

# THE SKEPTICAL INTELLIGENCER

The Quarterly Magazine of ASKE  
THE ASSOCIATION FOR SKEPTICAL ENQUIRY  
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*Incorporating the Skeptical Adversaria: the ASKE Newsletter*

*Edited by Michael Heap*

To access a Word or pdf copy of this issue, please contact the Editor at [m.heap@sheffield.ac.uk](mailto:m.heap@sheffield.ac.uk). If you are an ASKE member in the UK and would like a paper copy, again email the Editor.

## CONTENTS

### Regular features and announcements

<a href="#">From the ASKE Chair</a>	2	<a href="#">Language on the Fringe</a>	5
<a href="#">Logic and Intuition</a>	3	<a href="#">Of Interest</a>	16
<a href="#">The European Scene</a>	3	<a href="#">Upcoming Events</a>	18
<a href="#">Medicine on the Fringe</a>	4	<a href="#">About ASKE</a>	20

### Book reviews and commentaries

<a href="#">‘Aliens – Science Asks: Is There Anyone Out There?’</a> by Steve Dulson	8
<a href="#">‘Psychology Led Astray: Cargo Cult in Science and Therapy’</a> by Michael Heap	9
<a href="#">‘Real Secrets of Alternative Medicine: An Exposé’</a> by Niall Taylor	10
<a href="#">‘Story of Your Life’ and ‘Arrival’</a> by Mark Newbrook	11

### Editor’s Announcement

ASKE’s *Skeptical Intelligencer* is widely circulated electronically to skeptical groups and individuals across the globe. Formal and informal articles of interest to skeptics are welcome from people of all disciplines and backgrounds. Details about house style are available from the Editor. We also welcome writers who would like to contribute a regular column - e.g. an ‘On the Fringe’ feature or take over one of the regular features.



## FROM THE ASKE CHAIR

Michael Heap

### The ASKE Paranormal Challenge

The ASKE Psychic Challenge is now up and running again under the title of the ASKE Paranormal Challenge. The offer is an award of £10,000 to anyone who can successfully demonstrate, under controlled conditions, ‘a paranormal ability’ which they claim to possess (*note 1*). The claimant and ASKE (with assistance from others) will jointly undertake a test designed in such a way that one outcome would unequivocally demonstrate that the claimant possesses the ability in question. Successful claimants will then be eligible, if they wish, to apply for the €25,000 Sisyphus Prize offered by SKEPP, the Belgian Skeptical society.

In drawing up the application rules I found it difficult to define ‘a paranormal ability’ and avoided doing so. ‘Not explained by science’ is not a good criterion since there are many things human beings do that can’t as yet be explained by science. So we have adopted the policy of saying we will know if it is paranormal or not when we see it.

The history of the ASKE Psychic Challenge, instigated by Tony Youens when ASKE was founded in the late 90s, was unexciting to say the least. The occasional expression of interest never got as far as a formal test on the grounds of impracticality – one chap simply claimed the award! Two preliminary tests were conducted. One involved a dowser (‘D’), a very sensible and scientifically-minded man who organised his own test, aided by friends and family who buried three pipes containing water in three different locations unknown to D. Each pipe could be in one of ten locations, so the probability of D finding all three by random guesswork was 1 in 1,000. He did not locate any of the pipes.

Chris French was present and wrote up the event in the UK *Skeptic*. The other preliminary testing was of EVP (Electronic Voice Phenomena). Or was it? What started out as a very straightforward claim became increasingly obscure each time the predicted effect failed to materialise – a kind of Dance of the Seven Veils in reverse. Eventually I gave up in despair and have since been the subject of some online vituperation by the claimant.

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Most research on paranormal ability is conducted with groups of participants; scores are then analysed to determine if the group as a whole displayed a statistically significant paranormal effect. Published research like this often precipitates a dispute as to whether the experimental conditions were sufficiently watertight to exclude a non-paranormal explanation, whether the correct statistical tests were used, and so on. Not infrequently, others fail to replicate the results. So a good case can be made for single case studies, such as the paranormal challenges that some skeptic societies like ASKE offer. It only takes one positive case to demonstrate that a paranormal ability is possible. Replication is still essential: the successful claimant should be able to demonstrate their ability to other investigators, and be willing to subject themselves to this (contrast Geller).

Last year I attended a lecture at Goldsmiths College by Dr Rupert Sheldrake, a biologist famous for his belief in telepathy. I have followed Dr

Sheldrake’s work over the years, though not as closely as I would like (other duties call). I think he should be taken seriously, not because of his theory of ‘morphic resonance’ or for his anecdotal evidence of telepathy in people’s daily lives, but because he publishes results of experiments claiming unequivocal support for everyday claims of telepathic phenomena. Most well-known are his work on pets that anticipate their owner’s arrival; sensing that one or more people are staring at you; and knowing who is calling you when the telephone rings. In the last-mentioned case he has an automated online experiment running that anyone can take part in and he claims results of extraordinary statistical significance (though I am concerned about the possibility of cheating by participants).

Now, Dr Sheldrake claims that these effects can be demonstrated to a statistically significant degree with individual volunteers, and not just by group analysis. In that case such an individual could be in line to win any of the prizes that are offered to people demonstrating a paranormal ability, including ASKE’s £10,000 prize. This matter is therefore of some interest, at least to me, who is the one who has pledged this money (others are welcome to join me). Am I worried? No. I’m getting on a bit now (‘shrouds have no pockets’, etc.) and I would consider the money well spent if I were the one to sponsor a discovery of such importance. And yet....somehow, somehow I can’t see it happening (*Why not bet on it? – Ed.*).

#### Note

1. <http://www.aske-skeptics.org.uk>



## LOGIC AND INTUITION

### Different places, same temperature



I was introduced to this interesting puzzle by Mr Michael Stevens. The distractions of eating in a café made it difficult for me to apply what intellectual abilities I possess to coming up with an answer and my colleague gave his solution. This seemed to be in order,

but again I was not able to concentrate sufficiently to be confident that his reasoning was sound. Since then I have satisfied myself that he was correct, but I doubt whether I could have solved the problem even in the most favourable environment. I then looked up the puzzle on the Internet. At first I was confronted by several websites that prove the answer using what to me are advanced mathematical equations. But my colleague's simple explanation is there. Now, unlike in my case, your

task is to solve the puzzle using your powers of reasoning. Here is the puzzle:

Prove that on any great circle around the Earth there are always at least two antipodal points with the same temperature.

(A great circle is one, such as the Equator, whose plane passes through the Earth's centre. Antipodal means 'diametrically opposite'.)

If you need a hint see the first part of the Answer on page 19.



## THE EUROPEAN SCENE

### European Council for Skeptics Organisations

For readers unfamiliar with the European skeptic scene, there are quite a number of countries with national skeptical organisations, some of which are affiliated to ECSO. Contact details for ECSO are:

Address: Arheilger Weg 11, 64380 Roßdorf, Germany

Tel.: +49 6154/695021

Fax: +49 6154/695022

Website: <http://www.ecso.org/> (which has an email contact facility)

Facebook:

<https://www.facebook.com/skeptics.eu/>



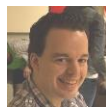
**András Pintér** has a 15-minute video recording of his talk 'Stronger together - Building a bridge for skeptics in Europe and beyond' at Skepticamp Manchester in October 2016, prior to QED. At:

<https://www.facebook.com/andras.g.pinter>



**Claire Klingenberg** of the Czech Skeptics' Club Sisyfos has been interviewed by Susan Gerbic. For a transcript visit:

[http://www.csicop.org/specialarticles/how/skeptic\\_from\\_czech\\_republic\\_checks\\_out\\_csicon](http://www.csicop.org/specialarticles/how/skeptic_from_czech_republic_checks_out_csicon)



**Leon Kortweg** has alerted us to a 5-day conference coming up in Soesterberg in the Netherlands in October. It is entitled 'Homeoprophylaxis' (homeopathic vaccination) and Mr Andrew Wakefield has been invited to attend. They intend to screen the film *Vaxxed*. At:

<http://www.hpwwc.org/schedule.html>

(Also see 'Medicine on the Fringe' concerning the visit to Ireland by anti-vaccination campaigners.)



Swedish **Professor Hans Rosling** died at the age of 68 on 7 February 2017, a year after being diagnosed with pancreatic cancer. Professor Rosling received the award 'Enlightener of the Year' 2006 by the Swedish Skeptics Association: 'Professor Rosling made a name for himself internationally as an outspoken promotor of a factual approach to looking at the state of the world. Celebrated by the Swedish and international public for his dedication to demonstrate how the public world view is often inaccurate, Prof Rosling was highly regarded by the skeptical movement, among other things giving a superb talk at the European Skeptics Congress 2013 in Stockholm, as well as several TED talks.' For more on Hans Rosling's work see:

<https://www.gapminder.org/>

For further recent announcements from European skeptical societies visit the ECSO website.

