Dream Incubation

Bob Trubshaw

front cover: rainbow over Carn Ingli, Pembrokeshire, Wales
2nd September 1999

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albion@indigogroup.co.uk

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Preface

Roughly once a decade I have ventured into print about dream incubation and related topics (see Trubshaw 1995; 2003a; 2003b). Since the last of these articles I have read the excellent study of the Aeskelpion temples in Greece included in Michael and Reynold Higgins’ A Geological Companion to Greece and the Aegean. A repeat visit to the Lydney temple in spring 2015 prompted me to reread these and directly led to the drafting of this revised approach.

This work is in two parts. The first attempts to offer an overview of the known history and archaeology of places associated with dream incubation. The second is much more speculative, looking at the geology of dream incubation temples in Britain and the Mediterranean and to what extent this might make them places most suited to ‘inspiring’ dreams.
PART ONE

Dream incubation

In an especially attractive and steeply undulating part of the Forest of Dean near Lydney in Gloucestershire are the remains of a Roman temple dedicated to Nodens. The site was excavated by Sir Mortimer Wheeler in 1928–9, and there was a further ‘dig’ in 1980–1. This later dig revealed that Wheeler’s original estimates of dates were flawed. Current thinking is that:

the religious buildings had their inception in the second half of the third rather than in the middle of the fourth century, that there was a refurbishment in the fourth century but that there was serious deterioration of the structures after the middle of the century.

(Casey et al 1991: 81)

The Roman temple was built within an Iron Age promontory hill fort covering 4.5 acres (1.8 hectares) with dramatic views over the Severn estuary. Before the temple was constructed the Romans dug there for iron ore, although the workings were abandoned, presumably because better-quality ore was available elsewhere in the Forest of Dean. Nevertheless, open-cast ‘mines’ (known locally as ‘scowles’) and tunnels survive.

The temple at Lydney seems to have been used for healing as there are numerous votive offerings, along with the lead ‘curse tablets’ associated with Roman temples. One of the buildings at Lydney is
unusual for Britain but better-known on the Continent, especially around the Mediterranean. This is the ‘guest accommodation suite’ with lots of small rooms. These are known to be used for healing rituals known as ‘dream incubation’. The Latin name for these types of buildings is *incubation*; the Greek is *abaton*.

**What is dream incubation?**

Seemingly all humans dream, although not everyone remembers them. But when we do, we invariably try to make sense of the confused imagery and events of our ‘dream time’. It is as if our dreams are trying to tell us something. But what?

Western thinking about dreams has, since the dawn of the twentieth century, been deeply influenced by the ideas of Sigmund Freud and Carl Jung. Freud’s *The Interpretation of Dreams (Die Traumdeutung)* first appeared in 1900, although the first English translation took until 1913. But Freud is really a Johnny Come Lately to this subject. The
Left: A plan of the remains of the temple and associated buildings at Lydney. The incubation is shown in blue.

Below: The foundations of the incubation have been reburied. Penny and Arthur Billington mark out the north-east corners. The remains of the bath house are visible to the left.
oldest references to interpreting dreams come from ancient Chinese literature. Intriguingly, they refer to people specifically seeking divinatory dreams.

The process of performing a ritual before sleeping (typically involving asking the deities for advice) in the expectation of the answer being

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**Access to Lydney Roman Temple**

The remains of the Roman temple at Lydney and the associated museum are part of Lydney Park Gardens. These are open to the public on a few days each year from early April to early June. Dates and times vary each year. Information online at www.lydneyparkestate.co.uk/gardens.html or phone 01594 842844 / 842922
revealed in a dream has become termed ‘dream incubation’. Often the place where the person slept was significant. Also common was the presence of professional dream interpreters, known as *theraputes* (which evolves into the modern word ‘therapist’).

Divinatory dreams are widespread and well-known from the ancient Egyptians, Classical Greeks, Jews and through to modern day Christians, Moslems and Hindus. The literature on the topic, although not vast, is rather scattered. The later sections of this work attempt to summarise the results of two decades of discovering relevant information.

Note that in the Roman era dream incubation was less a method of healing *in itself* and much more a divinatory technique used to establish the prognosis of an illness and the best ways of alleviating or curing the symptoms

**Nodens and Nuada**

Although many votive offerings were recovered at Lydney there are no depictions of deities. However the temples seems to have been dedicated to Nodens as he is referred to on a lead curse tablet inscribed in Latin. The translation reads:

> For the god Nodens. Silvianus has lost a ring and has donated one-half [its worth] to Nodens. Among those named Senicianus permit no good-health until it is returned to the temple of Nodens.

Nodens is mentioned on inscriptions elsewhere in Britain and Gaul. He seems to be the same as the Irish deity Nuada, who was especially associated with dogs.

*The lead curse tablet.*
Among the miniature votives at Lydney are depictions of dogs, including a very attractive ‘hunting hound’.

In Greece there is a folk belief that the lick of a dog can heal a wound. Archaeological evidence of dogs is commonly found at the dream incubation temples dedicated to Asclepios throughout the Mediterranean (these are discussed in more detail later). This suggests, although does not prove, that dogs were part of one or more healing processes. There is no fundamental reason why the association between dogs and healing could not have been brought from the Mediterranean to Lydney. However the links between Nuada and dogs in Ireland, where Roman influence was indirect, suggest this custom was indigenous.

During 2016–17 attention has been drawn to the ability of dogs to be able to detect the smell of cancer and for their saliva to have antibiotic and healing capabilities:

en.wikipedia.org/wiki/Wound_licking
www.ncbi.nlm.nih.gov/pubmed/2125128
www.bbc.co.uk/news/health-39251932
www.bbc.co.uk/news/health-39217858

The miniature dog from Lydney (80 mm long).
Lydney’s little-known ‘sibling’

Lydney is not unique in Britain as another Roman temple had a similar ground plan. This is Thistleton, on the border of Leicestershire, Rutland and Lincolnshire (Ordnance Survey grid reference SK910171). The location immediately adjacent to where three counties come together is typical of major ritual sites. We can reasonably assume that these boundaries go back to Iron Age times as the east-west orientation of the modern county boundaries seemingly originates with the division between the northern and southern halves of the Corieltauvian region (presumably originating as two ‘affiliated’ smaller kingdoms).

The temple at Thistleton is situated on a rich source of iron ore which was exploited from the Iron Age right through the Roman period and later. The temple and about eight acres of the associated Roman town were excavated by Ernest Greenfield between 1956 and 1963, immediately prior to the destruction of much of the site by large-scale quarrying. Predictably such ‘rescue archaeology’ was under-funded and rushed, even by the rather dire excavation standards of the time. Sadly there was no attempt to publish the results. However the limited surviving records reveal that the town and temple started in the Iron Age, with iron working as the predominant activity.

Iron Age pottery and coins indicate that the site was important before the Roman conquest, and almost certainly for religious reasons. The first temple building was wooden and erected in the first century CE,
then replaced by a circular stone structure. In the late third century this circular shrine was demolished and a large basilican temple built, extending 19.5 by 13.5 metres. Basilican temples are rare in western Roman provinces and almost always associated with urban settlements. This rural example is one of the few exceptions – as is the temple at Lydney.

