.

In 1969 Londoner Frank Searle gave up work to camp full time at Loch Ness. After two frustrating years he saw the monster and produced a photograph. Unfortunately, the image was shown to have been tampered with and the lost income and lonely vigil was wasted. He continued to camp and search and produce blurry photographs. The still water around the massive beast has led analysts to conclude most of his photographs are logs and a few deliberate fakes.

The professionals join the search

Dr Robert Rines from the Academy of Applied Science in Massachusetts, USA, headed a team of scientists who worked with the Loch Ness Investigation Bureau. They set up automatic cameras, with exposures timed at 10-second intervals and sonar triggers to detect large objects. Starting in

1970, they worked the loch for eight years. A submerged submarine was employed to tackle the murky depths. Although one photograph appeared to show the flipper of a large creature, subsequent computer enhancement showed nothing definite. Just another blurry photo. A retouched version was published, and fatuous claims were made for the flipper-shaped something.

The year 1978 saw the formation of the Loch Ness Project. Organised field trips of students took samples from the bottom of the loch, hoping to find some evidence in the sediments. After 20 years of systematic searching, the project leader, naturalist Adrian Shine, concluded there was no Loch Ness Monster.

Operation Deepscan, in 1987, used a 24-launch flotilla and sonar, but no firm evidence of the monster emerged. The stories and the searches continue.

A good photo did appear back in the old days. The famous 'surgeon's photograph' was taken in 1934 by London surgeon Robert Kenneth Wilson, and its publication converted many doubters. Showing the long neck and tiny head, it has been reproduced many times and is the best known image of Nessie. However, a 1994 investigation concluded it was an elaborate hoax, which has now been confirmed by Christian Spurling, the last survivor of the team who helped Wilson photograph a plastic neck attached to a toy submarine. Footprints discovered in 1933 were faked using that interior decorator's dream, a hippopotamus foot.

Monstrous manifestations in the loch

Loch Ness is a huge lake, surrounded by mountains and often lost in fog. People approach the loch looking for a monster. Most are not locals. There are many sights which could be suitably monster-like beyond the usual boats and floating logs.

Loch Ness contains a huge population of salmon which occasionally surface in groups. This can cause a large

disturbance, which matches the description given of the first sighting by Mrs McKay.

Otters can be well over a metre long, and a frolicking group of large otters is not something most people would instantly identify, other than, maybe, as the humps of a monster. Deer swim in the lake and driftwood comes in monstrous shapes.

The lake is also subject to temperature inversion layers. These atmospheric conditions cause strange reflections of the mountains and surrounds, distorted by the unusual conditions. Explained more fully in Chapter 17, they are a common cause of bizarre sightings.

Nessie biology

A monster needs to survive. It needs to eat and it needs fellow monsters with which to breed. Scientists estimate there is insufficient food in the loch to sustain a warm-blooded beast. Cold-blooded animals such as reptiles need environmental warmth to provide their energy. Loch Ness is far too cold to sustain life in a cold-blooded animal.

A prehistoric animal would have had to survive the frozen lake through various ice ages.

If Nessie exists, she is a rare beast indeed.

Still, maybe . . .

Not to be outdone, Canada has Ogoopogo, its monster in Lake Okanagan. Vermont, USA, has 'Champ' swimming around in Lake Champlain, while Issie lives in Lake Ikeda on the island of Honshu in Japan. All elude the camera.

There is no evidence of the existence of the Loch Ness Monster which is in the slightest bit convincing. But wouldn't it be wonderful to go to the stunning Scottish Highlands and maybe, just maybe, take the definitive photograph which proves the skeptics wrong?

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—James Randi, "The Amazing Randi"

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