### 17<sup>th</sup> European Skeptics Congress

Now is the time to book your tickets for the 17<sup>th</sup> European Skeptics Congress organised by the Polish Skeptics' Club in cooperation with the Czech Skeptics' Club Sisyfos under the auspices of ECSO. The congress is from September 22nd – 24th, 2017 in the wonderful city of Wroclaw, Poland. Topics that will be covered during this congress are:

- Science & Religion
- Skeptical Psychology
- GMOs
- Science, Pseudoscience & Media
- Paranormal Investigation
- Exorcisms & Science

#### Congress website:

<http://euroscepticscon.org/>

#### Facebook:

<https://www.facebook.com/europeanskepticscon/?ref=bookmarks>

## The ESP - European Skeptics Podcast



Building a bridge for skeptics  
<http://theesp.eu/>

There has been a whole spate of podcast interviews since the beginning of the year, including discussion with Michael Marshall and Fiona O'leary about the Europe-wide screening of *Vaxxed*. Most recently, Jelena Levin

writes: 'Hi all. Please share our latest podcast episode. We're back with the regular segments discussing lots of different topics ranging from #Chickenpox, SpaceX, #Newton and #FakeNews to what happened #LastNightInSweden after all, how BILD.de is fighting #falsehoods, March for Science across the world, #GlobalWarming denial, #Paleo diet, Metro Sverige, What Doctors Don't Tell You now available in Hungarian and more.'

Please, send feedback, information on events and recent news from your country that you think others in other countries might be interested in. You can use the contact form, send an email to [info@theesp.eu](mailto:info@theesp.eu) or tweet at us @espodcast\_eu. If you could write a review on your blog, website or iTunes and let us know by sending us a message about it, that would be very much appreciated.



## MEDICINE ON THE FRINGE

Michael Heap

### Anti-vaccination

Recently there has been a flurry of activity involving anti-vaccination campaigners and the fraudulent claim by disgraced doctor Andrew Wakefield that the MMR (measles, mumps and rubella) triple vaccination may cause autism. A full account of this scandal, exposed by journalist Brian Deer, may be accessed at the link given in *note 1*. The website also includes access to Brian Deer's 2004 televised film 'MMR - What they didn't tell you' and several other videos relating to this.

Mr Wakefield, who now works in the US, continues to insist on the MMR-autism link and is supported by anti-vaccination campaigners, certain alternative medicine groups such as homeopaths and chiropractors, and some autistic support charities whose members include parents of children whose autism, they believe, was caused by the MMR vaccine. In the UK, USA and elsewhere, the proportion of vaccinated children declined following media publicity about Wakefield's claim, and the incidence of measles, which can result in serious and permanent disabilities and even death, increased. Alarmingly, in summer 2016 Wakefield met with Donald Trump and declared the presidential candidate to be sympathetic to his cause; he was seen at one of Trump's inaugural balls in January (*note 2*).

Wakefield is also director of a film released in 2016 titled *Vaxxed: From Cover-Up to Catastrophe* which alleges the US Centers for Disease Control and Prevention of covered up the supposed link between the MMR vaccine and autism. The film was scheduled to premiere at the 2016 Tribeca Film Festival in New York but was withdrawn after protests (*note 3*). And In February this year, plans to show the film at the Curzon Cinema in Soho were cancelled following an outcry from scientists (*note 4*). An alternative venue was then provided by the Centre for Homeopathic Education (CHE) (*note 5*). This body claims to offer the only degree course for homeopathy in the UK (accredited by Middlesex University) and uses facilities provided by Regents University, a small private establishment in central London. It has been observed (*note 6*) that Regents University makes a habit of allowing its facilities, at a price, to be used by purveyors of pseudo-scientific claims (*lots of universities do this – Ed.*). Whatever the case, this is where *Vaxxed* was eventually screened. The university has since declared that it knew nothing about the nature of the event and is reported to have cut all ties with the CHE (*note 7*). A post-film Q&A session with a panel that includes Wakefield is accessible online (*note 8*).

Meanwhile, a registered British autism charity has been reported by the *Times* to be promoting potentially harmful unlicensed medicines and making unfounded claims about the risks of vaccines. The Autism Trust UK is based in Camberley, Surrey, and was founded in 2007 by Polly Tommey, an anti-vaccine campaigner who is reported to have close links to Wakefield (*note 9*).

Antivaxers are now petitioning the White House (*note 10*). 'We cannot make America great with so many disabled autistic children, so we must urgently face the autism epidemic, admit its reality and confront its stunning rise', they say. And We are Vaxxed, another group linked to Wakefield, is planning to travel to Ireland in April to interview mothers of autistic children who believe their diagnosis is a result of having their children vaccinated (*note 11*).

### Notes

- 1 <http://tinyurl.com/nxmak6u>
2. <http://tinyurl.com/zdvdx2a>
3. <http://tinyurl.com/k4kpmqq>
4. <http://tinyurl.com/ldygs3t>
5. <http://tinyurl.com/kjevhexa>
6. <http://tinyurl.com/m5bk1xx>
7. <http://tinyurl.com/jz2klqd>
8. <http://tinyurl.com/mdfszkr>
9. <http://tinyurl.com/kzqkjh>
10. <http://tinyurl.com/huoz8z4>
11. <http://tinyurl.com/lsvxv6>





2013, p. vii). Hutton is not by training a linguist, but he has commented to good effect on other cases involving mysterious scripts or quasi-scripts; his proposal (put forward in the context of declaring that he himself is avoiding the very term *art* in this context, for just such reasons) must be taken seriously. On the other hand, it is very briefly expressed, with no specific references, and it is openly speculative.

A non-mainstream group of authors calling itself 'Viewzone', with much less intellectual weight than Hutton, unpersuasively promotes the idea that many mysterious ancient inscriptions (definite or putative) and (more relevantly) various genres of apparently **non-linguistic** symbols found around the world together constitute a 'world alphabet' which was used between 8,000 and 4,000 years BP (much earlier than the earliest known alphabets, and for the most part earlier than **any** known writing system). Most relevantly, they hold that much 'rock art' and in particular the 'Panaramitee' Aboriginal rock-art tradition of Australia (dated as early as 20,000 years BP) also represent this world alphabet. However, the symbols in question – circles, crosses, etc. – are so simple that they predictably appear all over the world with many meanings, linguistic and other. The Panaramitee symbols in particular are typically of varying sizes and are often spread over rock surfaces with no obvious order in which one might read them. They cannot reasonably be interpreted as alphabetic characters, of whatever exotic origin. (As far as is known, the Aboriginal peoples themselves never developed written language independently.)

### **Barfield and Steiner on language**

Yet another non-linguist, expert in adjacent subjects, who developed idiosyncratic ideas about language (in this case, chiefly language origins) was Owen Barfield. Barfield was a member of the Inklings, the mid-twentieth-century group of Oxford writers, literature scholars and philologists centred on J.R.R. Tolkien and C.S. Lewis. Tolkien himself espoused some

implausible ideas about language grounded in literary and philological notions rather than in the then current work of linguists, and Barfield developed a more articulated approach along similar lines.

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*Barfield objects to the  
sometimes-aided notion that a  
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historically.*

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Barfield's most relevant work deals mainly with poetic language, seeking 'objective' standards of criticism involving philosophical considerations on the relation between language and thought (although it is far from clear that he succeeds in this enterprise). Like Tolkien, he was less aware of twentieth-century mainstream scientific linguistics than of philology (also scientific, albeit in a weaker, partly pre-theoretical sense) and linguistic aspects of philosophy. Indeed, he offers little concrete empirical evidence for his general claims, and his comments about non-Indo-European languages (for example, on Chinese word order) are often oversimplified.

Barfield claims that poetry genuinely is the 'best' language, and that in early times all language had a poetic character, before 'logic' came to dominate both usage itself and most strands of thought about the subject. This poetic character, he holds, is still found in 'primitive' languages such as pidgins (in fact, no genuinely 'primitive' languages are known, although pidgins **may** display **some** features recapitulating earlier evolutionary phases of language). Barfield objects to the sometimes-aided notion that a language becomes richer and more poetic as it 'ages' historically. Specifically, he judges that the poet Percy Shelley (1792-1822) and some of his contemporaries were profoundly mistaken in holding that a spiritual, creative awakening, accompanied by a strengthening of the relevant aspects of language, occurred

in their own time; he argues that if language were indeed becoming more poetic all people would have been accomplished poets by his own time. Instead, he advances a highly speculative and partly subjective theory of the early 'evolution' of human consciousness and of corresponding general characteristics of language – and of the subsequent decline of language as traditional ideas about the universe, despite their 'spiritual truth' (see below) and enabling power, were 'discarded' (a word memorably used in this context by Lewis) in the post-Renaissance world and especially in the 18<sup>th</sup>-Century Enlightenment.