The basilican temple at Thistleton contained a votive deposit with a small inscribed silver plaque, dedicated by Mocuxsoma to the god Veteris. Veteris is otherwise associated with military settlements, such as Hadrian’s Wall. Outside the temple, and at right angles to it, was a large hall-like structure. This mimics the relationship of the buildings at Lydney. According to the now-retired Leicestershire County Archaeologist, Peter Liddle, the Thistleton building ‘might be used for healing whilst visitors were asleep’.

From the area of the town at Thistleton the remains of a surprising number of small dogs were discovered, although there were no canine votives of gods as at Lydney.

Later sections look more closely at the surprising ‘coincidence’ that both these temples are located on rich iron ore deposits.
Breedon’s suggestive poppies

There may well have been other Roman ‘dream incubation’ temples in the British Isles, although I am not aware of them. The tradition may have survived, although not in purpose-built stone buildings, so any evidence would not survive. But there is an indication that similar practices were taking place in Leicestershire around 1000 CE.

The evidence is a sculpture now located inside the tower of the church at Breedon on the Hill, in the west of Leicestershire. As the tower is kept locked, in 2001 an exact copy of this carving was installed in the nave. Standing inside an arch, a winged and robed angel is giving a blessing. Everything about this sculpture says ‘Byzantine’ – the arch, the way of depicting the robe and the hand gesture are all matched in mosaics and textiles which have survived in the eastern Mediterranean.

Mosaic from fifth or sixth century Byzantium.
The angel is part of a series of sculptures at Breedon which depict the Apostles, and a number of similar carvings survive elsewhere in Britain. The style is known to art historians as the ‘Winchester school’. At the time Winchester was the ‘cultural capital’ of Britain, with close contacts to Europe and beyond. At one time it was thought that these carvings were created at Winchester, although it now seems they were produced at one or more quarries elsewhere in Wessex.

So far, so good – almost everything about Breedon’s angel fits in with the copying of Byzantine art in Wessex. But look closely at the plants either side of his feet. They are poppies, gone to seed. But the seedpods are still closed. This is not any common-or-garden poppy –

Byzantine textiles.

Left: a Maenad and Satyr, second to fourth century.
Right: Icon of the Virgin Mary, circa sixth century,
those which disperse their seeds naturally – but the cultivar *Papaver somniferum*, known colloquially as the ‘opium poppy’.

The Latin botanical name means the ‘sleep-bringing poppy’ as the resin exuded from the seed heads contains the analgesic alkaloid morphine. Morphine takes its name from Morpheus who, according to Ovid (43 BCE to 17 or 18 CE), was the god of dreams and the son of Sleep. The name Morpheus has the literally meaning of ‘the maker of shapes’ (from Greek *morphe* ‘form, shape, figure’), presumably alluding to the powerful dreams and nightmares well-known to users of morphine-based drugs. Those who remember *The Matrix* from 1999 will recall Laurence Fishburne’s character called Morpheus, whose name reflect his abilities at ‘giving shape’ to what passes for reality.

The Breedon angel sits neatly in the middle of the two millennia spanning Ovid and *The Matrix*. At the very least he seems to be the angel of dreams. But surely this is also an angel of healing, offering a blessing to those accursed with difficult ailments.

As everything about the appearance of this sculpture suggests close contacts with the eastern Mediterranean then presumably the practices associated with the Greek Aesklepions – the dream incubation temples – were known to the religious community at Breedon. Such ‘direct import’ of ideas seems more plausible than the survival or revival of an indigenous tradition, although that cannot be completely ruled out.

The church at Breedon is located within an Iron Age hillfort. There may have been some sort of shrine within the enclosing ditch and bank, although if there ever was then any evidence would almost certainly have been destroyed by either medieval monastic buildings or twentieth century quarrying. There is no evidence of any significant Roman activity, although one bead, about sixteen sherds of pottery and two pieces of tile suggest a small settlement – but nothing on the scale of a temple or shrine.

The earliest church at Breedon is known to have been founded around 675 as a ‘daughter community’ of Peterborough. This makes it among the oldest Christian sites in Leicestershire. These are commonly referred to by historians as ‘minsters’ and provided pastoral care for the surrounding area. Around the tenth century the minsters were largely
superseded by parish churches. Seventh and eighth century minsters such as Breedon had a parochia which would, around the tenth century, be divided into fifty or sixty parishes. Minsters were very different in nature to later monastaries. Trying to generalise about minsters is however difficult as each ‘did their own thing’ – and, like all religious institutions, steadily evolved in response to social changes.

Although the first churches at Breedon were probably built from wood, by about 800 there was a stone church, as fragments of remarkable friezes have survived (see photographs on page 15).

The church at Breedon is now the parish church but originated as the western end of a much larger medieval monastic church, accompanied by many other buildings which were demolished after the Dissolution. It stands within the surviving remains of an Iron Age hillfort on a prominent hill overlooking the Trent valley. Much of the
Anglo-Saxon friezes from Breedon, carved about 800 CE.
Dream Incubation

hill has been quarried away for dolomitic limestone, removing much of the hillfort and some parts of the medieval monastery. Undoubtedly the location for the seventh century minster was chosen because of the dramatic setting.

As an aside, the ‘Breedon on the Hill’ means ‘hill hill on the hill’ as Bree is from the Brythonic (British Celtic) word for ‘hill’ and don is Old English for ‘rounded hill’. If nothing else this confirms that Anglo-Saxons did not understand the language of the Brythonic-speaking walhs (a word which gives us the modern word ‘Welsh’).

There is little evidence for late Iron Age activity at Breedon, and a near-absence of Roman finds. This suggests that whoever was controlling this stretch of the Trent valley in the centuries before the Roman conquest was making life difficult for the community at Breedon. Perhaps they were taken into slavery and sold on the Continent. Or they may have upped sticks and relocated to the late Iron Age hill fort at Ratby, which overlooks the Soar valley so lucrative trade contacts with the Continent could be maintained.

The general conclusion is that at Breedon, unlike Lydney and Thistleton, there was little continuity of use from the late Iron Age through the Roman era. There is no reason to think there was a Roman temple at Breedon, still less one associated with dream incubation. Whatever the Anglo-Saxons might have been doing there was, most probably, not a continuation of older practices.

Nevertheless the angel’s poppies tell us that during the tenth and eleventh centuries people were coming to Breedon to seek healing, and would have been offered pain-relieving opiates. These would minimise the discomfort of chronic pain and, in the absence of anaesthetics, enable the aligning broken bones, cutting away of infected flesh, caesareans and other ‘surgical’ interventions. Then, as now, opiates would have been indispensable for end of life palliative care.

Those who came to Breedon around the time the angel was carved would be seeking the ‘blessing’ of God. Simply being able to sleep inside the church, within sight of the holy sacrament and hearing
masses regularly performed, would have been regarded as the most powerful ‘medicine’ available. Any herbal concoctions would have been regarded as secondary benefits. If the patient’s illness was terminal then they would spend the final days of their lives knowing they would die within sight of the altar and so as close to God as feasible.

Without doubt, the ‘therapists’ at Breedon would have known of the often-frightening illusory worlds ‘dreamt up’ by opiate users. But were they also *theraputes*, in the sense of seeking a prognosis or healing? Probably not. Within the Christian context divination was generally frowned upon, including oneiromancy (from Greek *oneiros* ‘a dream’ and *manteia* ‘oracle, divination’). Such dreams would have been ‘interpreted’ with a Christian exegesis, although the few homilies which have survived from the time give no direct clues.