Barfield links these ideas with the theories of the imagination (again highly speculative) presented by Samuel Taylor Coleridge and Johann Wolfgang von Goethe. As far as the physical universe is concerned, he (like Lewis) does accept the validity of most of the contemporary scientific account. But he (again like Lewis) upholds the 'spiritual truth' of earlier cosmologies, superseded in the modern scientific world. In addition, he is (not wholly unreasonably) suspicious of what is now almost unavoidable overspecialisation in the sciences; and he (less reasonably) rejects as 'scientistic' (and probably false) certain particular very generally held scientific views, notably the idea that no intelligent life existed on Earth in deep pre-historic times (but, *pace* various non-mainstream thinkers, there is no good evidence that any did exist) and the more general uniformitarian notion (which, at least as a working assumption, is a **necessary** philosophical basis for the practice of science) that physical 'laws' do not change over time.

Barfield's focus on the human past leads him to interpret the semantics of words in a heavily etymological manner (which mainstream linguists with their largely 'synchronic' focus would accept only with major reservations) and with an emphasis on metaphor as a vehicle of meaning-shift (this latter is itself not altogether unreasonable). He also accepts the

view of the ‘maverick’ linguist Otto Jespersen that there is very generally a movement during the ‘lifetime’ of a language from inflectional morphology with relatively free word order (as in Sanskrit or Latin), which both writers prefer, to isolating morphology and a fixed word order (as in contemporary English). In fact, this is at most an Indo-European tendency.

Barfield’s ideas are interesting, but from the point of view of a scientific linguist they are much too heavily grounded in partly subjective judgments and insufficiently justified in empirical terms.

Barfield lived to be 99 (he died in 1997) and worked on into extreme old age. His works are readily available; see *Saving the Appearances* (London, 1957), *Worlds Apart* (Hanover, NH, 1963) and especially *Poetic Diction: A Study in Meaning*, 3<sup>rd</sup> edn (Hanover, NH, and London, 1973).

Like the other Inklings, Barfield was a Christian (indeed, this was a condition of admission to the group); but he was also an anthroposophist, a follower of the occult writer Rudolf Steiner. He combined the two belief systems in a ‘syncretist’ manner, not wholly convincingly; the core anthroposophist belief in reincarnation, in particular, does not sit well with Christian doctrine. Steiner himself (well known on a wider front for his educational theories) supported a speculative gestural theory of the origins of language. In addition, he naïvely treated older forms of his native German as displaying the highly desirable ‘genius of language’ (supposedly manifesting a natural link with the ‘soul’ of its speakers, displaying very free/mixed word order, etc.) and focused very heavily throughout his work upon German and other Germanic data, often assuming that features of German such as its phonology and its gender and case systems reflect important psychological realities and universal perceptions of the world. He actually deprecated languages such as the ‘weakened’ Latin which infringe patterns established on the basis of Germanic data, for instance by having

[a:] in *mater* (‘mother’) – which is in fact closer to the reconstructed Proto-Indo-European ancestor form – in place of the supposedly primeval, gesturally/psychologically appropriate [ʊ] of the equivalent German word *Mutter*. See his *Eurhythmy as Visible Speech*, 2<sup>nd</sup> edn (V. and J. Compton-Burnett and S. and C. Dubrovik trans.) (London, 1956).

In *The Genius of Language: Observations for Teachers*, 2<sup>nd</sup> edn (Gertrude Teutsch and Ruth Pusch trans.) (Hudson, NY, 1995), Steiner outlined an account of the air-forms produced by reciting the Roman alphabet (naïvely seen as including all possible sounds which might be used to construct any word in any language) as expressing the nature of the ‘etheric body’ of a human being; he proceeded to develop an occult account of the significance of sounds, words and longer linguistic constructions for the human soul.

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For an especially interesting account of Barfield and his associates, see Gareth Knight’s *The Magical World of the Inklings*, 2<sup>nd</sup> edition (Cheltenham, 2010). Knight (well known in the ‘New Age’ world) is a believer in psychic powers, spiritual entities and the like, and his treatment is arguably partisan (pro-Inklings); but he is undoubtedly intelligent and well-informed.

### **Art and astronomy now?!**

Linguistics is not unique, of course, in having its territory invaded by well-meaning outsiders. The ‘hard’ sciences have suffered at the hands of postmodernist philosophers and literary theorists (remember the Sokal Hoax?), and artists too have abused them. In 2016 Katie Paterson staged an exhibition at the Lowry in Salford, titled ‘Syzygy’. (A syzygy is actually a

conjunction or opposition of heavenly bodies.) The exhibition was featured in James Fox’s BBC Four documentary ‘Who’s Afraid of Conceptual Art?’ (which also featured Martin Creed, one of those whose work was shown at Bury as discussed above; for comment on the documentary see *note 3*)

Part of Paterson’s innovative and striking display involved the recording of the ‘deaths’ of individual stars. I asked myself (and then asked her team): How exactly does Paterson know when a star ‘dies’? The answer given was that the source of her information is telescopes around the world and websites which will send an enquirer messages whenever a ‘star-death’ has been noted. I was also told that Paterson received electronic telegrams from organisations such as NASA and the ESA; the latter body failed to respond usefully to my query.

I was not satisfied, and asked further how even an astronomer would know of the ‘deaths’ of specific stars (which of course will have occurred long before they are actually observed, because of the scale of the universe and the velocity of light). Some very massive stars ‘go supernova’ and thus ‘die with a bang’; but these are very few. So maybe we are dealing here mainly with stars fading away and **eventually** ‘dying’. These would be white dwarfs and such, lower-mass stars like the Sun in their extreme old age. But such ‘deaths’ are very drawn out; it would be difficult to put an exact time on each ‘death’. And unless such a faint star was very close to us (within a few light-years) close observation of this process would not be feasible (at present). So the numbers would again be very small.

No useful reply was received to these points, and contacting Paterson herself proved impossible. So I consulted a professional astronomer, who confirmed my view that what Paterson says does not make sense. He remarked ‘Clearly Katie has an artistic insight we mere mortals don’t share!’ This would all be mildly amusing if it were not being passed off by at least some of those involved as genuine science.

But some other artists are much more respectful of the scientific and science-like disciplines into which they 'intrude'. The 'Art Gene' group, which is very active around Furness and exhibits its work in Barrow and elsewhere, develops innovative, partly artistic projects involving local history and geography (human and physical).

For example, they design and produce visually appealing, user-friendly maps of the region which incorporate facts and ideas of diverse kinds (including oral narratives). While their perspectives and goals may be different from those of professional scientists and historians, they in no way set themselves up in opposition to such

scholars, and they welcome input, including criticism, from representatives of all disciplines.

#### Notes

1. <http://bloomsburyfestival.org.uk/>
2. <http://tinyurl.com/kak4qkb>
3. <http://tinyurl.com/ms8xr8z>

## REVIEWS AND COMMENTARIES



**Aliens – Science Asks: Is There Anyone Out There?** Edited by Jim Al-Khalili. Profile Books Ltd, 2016, pp 200. ISBN : 978 1 78125 681 7, £8.99 (pbk).

*With the discovery of more earth-like exoplanets, the questions 'Are we alone?' and 'How will we know if we're not?' are increasingly the focus of attention.*

### Reviewed by Steve Dulson

'Where is everybody?'

A simple enough question and one once posed by the Nobel Prize winning physicist Enrico Fermi, during a light-hearted conversation about the possibility that Earth had been visited by aliens. It is a simple little question but one which raises many, many more detailed ones when it is investigated more fully by the wider scientific community. When you consider the vast size and extreme age of the universe, it seems unthinkable that Earth is the only place where life has ever existed. Or is it? This book comprises a collection of nineteen bite-size chapters and a well-written summary introduction. Each chapter is written by a different writer, all experts in their fields of cosmology, astrobiology, cognitive neuroscience, artificial intelligence, psychology, planetary geology, mathematics, biochemistry, biology, molecular genetics, theoretical physics, zoology, astrophysics, genetics, astronomy and er... filmology.

The questions that are posed and discussed are many and varied: how, why, what, where and when? How do we define what 'life' actually is? How did it start here on earth and, therefore, could it occur in the same way on other planets? Or could life occur and develop in different ways on other

planets? What chemical and biological processes are involved in the beginnings of 'life' and how do they interact? What form could life take in different planetary environments and how could it sustain itself? What kind of timescales are we talking about? What are the statistical and mathematical probabilities of these things occurring? What is the role of water in the origins of life? Is water absolutely essential to all life or just to lifeforms on earth as we know them? What are the chances of life occurring and developing on the other planets in our solar system? How about the moons of the largest planets? How do we calculate and extrapolate the probability of this occurring across the rest of the universe?

What is the historical background behind ideas about alien life? What conspiracy theories are out there, how did they come about and grow and how have they now been debunked? What is the extent to which literature, comics and films have influenced our belief in the existence in aliens? What is the psychology behind the tendency to anthropomorphise alien life forms in popular literature and film and, hence, scientific expectations for what we can expect to encounter? Why would aliens want to visit us anyway? Will it be possible for us to visit them? Could

alien life have developed at the same rate as us? Or faster? Or slower? Would alien lifeforms be more or less likely to have developed more advanced technology than us? Have humans really been abducted by aliens in the past? Could there be alternative explanations for the experiences that people have assigned to alien abduction? What is the psychological basis behind a need to believe in the existence of aliens and visitations or even abductions by them? How could this be influenced by artistic representations of alien life and portrayals of their anticipated motivations, appearance and behaviour?

This myriad of topics is generally discussed in an easily readable style, which must have been no mean editorial feat when you consider the variety of the group of expert authors that have been gathered together and their demonstrably in-depth knowledge of their specific fields. A little bit of jargonese and overly technical detail creeps in to a couple of chapters but, on the whole, this does not detract from the general flow of the light hearted debate or overall readability of the book. Recent developments and methods are also discussed by prominent SETI researchers (SETI – the search for extra-terrestrial



intelligence) which are particularly interesting, given recent news headlines.

By the end of the book, it seems clear that we still have a long way to go if we are to ever answer the simple little question posed at the start of this review but that is partly what makes this subject so fascinating and open to so many more research opportunities.

The current excitement surrounding the discovery of seven earth sized planets in the Trappist-1 solar system serves as a reminder that research is ongoing in these fields and each small breakthrough achieved ensures public exposure of such scientific endeavours.

The truth is out there alright but the key to it resides here. What I took away from this great little book is that

we need to understand more about the origin of life on our own planet before we can effectively apply that knowledge elsewhere.

And if all the talk of alien invaders gets too much for you then there is always the funny flip-page cartoon down the right hand side of the book which you can use to entertain yourself. Alien selfie anyone?

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**Psychology Led Astray: Cargo Cult in Science and Therapy** by Tomasz Witkowski, Boca Raton, FL: BrownWalker Press, 2016, pp 276 + xiii. ISBN-10: 1-62734-609-0; ISBN-13: 978-1-62734-609-2.

*What is going wrong with Psychology and why is it so vulnerable to so many unproven, unscientific and all-too-often weird ideas and practices?*

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### **Reviewed by Michael Heap**

Speaking as someone who has worked as a psychologist for the last 47 years it may come as no surprise for me to defend psychology as a worthy field of study. Like all disciplines it is vulnerable to quirky ideas, questionable practices, and pseudoscientific claims, but more so than the hard sciences because of the nature of the subject matter, about which everyone can have his or her opinions and theories, some of them strongly held. A Psychology degree, thousands of which are handed out annually by universities, in itself offers no guarantee that the holder is endowed with the discipline required to adhere to a rational understanding of the human mind, its capabilities and its afflictions. Psychological research is particularly vulnerable to a malaise that is now acknowledged to affect many fields of study involving human subjects, namely unreliability; experiments and other forms of investigation are often badly designed and conducted, and the results poorly analysed and improperly interpreted. One force responsible for this lamentable state of affairs is the requirement on most university staff to maintain a decent flow of research publications. Hence convenience will play an important role in choice of research topics and human volunteers

to be studied (usually undergraduate students). The inevitable result is that thousands of research papers in hundreds of journals are published annually, most are hardly ever read, and what limited attempts are made to replicate the findings all too often end in failure. Applied psychology (clinical, educational, forensic, occupational, etc.) is no less a dodgy business, more revealingly so in the present climate of accountability to a strong and reliable evidence base.

All of this does not discredit Psychology as an academic and applied discipline, vital in the prospectus offered by any university worth its salt, likewise in medical and educational services, civil and criminal justice systems, and many other important spheres of public life. But Psychology is something people *do* and when it goes seriously wrong it is largely because of the way people are *doing* it and the political, social and economic contexts in which they operate.

The author of *Psychology Led Astray* would agree, I am sure, with the above sentiments. Tomasz Witkowski is himself a psychologist (and a founding member of the Polish Skeptics Club) who, with his colleague Maciej Zatonoski, has already published a highly critical account of the numerous failings and scandals that

have plagued psychology over the years (*note 1*). In fairness, as is the case with the present book, some of the topics covered could equally well have been included in a book titled 'Psychiatry Led Astray'. Also some of the dubious and even harmful therapeutic practices that are discussed would receive short shrift from most mainstream psychologists, psychiatrists and medical practitioners in general. But not all of them, it seems, and there are cultural and national variations in the extent to which this is so.

The material covered in the book is divided into three parts. Part I asks the question 'Is Psychology a Cargo Cult Science?' and is a critique of important ways in which modern psychology has developed. The term 'cargo cult' was used in an address by physicist Richard Feynman in 1974 at the California Institute of Technology as a criticism of contemporary social sciences. He compared the ways in which social scientists emulate their colleagues in the physical sciences to the cargo cults that developed amongst people in the South Seas during and after World War II through their contact with the west. For example, having witnessed aeroplanes landing and bringing lots of desirable cargo to their islands, they made their own runways and lit fires along the sides, constructed airports

made of wood, radios made of coconuts and straw, and so on. Of course any hoped-for material benefits of doing all this never appeared (*note 2*).

The chapters in Part I largely concern the failings of modern psychological research as I have briefly outlined in the first paragraph of this review. There is also a chapter on research into stress and its supposedly deleterious effect on physical health. The gist is that the most well-constructed research suggests that claims for such a link (which seem to represent current orthodoxy) are at least overblown and may even have been discredited. Informed readers may be divided on this assertion.

A particular point that the author makes made me sit up. It is that, at least from the standpoint of research, Psychology has all-but ceased to be the Science of Behaviour. The basis for this claim is the declining number of research papers that involve the direct observation of behaviour. The author quotes social psychologist Roy Baumeister lamenting the decline in research papers in which observable behaviour is the dependent variable in favour of those using introspective measures and scores on questionnaires. Several reasons are cited and Witowski includes convenience and the demands on researchers to be prolific in their publications (see my earlier comments).

I was pleased (because I have often pondered on this paradox) to read the author's remarks about how the growth in the number of professionals and the resources dedicated to the needs of people with mental health problems has been matched by an increase in the number of people diagnosed with these problems. Naively one would predict that the former would lead to a decline in the latter.

A range of dubious, unsupported and discredited (though still thriving) treatments and therapeutic practices and diagnostic categories are covered in Parts II and III of the book (Part III being devoted to children's problems and needs). Throughout these sections the author repeatedly returns to the analogy of cargo cults, which some readers may feel is somewhat overworked at times.

The material covered in Part II comprises the following: the syndrome known as 'adult children of alcoholics'; the Simonton visualisation method for cancer patients; and psychological debriefing following trauma (which research has revealed to be more harmful than beneficial). The section ends with a chapter titled 'Experimental therapy patient's handbook'; this provides guidelines for people who are considering undergoing some form of therapy.

The chapters in Part III cover the Doman-Delacato for the treatment of

neurodevelopmental disorders and other children's disabilities; the pseudoscience of educational kinesiology ('Brain Gym®'); certain 'attachment therapies', including holding therapy; and dolphin therapy.

*Psychology Led Astray* is a well-written, readable and thoroughly researched book. Two criticisms are that, as with *Psychology Gone Wrong*, there is no index and the referencing system could be more reader-friendly. Nevertheless, the importance of its subject matter is difficult to overstate. Anyone who is concerned, however remotely, with the study of human psychology and the treatment of psychological difficulties and disorders (and this includes potential patients and their families – i.e. just about anyone) should familiarise themselves with the information in this book.

**Note**

1. Tomasz Witkowski and Maciej Zatonoski (2015) *Psychology Gone Wrong: The Dark Sides of Science and Therapy*, Boca Raton FL: BrownWalker Press. (Reviewed in the *Skeptical Intelligencer*, **19**, 2018 (3), 1-2. I personally think that the metaphor is very apt when comparing the diagnostic classification systems of psychiatry with those of medicine generally, something covered by the author in his first chapter.

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**Real Secrets of Alternative Medicine: An Exposé** by Richard Rawlins. Dartmouth, Placedo Publishing, 2016.

*Continuing the sustained attack on the alternative medical industry.*

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**Reviewed by Niall Taylor**

This is a book on an epic scale by an extremely knowledgeable author. In its three main sections Dr Richard Rawlins, practicing magician, hypnotist, medical practitioner and specialist surgeon, takes the reader on a detailed journey through what lies behind complementary and alternative

medicine (CAM) by exploring both the macroscopic—from the big-bang to human evolution - and the microscopic - from Steiner schools, cognitive dissonance and the ingredients of the Queen's coronation oil, to those members of the society of apothecaries

who apply cold water behind the ears to refresh themselves during meetings.

The first section covers the background to science and how it has developed alongside faith and religion. It also looks at some of the ways CAM may appear to work and some of the semantic tricks and 'sleights of mind'

employed by its practitioners as they ply their trade. The second section gives a more conventional narrative, covering many of the principle practices and personalities of CAM - chiropractic, homeopathy, acupuncture and so forth, while the final section addresses the ways CAM may actually work, with a detailed consideration of one of the central themes of the book - the ethical use of the placebo in medical practice and a few suggestions as to how the scientific and medical world can constructively regard and even engage with CAM.