Nevertheless, even if the ‘meaning and significance’ of tenth-eleventh century practices at Breedon would have been considerably different to that at the Roman era temples at Lydney and Thistleton, we can make a reliable deduction for which there is no archaeological evidence. The ‘interesting dreams’ which were necessary for the *theraputes* to interpret would have been stimulated by something a bit stronger than, say, Horlicks or even a cheese sandwich before bedtime. There is no reason whatsoever that those ill enough to need to travel to Roman temples would not have been offered opiate-containing drinks. Even if these were not already part of a person’s normal medicine intake they could well have been part of the preparatory ritual for everyone seeking the advice of the *theraputes*.

(Needless to say, the author does not condone the use of opiates without a medical prescription. This information is provided for historical reasons only.)

**Oneirogonic herbalism**

Medieval herbalists made a point of learning which plants were oneirogonic or ‘dream-inducing’. Cinquefoil was renowned. Modern day herbalists have confirmed that mugwort, chamomile, jasmine, rose, viper’s bugloss, lavender, Queen of the Meadow, violet and
loosestrife are all oneirogonic. Suffice to say, not to attempted without considerable prior knowledge of safe amounts (Owen 1975; Howard 2011: 194, 198.).

The herbalist potions prepared by the thirteenth century Physicians of Myddfaicome down to us in a late fourteenth century manuscript. The sources derive from widely-copied Latin, Greek and possibly Arabic works. Their concoctions include a cure for insomnia (opium infused in milk) and an anaesthetic (opium, mandrake and hemlock) which could be ‘reversed’ with vinegar. Other sources from the later thirteenth century onwards provide recipes for a powerful medieval ‘cure all’ known as theriac, with up to eighty ingredients. Some, like the flesh of vipers, were optional. One was not: opium, dissolved in alcohol, otherwise known as laudanum.

The international trade of the early eleventh century which increasingly focussed on Winchester (Pye 2014: 274) would have ensured a ready supply of opium. Indeed, then as now, opiates may have been among the most profitable goods to transport, as was incense. All churches in Anglo-Saxon and later medieval times used substantial amounts of frankincense, myrrh and sandalwood, imported from the same parts of the Middle East known to be where opium poppies were then cultivated. There is little doubt that major monastic sites, such as Breedon, would have included opium on the ‘shopping list’ of medicinal requisites. The presence of opium poppies on the depiction of an angel of healing really should offer little surprise. Presumably there are few if any other examples only because complete carvings of tenth-eleventh century angels are rare.

A short history of dream incubation

Everyone dreams, although not everyone remembers their dreams when they wake up. Rapid eye movements, commonly referred to by the acronym ‘REM’, reveal that a sleeping person is dreaming. Intriguingly, REM is observed in other mammal species too, suggesting that dogs and cats as well as higher primates also dream.

The events taking place in dreams can be pleasant or even inspiring. Indeed the early twentieth century Surrealist artists openly sought inspiration from their dreams, as have a great many writers. While we
may find solace in the more pleasant dreams, the more dramatic ones can be worrying or downright terrifying. We may ‘meet’ dead friends or relatives, try to run away from something along endless Kafka-esque corridors, or become embroiled in violence – either as the protagonist or victim. Events which would normally only be seen in horror movies take place without our volition inside our own minds, with some autonomous but disfunctional ‘script writer’ at the helm. We do not associate our waking consciousness with the ‘creator’ of such nightmares. Understandably, many people feel moved to recount them to friends and ask what they think they ‘mean’.

We are not alone in this respect. As I will outline later, the oldest literature in every society has references to the importance of dreams. Britain is no different as one of the gems of the Old English literature is a poem known as *The Dream of the Rood*, in which a narrator – later revealed to be the crucifixion cross itself – recounts a dream or vision of the death of Christ.

Lo! I will tell of the best of dreams,  
what I dreamed in the middle of the night,  
after the speech-bearers were in bed.  
seemed to me that I saw a very wondrous tree  
lifted into the air, enveloped by light,  
the brightest of trees. That beacon was all  
covered with gold. Gems stood  
beautiful at the surface of the earth, there were five also  
up on the central joint of the cross.

In the later Middle English Arthurian romances dreams, ‘dream explanations’ and night vigils are recurrent storytelling devices. According to these tales the affairs of state in post-Roman Britain were often decided by dreams. ‘They influenced Arthur’s choice of Camelot instead of Cardoel for his capital city. On the occasion when he fathered his son Mordred, his murderer to be, Arthur dreamed of a terrible serpent.’ (Darrah 1994: 179)

There are some brief references in Irish medieval literature to the use of bulls’ hides by the pre-conversion priests who, according to much later medieval Christian sources, would attempt to gain ‘knowledge from
demons’ by spreading out the hide of a sacrificed animal, raw side up, on wattles of mountain ash. We may reasonably expect both lack of first-hand observation and some ideological bias in such accounts, but divination involving dream incubation is also linked directly to ox hides in the Welsh tale of the ‘Dream of Rhonabwy’, included in the Mabinogion. The hero sleeps on a yellow calf skin which initiates an elaborate dream sequence lasting three days and nights (Drayton 1995).

Foretelling the future from prophetic dreams was known in Scots Gaelic as taghairm. This rite was said to been performed by a diviner, wrapped in the ‘warm smoking hide of a newly-slain ox, and laid at full length in the wildest recesses of some lonely waterfall’ (Armstrong’s Gaelic Dictionary, cited in Davidson 1988). Another reference to this rite being performed in the Western Isles dates back to the late seventeenth century. In this instance a man wrapped in a
The value of cattle hides is ‘mimicked’ in the shape of this copper ingot from India.

cow’s hide was left overnight in a lonely place in order to learn from ‘invisible friends’ what he desired to know (Martin 1703).

Divination by sitting or lying on a hide is widespread. Going backwards in time, the *Mariú Saga* from thirteenth century Iceland tells how a man sits on a freshly flayed ox hide with squares drawn round it until ‘the devil reveals the future’. (Arnason 1972) Other sources tell of Icelanders who ‘sit out’ wrapped in the hide of a sheep, walrus or bull to gain knowledge from the dead. This is the Icelandic continuation of the Scandinavian tradition of *útiseta* (‘sitting out’) at burial mounds referred to in the sagas (Price 2002: 78; 168–9), although there is no explicit mention of hides.

The saga *Voluspa* describes an unnamed seeress who ‘Alone she sat out when the Old One came, dreaded of the *aesir*’. The Old One is
clearly Odin. The sagas also tell how Hallbjorn acquired the gift of poetry while sleeping out on the burial mound of a dead poet called Thorleifr. So too Bede describes how Cædmon acquired the gift of poetry after fleeing from a party and spending time alone in a byre where he had a profound vision. Bede provides an explicitly Christian interpretation, *assuming* that Cædmon had a vision of Christ or the Virgin Mary. But in Bede’s account Cædmon make no such recognition. Instead, Cædmon seems to be ‘sitting out’ in a way which, presumably, was well-established before the conversion era.

The ‘magical’ significance of hide continues well into Christian times. Vellum was used for the religious texts produced in monasteries, especially the most important ones such as gospels and bibles. The word vellum comes from the Latin word *vitulinum* (‘made from calf’) and refers specifically to parchment made from calfskin rather than the hides of other animals. At a time when all writing was regarded as ‘magical’, and the words of the bible quintessentially so, the act of writing on vellum would have retained at least some of its pre-conversion significance. However, whether there was a sense that accounts of the Old Testament ‘dream prophecies’ gained in power from the vellum is doubtful. The act of writing inscribing words or symbols on parchment to empower them with the ‘spirit’ of the animal from which it was made is a lesser-known part of Western ritual magic to this day.