Using his theatrical experience, both surgical and stage, Dr Rawlins is ideally placed to see the devices and artifice of the CAM practitioner for what they are and point out the contrasts between those who make a career out of deception - honestly in the case of the stage magician, less so in the case of those who profit by CAM. Throughout the book shines the author's love of words and language; he is at pains to enlighten the reader with the roots and origins of words, many of which the non-linguist may have taken for granted. Who knew for instance what the origin of the term 'clinical' was, or where the word 'electron' or even simply 'drug' came from?

This passion for words extends to indignation that CAM has got all the catchy ones - traditional, holistic, complementary and so forth - and is

disingenuously misusing others - the homeopaths' mistranslation of 'Prüfung' for one. So, in response, Rawlins has devised a novel lexicon of his own, in which, for example, a practitioner of CAM becomes a 'camist' and a patient is a 'camee' while 'placido', as practised by 'placebists', is the consideration of the path to a better understanding of placebo effects. Critics of science-based medicine talk of 'big-pharma'; Rawlins describes the CAM industry as 'big-charma' while CAM practices themselves are referred to as, not 'complementary', but 'condimentary' - producing flavour and pleasurable feelings but with 'no substantial effect on any pathological or physical process'. The phrase 'Traditional Western Medicine' (TWM) comes as a surprise to the reader, but when considered carefully it is found to be true - modern, science-based doctors do indeed practice TWM which has evolved from the ancient practices of the western classical world and has as much right to the label 'traditional' as has 'modern' Traditional Chinese Medicine (TCM). My favourite *Rawlinism* is 'wudo'—the path of nothingness, as followed by those who employ CAM.

Dr Rawlins explores much of his subject using detailed biographical information on some of the more prominent characters, ancient and modern, from both sides of the debate

and in this way his work is, apart from anything else, a superb reference book to turn to when detailed information regarding CAM, the history and development of science and medicine, and any of its personalities is needed. So I hope I can be forgiven for one small criticism of an otherwise excellent volume: an index would have been nice - perhaps something to consider for the second edition (*but see note below*).

All in all, *Real Secrets of Alternative Medicine* is an enjoyable and original insight into the subject matter from an author whose familiarity with illusion and medicine has given him a unique perspective on human nature. It deserves a place in the library of anyone who wishes to understand and learn from, rather than simply ridicule, complementary and alternative medicine and discover some of the reasons why, despite firm evidence of its lack of efficacy, it continues to thrive. I would recommend anyone interested in a serious exploration of CAM to buy it but of course, to use one of Dr Rawlins's preferred phrases, you must be the judge!

#### Note

As it happens I discovered from Richard's comment on the blog that there is an index after all which can be found on his website:

[www.placido.co.uk](http://www.placido.co.uk).

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**'Story of Your Life'**, short story by Ted Chiang, originally published in 1998 and collected (pp 55) with seven other stories by Chiang in *Stories Of Your Life And Others*, Vintage Books (New York), 2016; with *Arrival*, 2016 Lava Bear/Paramount movie based on the story

*The question of communication with any intelligent aliens that we might encounter has been much discussed. However, the crucial role of linguists in any such enterprise has seldom been foregrounded, partly because the discipline is not widely understood. But here is a recent and important exception!*

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#### Reviewed by Mark Newbrook

Ted Chiang (Chiang Feng Nan, born 1967) is an American science-fiction author with a computer science degree who works as a technical writer in the

software industry. He has won many prestigious awards for his works, including a Nebula Award and a Theodore Sturgeon Memorial Award

for the work under review here. (He also won a Nebula Award for 'Tower of Babylon' (1990), another of the stories in this collection, which

brilliantly re-envisages the Biblical Tower of Babel myth as a quasi-factual personal story set in the universe of ancient Middle-Eastern mythology.)

‘Story of Your Life’ and *Arrival* deal impressively with the now familiar but still intriguing matter of imagined first contact with intelligent extraterrestrials, and in particular with the linguistic aspects of such scenarios. Chiang focuses adroitly and for the most part accurately on these matters of language, and the specific criticisms offered below should not be seen as disparaging his achievement.

By way of background: 112 identical alien craft have appeared at locations scattered across the surface of Earth, and appear to be inviting mutual communication, using initially incomprehensible groaning noises. The main protagonist is a linguist (Louise Banks) who is called upon by the U.S. Army to analyse and interpret the profoundly different non-human communication system employed by the visitors and to interact fruitfully with its users, notably on the question of why they have come to Earth. Banks, together with physicist Ian Donnelly, is brought to a military camp near one of the spacecraft; and in an interface chamber on the craft, divided by a glass barrier, they make visual and oral/auditory contact with two of the large (elephant/dinosaur-sized but upright-standing) seven-limbed aliens (named ‘heptapods’ by the humans) moving in their own (somewhat hazy) atmosphere beyond the glass.

The movie follows the original story rather more closely than is usual in such cases, and my comments can in general be read as applying to both.

Linguistic scenarios of this general type (‘xenolinguistics’) have been widely represented in earlier works of science-fiction; for discussion, see for instance Chapter 11 of my 2013 book *Strange Linguistics* and references given in that text. One well-known movie with a broadly similar theme is *Contact* (1997), based on Carl Sagan’s 1985 novel; various reviewers of *Arrival* have drawn comparisons between the two films. Karen Stollznow (see below) refers usefully

to other movies dealing with contact scenarios of this kind, such as *Iceman* (1984), *Stargate* (1994) and *Thor* (2011). Such notions have also been discussed, albeit often rather peripherally, in the literature on ‘SETI’ (‘Search for Extra-Terrestrial Intelligence’). On this aspect of the matter and on associated quasi-factual claims made by ‘contactees’ and such, see Chapter 5 of my book. The former Soviet Union actually arranged for linguists to train on the most ‘exotic’ human languages available in case such events should ever actually occur. However, much of the material across this entire range of work evinces limited expertise in linguistics *per se*. The main exceptions are works by some science-fiction writers proficient in linguistics whose work prominently features accurately presented linguistic themes, such as the professional linguist Suzette Haden Elgin. Chiang himself has no professional background in linguistics, but he displays an unusually high level of competence for an amateur.

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*112 identical alien craft have appeared at locations scattered across the surface of Earth, and appear to be inviting mutual communication, using initially incomprehensible groaning noises.*

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The story and the movie feature the distortion of linear time under the influence of the heptapods, who have a very different perception of such matters, and there are frequent anomalous-appearing ‘flashbacks’ arising from this effect – saliently involving a full-blown relationship between Banks and Donnelly, including a child who (in a major subplot) dies young. These ideas are well handled, though for me at least the suspension of disbelief in ‘time-travel’ scenarios (not to say acceptance of the notion that such things might actually happen or, if they did, might be amenable to human understanding) remains difficult. However, the

**linguistic** aspects of this particular element in the story are not articulated explicitly enough to allow a *linguist qua linguist* to comment seriously (especially in the movie; the original story is somewhat more explicit on this front, as it is about the heptapod vocal system, though still furnishing little detail on such matters). Neither, as a linguist, can I say much about the ‘hard-scientific’ or mathematical aspects of the story, which again are not elaborated in any detail. (It has been noted in commentary upon science-fiction that it is very difficult to present imaginary scientific details, as opposed to generalities, with any real conviction; for the ideas involved to be intelligible to us today and possibly valid, we would already have to have gone a considerable part of the way towards actually grasping them ourselves.)

It emerges that each of the heptapod ships is attempting to communicate only a small portion of their overall message, thus requiring humans to collaborate if they are to learn significantly from the visitors; but we do not get to learn about the upshots.

Reviews of the movie (and of the hitherto less-than-well-known short story) have focused upon the key linguistic aspects of the case; see for example <http://wpo.st/mlTE2>. Almost inevitably, the non-linguist reviewers make some errors. For example, the review just cited accepts the in fact highly contentious notion that the communication systems of some non-human animals (here, monkeys) display to a degree some of the key features of human language, notably what might reasonably be called syntax (sentence-grammar); some very prominent linguists, notably Noam Chomsky, would disagree.

Some reviewers (again including the one cited) show awareness of the ‘Sapir-Whorf Hypothesis’ (explicitly referred to by Chiang): the idea (developed by the two eponymous American linguists) that the thought-patterns of human beings (as of other [putative] language-using species?) are **very** heavily influenced by the



structures of their first languages, which (parenthetically but crucially) may be very different indeed even across one species (important ‘language universals’, *pace* Chomsky et al., are few). As some German thinkers have said, *mit jeder neu erlernten Sprache erwirbt man eine neue Seele* (‘with each newly learned language one gets a new soul’). See above on the Soviet Union’s ‘xenolinguistic’ programme, which was inspired by SWH.

The character Banks is shown as endorsing SWH without serious hedging. But any strong version of SWH implies that **really** learning even a new human language which is essentially unrelated to one’s own would be almost impossibly difficult, for adults at least. This is one reason why some linguists **reject** strong versions of SWH. And indeed one must note the serious differences on this front even among non-Chomskyan linguists. Compare Guy Deutscher’s *Through the Language Glass: Why The World Looks Different in other Languages* (2010) and John McWhorter’s *The Language Hoax: Why the World Looks the same in any Language* (2014). (For more on this, see my review of Vyvyan Evans’ 2014 book *The Language Myth: Why Language is not an Instinct*, in *The Skeptical Intelligencer* 18:2 (2015).)