Going further back in time, many Celtic and Germanic cultures appear to have practised a curious form of dream incubation, seeking assistance from the spirits of the dead by sleeping near the graves of ancestors and heroes. In his book *De Anima* the Roman historian Tertullian (155–222 CE) quotes a report made by Nicander that the Celts sometimes spent nights at the tombs of heroes in order to obtain special oracles before battles.

**Greek Asclepeions**

Going back further still takes us to fourth century Classical Greece, and the heyday of dream incubation temples – although many of these thrived into the Roman era.
Typically these temples were dedicated to the god Asclepios (also spelt Asclepios, Aesclepius or Aesculapius) so are known as Asclepeions. They were built at places considered to offer natural healing, and were usually associated with mineral springs. Seemingly every Asclepeion had a special pit in which large snakes were kept. Whether the snakes had a functional part in the healing processes or were symbolic we no longer know.

Trikka on Thessaly is earliest centre of worship of Asclepios and this became one of the most famous Asclepeions, along with those at Kos and Epidauros. Over three hundred temples dedicated to him are known, and dream incubation also took place at temples dedicated to other deities. For archaeologists their defining feature is evidence for
specially-built ‘dormitories’, or ‘incubations’, where the visitors slept and hoped for a dream in which the gods would provide guidance. As already noted, specially-trained *theraputes* helped the visitors to interpret their dreams. The practice had more in common with divination than anything we commonly think of as therapy.

Mythology tells us that Asclepios is one of the sons of Apollo. These sons each fully developed specific aspects of the many attributes associated with Apollo, so Asclepios can best be thought of as an ‘avatar’ of Apollo in his medical roles. Asclepios is associated with a number of animals, including geese, owls, dogs, snakes and moles. A rotunda-like building at Epidaurus known as the *tholos* or *thymele* was said to be in the shape of a molehill. It was constructed above a labyrinthine series of concentric circles; this labyrinth is frequently interpreted as a snake pit but could easily be a symbolic mole tunnel. In practice many species of snake prey on moles and would use their tunnels both when hunting and as places of rest, so the apparent ambiguity is perhaps only a result of modern minds attempting to make a distinction which would not have arisen in Greek thinking.

Statues of Asclepios frequently show him seated, holding a rod around which a snake is entwined, with a dog at his side. The combination of his rod and snakes has come down to us, somewhat confused, as the caduceus.

The practice of visiting Asclepian temples to seek cures lasted for hundreds of years, making this one of the last of the pagan Greek cults to succumb to the progress of Christianity (and the evidence suggests that at many temples his cult was adapted rather than overthrown).

Interestingly the widespread increase in the number of temples to Asclepios in the fourth century BCE corresponds to the growth of Hippocratie medicine. However the two approaches seem to be complementary rather than competitive. Indeed, Asclepios was the patron of doctors. On the green and abundant island of Cos, the home of the priest-healer Hippocrates, the remains of a several Asclepeions.

What know that, after ritual purification and the offering of sacrifices to the local deities, the sick person spent a night in a special part of the temple, the ‘incubation’. If the gods willed it – and they seem usually
to have done so – the patient received a dream. These were interpreted by a therapeutewho made a ‘diagnosis’. Since about 1680s this word has been used by the medical profession. But in Greek diagnosis means ‘discerning, distinguishing’ and derives from diagignoskein, from dia- (‘apart’) and gignoskein (‘to learn’, which is also the origin of the word ‘gnostic’).

While the original use of diagnosis sounds similar to modern-day psychoanalysis, we should remember that the key difference in Classical times was the sincere belief that such dreams emanated specifically from the deities. The main Asclepeion near Chora (also spelt Khora) on Cos was said to have been under the gaze of a famous statue of Aphrodite. The dream incubation chambers here eventually occupied three terraces, tucked attractively into a fold of the limestone hill. The restoration visible today is of the most recent, Roman, buildings, but there is evidence of several previous enlargements to the earliest Classical shrines.

Another famous Asclepeion was on Aegina at Epidaurus. Little remains of the temple today, although a large number of votive offerings – miniature limbs or organs – were discovered. Just such tokens may still be seen today in Greek Orthodox churches, presented by the faithful by way of thanks. The temple at Epidaurus became especially popular so an amphitheatre and a large stadium holding fifteen thousand people were constructed to entertain the patients and their friends. This amphitheatre now forms the main tourist attraction during the summer.

In the words of the arch-raconteur, Lawrence Durrell, Cos and Aegina ‘seem to bask in the same choice calm and smiling peace.’ Durrell was travelling leisurely through the area during the late 1930s and early 40s. He came across a museum curator who informed him that anyone sleeping on the Asclepeion would have confused and frightening dreams. Durrell wanted to try this out for himself, but the outbreak of the Second World War required him to leave Aegina. However, he did visit Cos during the war and came upon a couple of soldiers camping at the Asclepeion there. He stopped to share their brew-up and was informed that they had initially camped among the ruins ’but had slept so badly that they had moved their tent higher up and into the open where there was more wind. I asked if they had any special kind of
Jacob’s ladder by Wenceslas Hollar (1607–77).

dream. But no, it was just something about the place that had made them feel uneasy.’ (Durrell 1987).


In Part Two I look specifically at the geology of the Greek Asclepeions.
Egyptian incubation

Seemingly the Greeks acquired the practice of dream incubation from the ancient Egyptians, where the practice was widespread. At the base of the Great Sphinx a *stela* tells how, while still a prince, the future pharaoh Tuthmose IV (1413–1405 BCE) took a nap while hunting and dreamt that the Sphinx told him to clear away the sand that then partly buried it. As his reward the prince would become pharaoh. Even more informative is an almost complete papyrus, known as the *Dream Book*, which provides an insight into how ancient Egyptians interpreted dreams. This papyrus seems to have been written between 1275–1250 BCE but may be a copy of a text that originated several hundred years before.

From about the fourth century BCE onwards, any Greek visiting Egypt considered it essential to sleep in a temple to seek a dream oracle, and the most favoured location was the Temple of Seti at Abygos. The Greeks also visited the temple to Hathor at Denderah; the mud brick foundations of the rooms dating to the mid-first century BCE where the dreamers slept have survived. Interestingly, by this time one option
was to pay a priest to have a dream on your behalf, although the records tell of repeated payments often being needed as dreams did not appear ‘on demand’. (Given that jars of mummified ibises provided at other temples to Hathor as offerings in return for favours received from Hathor turn out to be mostly any old rubbish wrapped up to look the part, I think we can be sure the Hathor priesthood had by this date become adept at tourist-fleecing scams.)

**Dreams in Jewish, Islamic and Hindu culture**

Not only the Greeks were influenced by this Egyptian custom. The Old Testament also refers to dream incubation – think of Jacob resting his head on a ‘sacred stone’ and dreaming of a vast ladder reaching up to heaven. Indeed there is a long-standing Jewish tradition called *she’elat chalom* which has the literal meaning of ‘dream question’, although the prayer ritual was done while awake and asked for a dream answer. Joel Covitz has written a study of Jewish dream interpretation (Covitz 1990).