Naturally, genuine non-human (especially extraterrestrial?) languages might really be almost impossibly different from human languages, at all levels of analysis, even if all human languages really are very uniform in a Chomskyan sense and if SWH is thus largely false. And the heptapod language is indeed represented here (not always very clearly) as infringing some of the widely accepted (rather general) universals of human language.

It is fair to say that neither the movie nor the story explain convincingly or with any specificity **how** the specific meanings of specific heptapod expressions are learned by Banks (discussion ends up being carried on largely in ‘Heptapod’ rather than English). This applies in particular to items referring to entities not

actually present in the interface and most of all (as is admitted) to abstract notions; but major issues can arise with ‘ostensive definition’ even with reference to object-types which are to hand, as in Willard Quine’s ‘Gavagai!’ example. (On this example, readers should ‘google’ ‘indeterminacy of translation’.)

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*Perhaps the ‘worst’ error in the linguistics here is the statement that the only way to learn an unknown language is through actual interaction with a native speaker.*

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Vis-a-vis the portrayal of linguists in *Arrival*: the (skeptical)-linguist Karen Stollznow, in her ‘Linguists in “Arrival” and other pop culture’ (<http://karenstollznow.com/linguists-in-arrival-and-other-pop-culture/>) points out that the movie, to some degree, reinforces the popular misconception that the expertise of linguists lies mainly in personally speaking many languages rather than in matters of theory. I would observe in addition that by portraying the two main human protagonists as initially conflicting with each other over methodology both *Arrival* and the original story (perhaps inevitably, in context) oversimplify the issue of science/mathematics vs language as means towards the ‘cracking’ of the code of an alien communication system. For the former aspect of potential communication, better understood by most science-fiction authors with their science backgrounds, see for instance the focus on ‘Rosetta Stones’ involving a) prime numbers (introduced in *Contact* and echoed in a reference in *Arrival* to British work on the heptapod numeral systems) and b) the periodic table of elements (in the famous short story ‘Omnilingual’ by H. Beam Piper, where a linguist also features but – before elucidation by a scientist – is embarrassingly ignorant of the universality of the periodic table). (In this present work there is also, interestingly, reference to the possible

use of highly-structured games such as mah-jong or chess in this context.)

Realistically, Banks is represented as confronting her non-linguist colleagues, in various settings, with some observations familiar among linguists, such as the story that the word *kangaroo* means ‘I don’t understand’ in an Aboriginal language (which she persuasively recounts as if true and then admits is false) and the point that a basic Sanskrit word for ‘war’ originally meant ‘a desire for more cows’ (compare the Ulster legendary cycle involving cattle-raids). And indeed most of what she is portrayed as saying about the phenomenon of language corresponds with what a real linguist would say and think.

Perhaps the ‘worst’ error in the linguistics here is the statement that the only way to learn an unknown language is through actual interaction with a native speaker. Banks issues this statement when the military naïvely ask her if she can interpret a brief uncontextualised burst of heptapod phonation without any prior exposure. In ensuing discussion, she goes on to say that the heptapods could not have learned human language simply by monitoring broadcasts. The military are clearly disappointed, not wishing to have to allow Banks or other outsiders direct access to the heptapods with the resulting loss of control of information on their part. It is from this point that the scenario involving actual contact between Banks and the heptapods develops.

Now it is obvious that actual interaction with a native speaker furnishes much **better** opportunities for learning a hitherto unknown language, and that in such a situation a linguist **should** demand such opportunities. But a skilled linguist **can** make **some** progress on the basis of oral or written texts **without** access to the speakers/writers – as long as these texts are long enough and are ‘glossed’ with at least approximate meanings or provided with supporting information as to context. If this were not so, hitherto unreadable ancient written languages, particularly those like



Sumerian which have no known ‘genetic’ relatives, could not have been deciphered, as they have been. Banks’ (not especially clear) example involving Farsi (Modern Persian), a language where far more surrounding information is available, is too pessimistic in tone. And in fact some earlier science-fiction writers have developed more optimistic scenarios along these lines. Isaac Asimov was naïve at times about matters of language, for instance in *The Gods Themselves* where he portrays aliens in a parallel universe as somehow arriving at imitated spellings of English words; but in the same book he presents a historical linguist as willing to take on the task of deciphering written symbols independently produced by said aliens, initially deterred not by Banks’ point but only by the inevitable absence both of ‘genetic’ or other links with human languages and of shared specific mental attributes. Compare Piper’s ‘Omnilingual’, referred to above, where a start is made on the basis of one small but unusually highly-structured body of vocabulary (though admittedly the story is not developed further).

One very striking feature of the heptapod communication system involves the major dissociation between spoken and written forms. The writing system, which appears to relate more closely to the distinctive heptapod notions regarding time, is not, it seems, based upon the specific structures – still less on the ‘morphophonology’ (words and sounds) – of the (pre-existing/earlier-learned?) spoken language as is normal in human language (with marginal exceptions such as the dissociation between the signed languages used by the deaf and the written forms of structurally unconnected spoken languages in which most deaf people must necessarily become literate). As becomes clear from analysis, it is a separate, also highly articulated linguistic system, presumably devised later in historical terms – at one point Banks wonders if it was adopted/adapted by these heptapods

from another cultural group or species – and perhaps acquired much later in developmental terms. Understanding one of the two systems is of little help in grasping the other (perhaps only in respect of very general background characteristics or concepts?).

At one point, Banks rather misleadingly describes heptapod writing as ‘semasiographic’, a term which she uses to emphasise its dissociation from spoken heptapod but which more usually refers to quasi-scripts which in fact do not represent **any** strictly linguistic system but rather language-neutral meanings (as with traffic lights). (See below on Chinese script.)

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*Heptapod writing is presented to the humans in the form of series of complex, generally near-circular dashes of fluid on the heptapod side of the glass barrier, applied by the sucker-like star-shaped ends of their limbs.*

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Heptapod writing is presented to the humans in the form of series of complex, generally near-circular dashes of fluid on the heptapod side of the glass barrier, applied by the sucker-like star-shaped ends of their limbs. Some of these characters are found to be internally complex after the manner of the symbols in the Ethiopic ‘abugida’ or some Chinese logograms with their ‘phonetic’ elements (see again below on Chinese). The characters making up a sentence are linked together (as in handwriting as opposed to printing) and are modified as part of this process (as in ‘sandhi’ in spoken and written Sanskrit, Finnish, etc.).

Overall, the heptapod writing is described as ‘non-linear’ (something of a ‘buzz’ word in fringe linguistics), and this term is presented as relating to the ‘non-linear’ heptapod conceptualisation of time. Indeed, it is indicated (but not adequately explicated) that the heptapods, with a temporally holistic grasp of what humans perceive as a

string of passing events, already know the future, and that therefore the main function of their written and spoken language is not communicative (of meaning) but ‘performative’ (as in Speech Act Theory, which, interestingly, arose originally in the context of mid-C20 Oxford analytical philosophy and only later came to be of interest to linguists): their utterances in both modes serve chiefly to ‘actualise’.

The script appears genuinely non-linear most obviously in respect of the design of individual characters, which is itself hardly significant; many characters used to write human languages, such as the Greek/Roman letter O and the zero sign, possess this feature. More importantly, however, the heptapod characters are not arranged in one-dimensional linear rows like the symbols of written human language; but they **are** organised two-dimensionally into ‘webs’, and they are at least sometimes communicated in sequences rather than ‘all at once’. It does not appear to be suggested that these sequences or in particular the positions of characters in webs have no significance, i.e. that a given series of associated characters might appear in **any** order or web-structure with the same overall meaning. At the level of word-structure, this feature has been claimed (for their own convenience!) by some proponents of non-standard theories of human language origins – notably by John. J. White III, the ‘discoverer’ of ‘Earth Mother Sacred Language’, in which the ordering of the short morphemes making up the longer words which allegedly lie at the origins of known words in known languages is said not to be significant; a given sequence of morphemes will normally have the same overall meaning regardless of their linear order as spoken. But (predictably) no such case is actually known; and at the level of sentence-/clause-structure such a system arguably appears even more implausible. In manifestations of human language where word-order is very free (as for instance in Latin poetry), the sequences are intelligible and unambiguous **only** because of

extensive ‘morphological concord’ (case and gender endings, etc.) indicating which words should be understood together. In any event, the contrast drawn here between human and heptapod systems is genuine but appears somewhat overstated.