In more recent times divinatory dreams have been part of Islamic practice. Indeed the Koran regards the study of dreams to be ‘the prime science since the beginning of the world’. Mohammed sought visions at the Cave of Hiraa, known to be haunted by the *djinn* of sleep. According to Peter Lamborn Wilson, the practice was formalised as *isikbara* (‘seeking the good’), although there is ambiguity about whether this originally meant praying for a divinatory dream or merely praying for guidance (Wilson 1996: 34). Wilson’s book is devoted to various aspects of ‘ritual dreaming’ in both Sufism and Taoism.

At the shrine of St George near Cairo both Moslem and Christian pilgrims still seek cures by sleeping in or by the shrine (Heath-Stubbs 1984: 7–8).

The practice of dream incubation in Christian shrines in the later part of the nineteenth century (especially in Greece and the Near East) was studied by Mary Hamilton (Hamilton 1906); however her information on the transition from pagan times to early Christianity is best regarded as ‘dodgy’ in the light of subsequent academic research.
The most prolific present day proponents of dream incubation are Hindus. For example, every day over a thousand Indian pilgrims go to the temple of Shiva at Tarakeswar, north of Calcutta, to seek dreams that will cure their illnesses (Devereaux 2002: 195).

**New World vision quests**

Although not quite the same as dream incubation, ‘vision questing’ is prevalent among traditional North American religious practices. Since the 1970s these traditions being appropriated by more ‘New Age’ versions of so-called ‘shamanism’. As a result popular perceptions of vision questing are often very different from the wide range of practices among traditional societies. What is fairly consistent is that each tribe used specific places for such ‘quests’. For example, until the later twentieth century the Chumash Indians went into the hills above Santa Barbara, California, where there are hundreds of caves used to seek visions, some of which have been recorded in the extraordinary rock art and carvings (Swann 1993). In an unbroken tradition, Bear Butte mountain in the mineral-rich Black Hills of Dakota remains a vision quest site for Plains Indians.

Interestingly, James Mavor and Byron Dix compared an aerial survey of the location of native ‘praying villages’ in New England with geomagnetism. The correlation is impressive (Mavor and Dix 1989: 294). As if to support the links with geomagnetism, a Montville ‘prayer seat’ in New England had been erected since 1950 under a high voltage electrical transmission line – as if to deliberately use the resultant changes to the electromagnetic field as part of the vision quests associated with such native sacred sites (Mavor and Dix 1989: 264). Independently of this research, James Swann reports that:

> All across the United States there are mystery spots… Two of the best known are located at Gold Hill, Oregon and Santa Cruz, California. I can find no Indian legend that says these were sacred places, but you ought to go visit them to see what you think. Strange things seem to happen there….I think they’re magnetic anomalies, probably due to some geological anomalies.

(Swann 1990: 230)
My own interest in dream incubation was triggered when I recognised that the two Roman temples in Britain with the type of buildings used for dream incubation were both associated with rich iron ore deposits. The one at Lydney in the Forest of Dean is situated on a hill that had earlier in the Roman era been quarried for iron ore. The Thistleton temple was revealed ahead of open cast ironstone extraction. The richness of the iron ore in both these locations makes them geomagnetic ‘hot spots’.
PART TWO

Facts are what pedantic dull people have instead of opinions. Opinions are always interesting. Facts are only the scaffolding, the trellis up which bright opinions grow. (Gill 2005)

Geomagnetism

So far I have attempted to provide an overview of the history and archaeology of dream incubation without too much interpretation or speculation. Or, as A.A. Gill terms them ‘opinions’. In the second part I will throw all such caution to the four winds and use Part One as a ‘scaffolding’ for some sustained opinionating. Is there really a correlation which links incubation temples and similar sites with geomagnetic anomalies? And, if so, how could this have any effect on our dreams? This is territory where there are no ‘facts’ – but there is plenty of evidence. Bear with me while I set out my case.

Magnetic sensitivity in other species

Various animals have been shown to be sensitive to geomagnetism. For instance, the ‘homing instinct’ of pigeons can be ‘turned off’ by tying small magnets to their heads, showing that their prodigious feats of navigation rely on sensitivity to geomagnetism. Biologists, such as Frank Brown working in Massachusetts in the 1960s, have also shown that some species of snails, insects, fish, whales and even some obscure species of aquatic bacteria also have highly functional homing instincts that rely on detecting geomagnetism.
By the late 1970s there was a vast literature (summarised in Pressman 1970 and Dubrov 1978) which showed that various organic and inorganic processes varied in accordance with changes in the geomagnetic field. Among these were *in vivo* and *in vitro* blood processes and electrodermal activity. In the 1980s and 1990s Michael Persinger was the most prolific of a number of researchers who looked ever more intensely at the effect of electromagnetic fields on human consciousness. Despite a vast number of papers published by Persinger, his work was sponsored by military sources so there remains the possibility that any really interesting findings have been classified as military secrets.

My attention has also be drawn to the work of Dr Alvaro Pascual-Leone who is exploring a new technique called Transcranial Magnetic Stimulation (TMS), which uses powerful magnets to disrupt your memory, ability to recognise faces, or even momentarily make you mute or blind. Speech can be disrupted (curiously, although verbs are harder to say, nouns are unaffected). However all these effects are achieved by magnetism a great many times stronger than natural levels and suggest that, although the human brain is disrupted by strong magnetism, this is probably quite unrelated to the sensitivity to the much subtler levels of magnetism associated with geomagnetism.

**Human sensitivity to geomagnetism**

Back in the 1970s, Dr Robin Baker of Manchester University showed that humans’ sense of direction is also lost when magnets are placed either side of the head. He took a coach-load of blindfolded students on a circuitous journey. Most of those with non-magnetic metal bars either side of their heads could indicate roughly which direction they had come from. Those with magnets on their heads could not (Baker 1980; 1981).

Baker’s research was repeated in America. This revealed that students there have a poor sense of direction even *without* magnets. Presumably this is because Americans are accustomed to finding their way around rectilinear cities and not the more chaotic European cities, so their ability to respond to their body’s innate sense of direction atrophies. The recent reliance on GPS-based software has resulted in
A sense of magnetism

Man has always admired and wondered at the homing pigeon’s ability to navigate over great distances. Now it seems that we too have the same uncanny ability.

Imagine you were kidnapped, bundled blindfolded into a car, taken over a tortuous route for 50 km or so, and then dumped in the middle of an unfamiliar and featureless landscape. How accurately would you be able to set off in the direction of your home? I doubt if many except the James Bonds and Sherlock Holmes among us would expect to perform well in such a situation. Yet we know that other animals as diverse as homing pigeons and snails can acquit themselves admirably in such a test for essentially this is the method that zoologists have used for years to study animal navigation.

I have long suspected that man and other animals use the same mechanisms in finding their way around. (See New Scientist, vol 80, p 926) and in 1976 decided to test this hypothesis with experiments on how people performed when treated as homing pigeons. The results were surprising from the start and in 1979 led to the revolutionary finding that man shares with other animals a sense of direction based on perception of the Earth’s magnetic field.

The whole thing began with a series of experiments carried out between 1978 and 1979 using as subjects third-year zoology students from Manchester University. On each trip students were blindfolded and placed in a van over a complex and winding route to sites between 6 and 52 km from the university. On arrival at the destination the students were removed singly from the van and asked to do three things. Without removing their blindfold, each person was asked first to state as north, north-east, etc. what direction they thought they were from the university and secondly to point toward the university. Finally, they were asked to remove their blindfold and once again to point toward the university.