And the comparisons made in the movie, in this context, between written Heptapod and written Chinese are unconvincing, given that Chinese writing (like all human writing) is itself inevitably linear in the sense that the characters representing words appear one after another in sequence (and indeed Chinese word-order is not especially free). The **ductus** of Chinese script (left to right, top to bottom, etc.) **is** variable; but once the ductus of a given block of text is established it is adhered to. It is true that (as is remarked) earlier times are often conceptualised as ‘up’ and later times as ‘down’ in the Chinese world, and that this is not at all typical of ‘western’ thought on this front; but this does not prevent the Chinese language itself from being written horizontally at need. (A more genuine example of linguistic ‘non-linearity’ arises in the reports of the ‘contactee’ Jim Sparks, who claimed to have been taught an alien alphabet in which, in writing, the alien users of the system would place one symbol over another, until only a black spot was visible – although Sparks believed that the aliens themselves could still resolve this into characters when reading.)

It is also observed here that Chinese **characters represent ‘meanings’ rather than the sounds of Chinese** (any ‘dialect’), which furnishes a link with the point about heptapod speech and writing being essentially dissociated. However, this is an oversimplification. Firstly, many Chinese characters do contain a ‘phonetic’ element (which has varying interpretations revealed when the characters are read out in different ‘dialects’) in addition to the main, purely semantic element. Secondly and more importantly, the meanings represented by the characters

are those of spoken Chinese words, **not** language-neutral meanings as was once believed by European scholars; despite continuing looseness of terminology in some quarters, the characters are logograms, not semasiographic ideograms. A concept or a non-Chinese word which has no Chinese-language equivalent cannot be expressed (in the normal way) as an existing Chinese character. None of this is itself especially damaging to the story, but it implies an incomplete grasp of the relevant linguistics, which may suggest that the ethnically-Chinese original author was not closely consulted at this point. (On the other hand, three linguists from McGill University in Montreal – Jessica Coon, Morgan Sonderegger and Lisa Travis – were consulted when the movie was being made, and clearly gave excellent advice, but they apparently did not focus upon points of this nature.)

The reference to Pakistan in this context is to say the least obscure, given that those languages of Pakistan which are written use an Arabic-derived ‘abjad’ script notable – to westerners – only for its representation of vowels by means of diacritics rather than letters and for its right-to-left ductus.

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*I strongly encourage readers with an interest in science-fiction, SETI, language or any combination of these to watch the movie and read the story.*

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Some of the precise methods used by Banks in initial communication with the heptapods appear less than optimal. For instance, when she displays the written forms of her own first name and that of Donnelly on cards by way of self-introduction, she is concerned that the heptapods understand these words as referring to them as individuals (an aspect of the ‘Gavagai!’ problem). One obvious way of ensuring this, or at least of avoiding

confusion between the names of species and of sub-groups/individuals, would be to present two cards at once each time, one reading HUMAN (a word already known to the heptapods) and the other bearing the relevant personal name. Furthermore, Banks appears concerned that the heptapods interpret the **phonetics** of these names/words accurately. It has not yet been established at this point that most of the interaction is to be in Heptapod, nor that the heptapod script, dissociated as it is from spoken Heptapod, is non-phonological in character. And in fact Banks adopts **invented** names for the two heptapods themselves (Abbott and Costello!). But in the first instance Banks would surely have done better to present the humans’ names in the International Phonetic Association Alphabet or a phonemic system for (American) English based on same – thereby avoiding confusion arising from the complexity, not to say irregularity, of English spelling, the presence in her own first name of ‘silent E’, etc. It is also unclear at this stage (and is left unclear) whether the heptapods (with their own strictly non-phonological writing system) are genuinely reading the names for sound (as well as for meaning/reference) at all; this is often a major issue in contact situations involving dissimilar systems, illustrated by the contrast between ‘on’ and ‘kun’ readings of Chinese characters as used to write the unrelated Japanese language.

A minor infelicity: in the story, Chiang uses [...], the convention for phonetic representations, to frame some spellings in normal Roman script as used for English.

There is much more that could be said about this significant double work, most of it positive. I strongly encourage readers with an interest in science-fiction, SETI, language or any combination of these to watch the movie and read the story.

## ANNOUNCEMENTS

### SKEPTICISM, SCIENCE AND RATIONALITY (GENERAL)

#### Sense About Science

<http://www.senseaboutscience.org/>  
There's lots being going on – too much to report here. But take a look at *Making Sense of Forensic Genetics* at <http://senseaboutscience.org/activities/making-sense-of-forensic-genetics/>

#### Good Thinking Society

<http://goodthinkingsociety.org/>  
Make sure that you are on the Newsletter Good Thinking's email list by signing up at:

<http://tinyurl.com/jp6au72>

See 'Charity Commission consults on future of alternative medicine charities' at:

<http://tinyurl.com/mmvgejj>

#### The Daily Mail

'Wikipedia editors have voted to ban the *Daily Mail* as a source for the website in all but exceptional circumstances after deeming the news group "generally unreliable".'

<http://tinyurl.com/zt4oy83>

#### Science and the media

Anita Makri argues that the form of science communicated in popular media leaves the public vulnerable to false certainty.

<http://tinyurl.com/kukzfk>

#### March for Science

'On Saturday, 22 April scientists and science enthusiasts will come together in a massive, diverse, and celebratory demonstration of public support for science that highlights challenges facing the scientific community and will act as a catalyst for ongoing action around specific issues.' All welcome.

<http://tinyurl.com/md3eqv2>

#### Social science research

'I placed too much faith in underpowered studies': Nobel Prize winner Daniel Kahneman admits mistakes.

<http://tinyurl.com/zr385ga>

### MEDICINE

#### The Nightingale Collaboration

Remember to keep visiting the Nightingale Collaboration website If you do not already do so, why not sign up for free delivery of their electronic newsletter?

<http://www.nightingale-collaboration.org/>

#### Vaccination

'Are children over-vaccinated at too young an age and are some vaccines really necessary? A reasonable question. See:

<http://tinyurl.com/jrjpew7>

See also 'Medicine on the Fringe'.

#### Advertising Standards Authority

'Our rulings are published every Wednesday (available to the media under embargo from Monday) and are a transparent record of what is and isn't acceptable. They generally remain on the site for five years, although some may be available for longer if they are being used as part of CAP's advice materials.' For the latest rulings visit:

<https://www.asa.org.uk/codes-and-rulings/rulings.html#2>

#### Alternative medicine: General

'The European Social Survey allows us to look at the extent to which alternative treatments are being used and whether people in Britain are more likely to use them than people on the continent. First of all, we can look at which alternative treatments are the most popular in Britain and what proportion of people are using them. What is clear right away is that the use of alternative medicine is pretty low. No more than 4% of the UK population has tried any of six (selected from 11 alternative treatments asked about on ESS) different non-mainstream medicines in the previous 12 months.'

<http://tinyurl.com/msrmnyk>

#### Stone eggs

'Gwyneth Paltrow's Goop advocates women putting stone eggs in their vaginas. They'll help you get rid of

negative energy and increase your libido.'

<http://tinyurl.com/hgnohx6>

#### Yoga

'A Skeptic Fact-Checks Yoga's Health Claims And Goes With The Om'.

<http://tinyurl.com/lknxk8j>

#### Allergy to Wifi

'A woman says she is permanently housebound because she's allergic to Wifi and phone signals. Kim De'Atta can rarely see friends and family because electromagnetic waves from modern technology give her migraines, fatigue and even infections.... The debilitating condition has forced her to move home twice due to phone masts being built nearby and she now sleeps under a special net.'

<http://tinyurl.com/jgrrg6o>

#### Chiropractic

The Professional Standards Authority has published its annual performance review of the General Chiropractic Council:

<http://tinyurl.com/metkun5>

And 'Newborn chiropractic, false balance, and *The Doctors*. The vacuous TV docs on *The Doctors* have demonstrated once again why the show is a highly unreliable source for medical information of any sort.... A skeptical viewpoint is presented but it is overpowered by false balance and an amateurish, though clearly well-meaning, attempt to counter common claims of so-called pediatric chiropractors.' At:

<http://tinyurl.com/llzfpvc>

'Dan Dopps, a Kansas chiropractor, received a patent for a product called Mensez, a mild adhesive so women can glue their labia shut during their periods.'

<http://tinyurl.com/kfvqko7>

#### Homeopathy

Liverpool Medical Homeopathic Society (LMHS) clinics in Liverpool and The Wirral finally close.

<http://tinyurl.com/mnm6pqj>

And, responding to concerns that the NHS plans to stop prescribing some medicines as part of cost-cutting measures, but still spends £4 million on homeopathic medicine, Simon Stevens, chief executive of NHS England, told the BBC's Today programme on 31.3.17 that homeopathic medicine is 'placebo at best' and it is absurd for doctors to prescribe it.

<http://tinyurl.com/kqurnrm>

### Acupuncture

'Wikipedia has branded acupuncture as pseudoscience and its benefits as placebo. "Acupuncture" is clearly is not pseudoscience; however, the way in which it is used or portrayed by some may on occasion meet that definition.'

<http://blogs.bmj.com/aim/2016/12/30/is-acupuncture-pseudoscience/>

See rejoinder 'An acupuncturist attacks "pseudoskeptics" on Wikipedia. Hilarity ensues' at:

<http://tinyurl.com/12rlhov>

### Traditional Chinese medicine

The Advertising Standards Authority has upheld three complaints about a website ([www.drjin.co.uk](http://www.drjin.co.uk)) promoting traditional Chinese medicine undertaken by 'Dr Jin'. These were for claims made about conditions that could be treated and the improper use of the title 'Dr'.