We expected that the students would estimate the “home” direction randomly while blindfolded whereas estimates made once the blindfolds were removed would be well-oriented toward home. The first surprise came when the converse was found to be true. While still blindfolded, the estimates of home direction, particularly the descriptive estimates of north, north-east, etc. were usually highly accurate but when the blindfolds were removed the subjects often became disoriented. This meant that somehow the students had managed while blindfold to follow the twists and turns of the outward journey and maintain an awareness of the direction of home, but that as soon as they were allowed to see their surroundings they were often confused (Figure 1).

Suddenly, a whole new field for study opened up. How were the students managing to follow their outward journey? I did the obvious thing first and simply asked them, but they could not tell me. A few suggested that they used
the younger generation of Westerners having little or no ‘sense of direction’.

In contrast, people whose lives depend on keeping their bearings over large distances have a better sense of direction than Manchester students. For example, James Cowan reports that Australian Aborigines have an ‘absolute compass sense’. When transferred to hospital many hundreds of miles from their home, Aboriginal patients can readily and reliably point to the direction of home (Cowan 1992: 13).

Scientists have yet to decide which human organs are sensitive
to magnetism, although the main suspect is the pineal gland. This is situated in the middle of the head (but technically not part of the brain). The shape and internal structure vary greatly. Although only about the size of the nail on our little finger, only the kidneys and pituitary gland receive similar blood flow. The outside of the pineal gland hardens during adolescence and at this time becomes responsive to changes in magnetic fields (Roney-Dougal 1989; 1991; Roney-Dougal and Vogl 1993).

**The pineal gland’s complex qualities**

The influence that the pineal gland has on consciousness are subtle but effective. The gland is most closely associated with the production of serotonin (a neuro-transmitter) and melatonin (a neuro-hormone). The nerves to and from the pineal connect only to the autonomic nervous system. Interestingly the autonomous nervous system is implicated in
various aspects of healing and ‘psychic’ responses. This may be because the pineal also releases beta-carboline, closely related to naturally-occurring psychoactive chemicals such as harmaline. Harmaline is one of the active ingredients in ayahuasca, used by the indigenous people of South America to induce an altered state of consciousness in which they contact spirit guides for various ‘psychic’ activities such as precognition, clairvoyance, healing and out-of-body travel.

Curiously, in Indian metaphysical traditions the pineal gland corresponds to the *ajna chakra*, or ‘Third Eye’, which is regarded as the psychic centre. More pertinent to the idea that sensitivity to geomagnetism is linked to ‘psychic’ activity, William Braud and Stephen Dennis have studied apparent links between the natural variation in geomagnetic activity and telepathy, following up the work of earlier researchers who ‘found that ESP [extra sensory perception] testing which occurred on geomagnetically quiet days yielded significantly better (more accurate) results than test which occurred on geomagnetically "stormy" days.’ (Braud and Dennis 1989: 1243). Other researchers at this time looked at the effect of changes on geomagnetic activity on the accuracy of telepathic dreams (Persinger and Krippner 1989).

Serotonin and melatonin help to control our waking and sleep cycle (Roney-Dougal 1991: Ch.4). One way of showing that the pineal gland is sensitive to geomagnetism is when people are kept in constant low light. This means that the pineal gland cannot use daylight to cue the serotonin/melatonin cycle. The body defaults to a 25 hour cycle. This is the frequency of the moon circling the earth and strongly suggests that the body is responding to the subtle ‘tides’ in geomagnetism. One of the main causes of disruption to the serotonin/melatonin cycle is severe stress, and I suspect that many readers will have experienced the disruption to sleep patterns this causes. Writing this article on a dull November day and fighting a feeling of lethargy reminds me that serotonin/melatonin imbalance is linked to Seasonal Affective Disorder (SAD), which can be alleviated by bright lights. However the magnetic field created by the computer...
Monitor (much stronger than the Earth’s field) is not fooling my body’s serotonin/melatonin cycle.

Melatonin normally peaks about six hours after dusk. Think of how many religions regard 3 a.m. as the most powerful time to chant matins, mantras or Buddhist scriptures. Could this be the origin of the ‘witching hour’, the time when Cinderella must go home? Folklore frequently alludes to the intuitive states of dark and winter, but says little of the magic of sunlight.

**Dream incubation and geomagnetism**

The idea that changes in geomagnetism might influence mental processes seems to have first been popularised by Janet and Colin Bord...
in their 1976 book *The Secret Country* (Bord and Bord 1976: 52–60). These suggestions led to experimental fieldwork in the 1980s by members of the Dragon Project, led by Paul Devereux. The preliminary results of this research were published as *Places of Power* (Devereux 1990: 62–3). Philip Burton has followed up this research by surveying numerous prehistoric stone circles in Britain for magnetic ‘anomalies’ (Burton 1993; 1995; 2002). Such anomalies include a natural stone ‘seat’ in a stone at Gaws Fawr stone circle in Pembrokeshire. The 1,138 feet high peak of nearby Carn Ingli has many remarkable magnetic areas and is where, according to legend, St Brynach used to sleep and talk with the angels who sat around him.

The later stages of the Dragon Project involved various volunteers sleeping at prehistoric sites and being woken while in REM sleep and asked about their dreams. As part of this research one of the volunteers, Laurence Main, spent many nights camped on the peak of Carn Ingli. The results were subjected to sophisticated statistical analysis by Stanley Krippner, an America sleep research expert. However I am not aware of the results of this research having been published.

Back in September 2010 several people contributed to the nereaders@googlegroups.com discussion list in response to David Taylor’s request for information on ghosts associated with roads. This is my reply:

If anyone recalls Paul Devereux’s 1982 book ‘Earth Lights: Towards an understanding of the UFO enigma’ then they may also recall that the A512 road between Loughborough and Ashby de la Zouch was key to Paul’s thesis, as this follows close to the fault line separating the Precambrian Charnwood Forest rocks from the more recent geology to the north. Andrew York’s patient research in the then Leicester Record Office (which Paul draws upon) revealed a number of ghosts and hauntings linked to this road, especially the White Lady ghost (for whom a bus reputedly stopped, only to find no lady in sight... ) at the ruins of Grace Dieu nunnery.
So far, all well recorded. But about 15 years ago I attended a local history lecture about the farms, pubs and other buildings alongside the A512. It was given by a Mr and Mrs Griffiths, then living nearby in Shepshed. Apart from the unusual take on local history (most people research villages and towns, not the bits in between!) they promptly rattled off a long series of ghost tales relating to the pubs, farms, etc. Frustratingly I had no means of taking notes at the time but none of the tales seemed to come from published sources – and I seem to recall the Griffiths’ specifically saying that some of the tales had been told to them personally by current or recent occupants.

Here’s the bad news. By the time I contacted the Griffiths by phone about five years later ill health meant that they no longer willing or able to talk to me about these ghost stories. There are several lessons to be learnt here about recording and following up information promptly but suffice to say that had these accounts been known to Paul
or Andy in the late 1970s they would have added greatly to the argument in ‘Earthlights’. If Dave turns up any other roads following fault lines which also have more than their fare share of paranormal reports then I’ll regret even more that the Griffiths’ work has slipped into oblivion.

As for the White Lady ghost at Grace Dieu – she now manifests frequently as ‘orbs’ – sometimes visible to the naked eye as floating ‘blobs’ but mostly caught in the flash of cameras – and regularly stops cameras working and/or runs down batteries very quickly (including those of a BBC camera crew, according to ‘oral sources’). Well you have to keep up with the times and technology, even if you’re the shade of a nun reputedly killed at the Dissolution...

Seriously - the 1:50,000 geological map of Grace Dieu shows that is surrounded by local faults (as well as the major fault line previously mentioned). The location has thin soils. So if there is any mileage in Paul’s earthlight
thesis then Grace Dieu has a claim to be the 'type site' for this phenomena.

In response Verda Smedley sent this:

I thought this tied nicely to comments Bob Trubshaw made about ritual dream incubation, iron rich rocks influencing dreams, geological "anomalies and dream incubation, etc. Because I live in the southwest US I can only refer to experiences there and I hope that isn’t tedious for ‘Northern Earth’ Readers. The Jemez Mountains I talk about from time to time are actually made up of enormous volcanos, hundreds of miles of them. They remain geologically active with tremors, hot springs, etc. I have felt these tremors frequently when hiking out there. Magma is believed a mere five miles
below the surface (a terrific way to rid the Earth of Los Alamos Nat’l Lab where the A bomb was built). I don’t know how much iron is in that range but I can say that when camping there the dreams are utterly profound. The Jemez Range butts right up against the Rio Grande Rift, an enormous faultline that runs between where I live and the mountains. After thirty some years I am compelled to say that the faultline, the volcanic activity and so forth has a great deal to do with the phenomenon that can be experienced there such as the dreams, and the sightings of kachinas, mudheads, lights, etc. I don’t give much of my time to UFOs but between the phenomenon and the lab its a good place to watch for them I have heard. I also concluded that if ETs were coming to this planet chances are they were coming to interact with highly evolved Earthlings like kachinas and not us. Dissection of both humans and cattle seems to be of little more than biological interest to them. And then there is Los Alamos...

Rowan Williams also offered his experiences:

I recently returned from two weeks of camping and cycling in the Western Isles, and I too experienced several nights of powerful dreams. I’m not sure if this is solely an effect of the abnormal sleeping situation, being outside with nature’s night-sounds and canvas-stirring winds, water lapping shingle beaches. Perhaps one is roused more often from deep undreaming sleep to experience more REM cycles, resulting in more memorable dream-states.

I’ve just checked my copy of L Dudley Stamp’s ‘Britain’s Structure and Scenery’ and confirmed that the Inner Hebrides consist of dramatic mixtures of Geology and

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faults: Islay’s sedimentary sandstones and shales, Jura’s magical quartzite Paps (false volcanoes, actually the cores left by epic glacial erosion), whereas the neighbouring islands of Mull and Skye are monuments to the action of ancient volcanic turbulence: enormous sheets of fluid lava poured forth – solidified as lava plateaus and crushed and twisted by time. Unlike the Jemez mountains, Scottish geothermal activity is buried deep in the earth nowadays. Of course I often found myself staying in close proximity to ancient temples and standing stones. The whole area is so rich in wonderful sites!

Further anecdotal evidence came from Jill Bourn, who read my article published in 2003. She noted my observation that Thistleton temple is situated on rich ironstone deposits. She has a friend who owns a cottage in Harston, situated along the same the ironstone ridge, and the cottage is built from the ironstone. Her friends experience persistent poltergeist-type activities, such as paintings falling from the wall, books tumbling; the television switching on and off by itself. When staying there she experienced unpleasantly intense dreams, such that she does not stay there any more.

**Magnetism in traditional cultures**

As already noted, the location of native ‘praying villages’ in New England correlate with geomagnetic anomalies. Given the close links between sleep, stress and seeking psychic states of consciousness, the long-standing therapeutic practice of ‘dream incubation’ may be linked to natural magnetic ‘hot spots’.

There is clear evidence that the Classical world was aware of magnetism. Homer, Pythagoras, Epicurus, Pliny and Aristotle all refer to the powers of magnets, although the Alexandrian poet Claudian (c.370–404 CE) is the first to use the word ‘magnet’. In his book *Riddles of the Magnet* refers to a magnetic image of Venus held suspended in the air at a temple and describes the magnet as ‘the dark, invisible stone which in storm and lightning its power seems to rule.’ The sixteenth century alchemist Paracelsus attributed many of his healing powers to magnetism. Indeed, following the precedent of the
Orphic poets, occultists had long associated the magnet with the ‘magic wand’ of Hermes or Mercury – the same serpent-entwined caduceus also associated with Asclepios, the god most frequently associated with Greek dream incubation temples. Was Asclepios’s magic rod also magnetic and, if so, did the entwined snakes symbolise what we would now think of as the ‘magnetic field’? Were the snakes made of iron linked together, thereby enabling them to ‘dance’ around the magnetic shaft as if by magic?

Curiously, one of the ‘mystery cults’ with the greatest influence throughout the Greek and Roman world was based on the small and isolated island of Samothrace. Archaeologists have found a number of iron rings in the sanctuary and relevant records suggest that the initiates received an iron ring and the ‘effect of some hidden, moving power was demonstrated with the phenomenon of magnetism.’ (Burket 1993: 187–8) There is no indication that the Samothracian mystery rituals involved dream incubation, but they do suggest that the effects of magnetism were known and used ritually.

The geology of Greek Asclepieions

Thanks to the combined interests of a dedicated father and son duo, Michael and Reynold Higgins, their *Geological Companion to Greece and the Aegean* does not simply offer what the title describes. It also offers fairly detailed accounts of the major Asclepieions. This book sheds considerable light on the geology of these temples. The first thing is that, unlike Lydney and Thistleton, there is no association with iron ore. Iron-rich rocks are almost entirely absent from the eastern Mediterranean. But nevertheless the locations are geologically unusual and, as such, would be associated with changes in the geomagnetism.

Here are brief summaries of the most relevant aspects of the geology.

**Epidauros**

Temple initially (800 BCE) dedicated to Apollo but later (400 BCE) to Asclepios; theatre survives.

In broad valley where three types of rocks come together:
1. green volcanic tuff, usually with a clayey consistency (Triassic)
2. yellowish cherty limestone (Triassic)
3. limestone (Jurassic-Triassic)

Photographs of cliffs adjacent to the temple reveal a major unconformity in the underlying rocks.

Several wells and springs (tuff acts as spring line).

Kos

Asclepieion started about 350 BCE on terraces at foot of Mount Dicheos, five km south-west of the city of Kos. The temple is on the site of a sacred spring. Springs in this area deposit travertine.

The location is geologically complex. Upper parts of the mountain are Triassic-Jurassic flysch and limestone. Near the Asclepieion the bedrock is Neogene sediments, including conglomerates. A fault line running east-west near the site of the Asclepieion is associated with the geologically-recent uplift of the nearby Dichoes range.

Messene

Springs associated with east-west vertical faults (one large; one from separate one, now extinct, deposited travertine)

Variety of different Jurassic and Triassic sedimentary rocks, including sandstone, limestone, red and green chert. red shale.

Pergammon

Acropolis sits on a lava dome.

Asclepieion associated with sacred springs in valley below the acropolis, located on the boundary of Lahar deposits (volcanic mud and rock flow) and alluvium. However the area is a graben where andesites and dacites meet Permian limestones.
In addition, I have been informed that the waters flowing from the Asclepeion at Corinth are mildly-radioactive, although the geological reasons are not obvious.

**Geology and geomagnetism**

The geomagnetic field is subtly distorted by changes in the underlying rocks, particularly at fault lines and unconformities (where rocks sit directly on top of much older rocks). Fault lines are widespread and in most parts of the world are never more than a mile or so away. However some faults may have more pronounced or ‘interesting’ effects on the geomagnetic field than others. The human sensitivity to magnetism seems to be suited to detecting subtle changes in geomagnetism, so walking over a series of fault lines and/or unconformities (perhaps as part of a recognised ritual route) could induce a sequence of subtle changes on the consciousness.

By studying levels of magnetism trapped in ancient pottery scientists have shown that the Earth’s magnetic field is now less than half the strength it was 4,000 years ago. According to the British Geological Survey, the rate of change is increasing and geomagnetism has weakened by more than five percent in the last hundred years (Thomson 2003). If my underlying hypothesis regarding changes in

*A computer visualisation of natural variations in geomagnetism resulting from changes in buried geology.*
Geological maps of Lydney, Thistleton and Breedon.
geomagnetism causing subtle changes to consciousness is correct then 4,000 years ago such effects would have been twice as noticeable. Coupled with this, people at that time could be expected to be far more sensitive to such changes, as is suggested by the excellent sense of direction shown by traditional Australian people today.

With that in mind think again of the Roman temple near Lydney, situated on a hill right on the edge of the iron-rich rocks to the west of the various strata which on a map look like a side view of very warped Liquorice Allsorts. Each of those strata will have subtly different geomagnetism. Similarly the Roman temple near Thistleton is located near convoluted changes in the bedrock and more superficial geological deposits.

Sadly maps of the sites of the Greek temples are not readily available. But the Higgins’ descriptions confirm that they are associated with complex changes in the bedrock. While the British temples are associated with iron-rich deposits and the Greek ones are not. What seems to be important (for reasons I will discuss below) is changes in geomagnetism, not necessarily the ‘absolute values’. Ironstones may indeed change more than non-ferruginous ones but, so long as there is there is a difference in composition between adjoining types of rock (if only the water content) then there will almost certainly be some difference in the geomagnetism.

In the absence of detailed geomagnetic surveys of these temple sites then the above is somewhat vague – but should such surveys ever be conducted and published they will simply quantify the extent of the changes between geological deposits, not refute the general principle.

**Western sensory ‘deprivation’**

Most modern Western people are so dominated by their visual experiences that they rarely fully engage their other senses. Even when in the countryside few actively listen to the sounds around them. Only the most striking of bird songs or burbling brooks consciously register. The changes in the sounds of our footfalls as we pass from grassland to the dry soil of an arable field, over a timber footbridge, on to a gravel path, splash through a puddle, kick up some dead leaves, swish past some undergrowth rarely break through our cognitive filtering.
processes into conscious awareness. We generally walk through our surroundings with the soundtrack turned off.

In contrast, people who live in dense jungle cannot visualise the space around them. Whereas Westerners might think ‘I thought I heard a monkey – Ah, yes! I can see it over there’, Amazonians would only believe there was a monkey if they heard the monkey, and would regard a sighting in the same way a Western would respond to the sound alone. For the Amazonians ‘hearing is believing’, in contrast to the Western ‘seeing is believing’. The Suya of Brazil use the expression ‘it is in my ear’ where we would say ‘I see what you mean’. (Thorn 1997; Classen 1993: 9).

American rock art consistently occupies places which provide abnormally strong echoes or where sounds such as clapping re-echo as the sound of running animals. Similar examples have been found in Australia (New Scientist 28 Nov 1992; Waller 1993). Early examples of the use of sound to enhance the sacredness of a place have been recognised in the caves at Ariege beneath the French Pyrénées. These contain extensive Palaeolithic wall paintings. At certain places close to significant motifs anyone singing or whistling at the correct pitch will set up dramatic resonances. This is not an isolated example; in later periods temples were designed to amplify sound as part of the ritual procedures. At Hal Saflieni on Malta a voice speaking into a certain recess resonates throughout the vaults, perhaps awing the faithful disembodied voices capable of a full range of tones from thunderous to whispered. In the mid-1990s more scientific investigation of the acoustic properties of British prehistoric sites has begun (Jahn 1995; Jahn et al 1996; Devereux and Jahn 1996; Watson and Keating 1999, 2000). Paul Devereux has provided two accessible introductions to this research (Devereux 2001, 2002).

Our prehistoric ancestors were alert to the sound of their surroundings. They could understand the subtle and complex aspects of astronomy. What else were they alert to? Rationalist thought would add smell, taste and touch to sight and sound. More informed rationalists should, as already noted, add magnetism to that list – specifically the weak levels of magnetism associated with changes in the Earth’s magnetic field.
The average reading for the Earth’s magnetic field is about half a Gauss. Dr Zaboj V. Harvalik has made a considerable number of magnetometer measurements which seem to indicate that dowsers react to magnetic gradient changes as weak as one milli-microGauss or, expressed another way, \(10^{-9}\) Gauss (0.000,000,0001 Gauss). Physicist Yves Rocard, a Professor at Ecole Normale in Paris, has similarly been able to show that human beings can detect magnetic changes down to \(10^{-8}\) Gauss.

(Taylor 1993: 12)

We are not consciously aware of a whole host of biochemical effects going on in our bodies. We know the ‘symptoms’ of too much adrenaline, too little blood sugar, even though we have no direct sensory awareness as we do for light, sound, smell, touch and heat. Indeed, our bodies function according to fluctuating levels of various hormones produced by the gastrointestinal tract, pancreas, ovaries or testes and the glands (hypothalamus, pineal, pituitary, thyroid, parathyroid and adrenal). But we have no conscious awareness of any of these, apart from the sophisticated analysis of our blood. Recent research suggests there are more ‘memory cells’ in a human heart than in a domestic cat’s brain, with almost as many in our stomachs. But these neurons are not part of our consciousness. We are simply unaware of the vast majority of ‘signals’ which are distributed around our body. There is no fundamental reason why humans cannot be sensitive to magnetism, although clearly we do not have a ‘conscious’ sense of such responses.

Most animal senses work on the basis of difference. Brightness and darkness, hot and cold, loud and quiet. Our sense are very poor at giving ‘absolute values’. Instead they operate by ‘presence versus absence’ or slightly more sophisticated modes of comparison. All our senses function best when detecting change.

One thing we do know about the Earth’s magnetic field is that it is not constant. If we are ‘subconsciously’ able to sense subtle changes in
geomagnetism then we are not picking up some ‘constant pattern’ but, rather, a complex interaction affected by the moon, changes in the water content of the soil, sunspots, variations in the very pervasive man-made electromagnetic radiation, and a large number of other parameters.

(In Trubshaw 2003b I continue this into a discussion of how geomagnetic changes may be dowsable, although those suggestions are not relevant here.)
Where next?

Many of the ideas in Part Two are speculative. My aim was simply to provide enough evidence to justify asking two key questions:

1. Is there really a correlation which links incubation temples and similar sites with geomagnetic anomalies?
2. If so, how could this have any effect on our dreams?

My underlying assumptions are all entirely plausible, even though the huge gaps between the approaches of different disciplines of ‘hard sciences’ mean that I can only bridge some major chasms with nothing more substantial than thoughts. I would welcome contact with any readers who are interested in exploring these suggestions further.
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