<http://tinyurl.com/maf7rd>

### Acupressure

The Advertising Standards Authority has upheld complaints about misleading claims for pain relief made by a national press advertisement for 'Sciaticure' Acupressure Wrap.

<http://tinyurl.com/lhzgv53>

### Detox

'There is no scientific evidence whatsoever that any "detox" product will provide even the slightest improvement on your liver and kidneys.'

<http://www.statsguy.co.uk/detox-its-all-a-con/>

'Anyone telling you that their diet can remove toxins is taking the p\*\*\*. And that's the kidney's job.'

<http://newsthump.com/2017/01/04/what-the-fuck-is-a-detox-asks-your-liver/>

### DNA boot camp

'A DNA-themed personalised fitness camp.' ('Total bollocks' - Dr Adam Rutherford.)

<http://www.wired.co.uk/article/fitness-bootcamp-rebooted>

### Alternative veterinary medicine

The Royal College of Veterinary Surgeons standards committee has announced it is to review the college's guidance on homeopathy and other alternative and complementary veterinary medicines and therapies.

<http://tinyurl.com/13zdn4t>

### Cancer quackery

'The father of the alkaline diet, Robert O Young, is hailed as an inspiration by one of the UK's most popular food writers, Natasha Corrett, but he faces a jail sentence for practising medicine without a licence. One patient who believed he could cure her cancer, British army officer Naima Houdemohammed, paid thousands of dollars for his alkaline treatment, which consisted mainly of intravenous infusions of baking soda.' At:

<http://www.bbc.co.uk/news/magazine-38650739>

Also: 'Tackling cancer treatment myths, from clean eating to cannabis. We sort through some of the most persistent and pernicious myths surrounding cancer and its treatment. At:

<http://tinyurl.com/mr4cdlc>

Also: 'Texas Medical Board staff are recommending that a controversial Houston cancer doctor be placed on probation and fined \$360,000 for violating state medical rules. The proposed order stems from an October court ruling, which found that Dr. Stanislaw Burzynski was guilty of eight violations of state medical rules, mostly related to inappropriate record keeping. In that same ruling, the judges from the State Office of Administrative Hearings cleared Burzynski, 73, of more than 100 other charges, including the most serious allegations.' At:

<http://tinyurl.com/k4drfvy>

Also: 'Fake medicine endangers another cancer patient's life'. At:

<http://tinyurl.com/jw66emc>

And: *The Liverpool ECHO* publishes letter from the Merseyside Skeptics criticising its coverage of a miracle cancer 'cure':

<http://tinyurl.com/khsfkrq>

### Cancer scares

'British watchdogs have warned people that roast potatoes can cause cancer. The rationale seems to be that roast/burnt foods contain acrylamide, which is believed to be a carcinogen. Makes sense. But the actual science hasn't found any link between typical levels of acrylamide in the diet and cancer. And it's not for want of looking...'

<http://tinyurl.com/muwucyq>

## PSYCHOLOGY AND PSYCHIATRY

### Learning styles

Teaching children according to their individual 'learning style' does not achieve better results and should be ditched by schools in favour of evidence-based practice, according to leading scientists. Thirty eminent academics from the worlds of neuroscience, education and psychology signed a letter to the Guardian voicing their concern about the popularity of the learning style approach among some teachers. They say it is ineffective, a waste of resources and potentially even damaging as it can lead to a fixed approach that could impair pupils' potential to apply or adapt themselves to different ways of learning.

<http://tinyurl.com/lyou9ag>

### Blue Monday

'There is no such thing as the most depressing day of the year.' (*They all are - Ed.*)

<http://tinyurl.com/mp9kpgg>

### Memories: Recovered and false

'A former Ross-shire publican who sexually abused two young girls over an eight-year period was today (Friday) jailed for three and a half years. But 70-year-old William 'Billy' Mackay will be free within weeks as he has already served the equivalent of 40 months while awaiting sentence. Mackay was brought to justice after

one of his victims began having flashbacks and she and his other victim went to dream therapy and realised he had abused them as children.’ Mr Mackay continues to deny the offences. See:

<http://tinyurl.com/kde6xce>

‘Over the years, hundreds of people online have shared memories of a cheesy Nineties movie called “Shazaam”. There is no evidence that such a film was ever made. What does this tell us about the quirks of collective memory?’ See:

<http://tinyurl.com/jofs9pf>

## RELIGION

### From faith to faithless

‘As part of the BHA, Faith to Faithless works to provide community and direct support to so-called “apostates”, but we know we need to do more. We want to take the support we offer to a whole new level, to ensure that everyone who is lost, scared, or victimised after leaving religion has somewhere to turn for support..... You can make a donation to this important project. Your gift could ensure that Faith to Faithless continues to grow and to reach ex-religious people who ... have had their lives turned upside down after “coming out” as non-religious.’ At:

<https://www.justgiving.com/fundraisin/g/faithtofaithless>

See also ‘When US adults are asked to identify their religion, the answer is

increasingly “none” by James A. Haught at:

<http://www.alternet.org/authors/james-haught-0>

### Scientology

Alec Nevala-Lee, author of *Astounding*, a forthcoming book on the history of science fiction, digs into the writing career of L. Ron Hubbard, gaining new insights into the life of the controversial founder of dianetics and the origins and nature of Scientology itself:

<https://longreads.com/2017/02/01/xenu-s-paradox-the-fiction-of-l-ron-hubbard/>

### Rationalist campaigner Sanal Edamaruku

‘In 1970, a young nationally acclaimed athlete died of blood cancer when her deeply religious family refused to seek medical aid, believing instead in the power of prayer. A fifteen-year-old boy, named Sanal Edamaruku, who lived in that neighborhood was deeply shaken by this death. To him, this was an example of how dangerous blind beliefs could be and was perhaps what set the boy off on the path of rationalism. Edamaruku went on to become one of the country’s most prominent rationalists. With his relentless tirade against superstition and belief in the supernatural, he became a magnet for trouble. This finally resulted in blasphemy charges against him, and his consequent exile to Finland.’ Read more at:

<http://tinyurl.com/kb7tmvn>

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## UPCOMING EVENTS

### THE ANOMALISTIC PSYCHOLOGY RESEARCH UNIT AT GOLDSMITH’S COLLEGE LONDON

<http://www.gold.ac.uk/apru/speakers/>

Chris French has organised an exciting programme of seminars for this academic year. These are held on Tuesdays at 6:10 p.m. in Room LGO1 in the Professor Stuart Hall Building (formerly the New Academic Building), Goldsmiths College,

University of London, New Cross, London SE14 6NW. Talks are open to staff, students and members of the public. Attendance is free and there is no need to book.

You are strongly recommended to register (at no cost) with the APRU’s ‘Psychology of the Paranormal’ email list to ensure that you are informed of any changes to the programme. Visit:

<http://www.gold.ac.uk/apru/email-network/>

## MISCELLANEOUS UNUSUAL CLAIMS

### Parapsychology: General

The full collection of STARGATE CIA documentation (including Uri Geller's and other psychic tests in 1973) is now online at:

<https://www.cia.gov/library/readingroom/collection/stargate>

For Geller see:

<http://tinyurl.com/kshw4td>

### The biodynamic movement

Prince Charles’s opening address to the Agriculture Conference and Annual International Conference of the Biodynamic Movement in February 2017 in Dornach Switzerland:

<http://www.sektion-landwirtschaft.org/home/aktuell/>

Biodynamic farming is on the rise – but how effective is this alternative agricultural practice?

<http://tinyurl.com/mv5cerx>

### Bigfoot and other mythical creatures

‘A lawmaker in New Mexico has proposed a bill that would make it illegal for state-funded colleges to go hunting for mythical creatures. It all started in October when it came to light that a University of New Mexico-Gallup professor led an expedition to find Bigfoot.’

<http://tinyurl.com/hvrn5a6>

or

<http://www.twitter.com/ChrisCFrench>

or

<http://feeds.feedburner.com/apru>

Also of interest (and open to the public) is the programme of seminars organised by Goldsmiths Psychology Department which can be found at:

<http://www.gold.ac.uk/psychology/dept-seminar-series/>



### SKEPTICS IN THE PUB

Choose the venue you are looking for to access the upcoming events.

<http://www.skeptic.org.uk/pub/>  
<https://twitter.com/SITP?refsrc=email>

### CONWAY HALL LECTURES LONDON

25 Red Lion Square, London  
WC1R 4RL

<http://conwayhall.org.uk/talks-lectures>

### CENTRE FOR INQUIRY UK

For details of upcoming events:

<http://centreforinquiry.org.uk/>

### LONDON FORTEAN SOCIETY

For details of meetings:

<http://forteanlondon.blogspot.co.uk/>

### BRITISH HUMANIST ASSOCIATION

For details of meetings:

<https://humanism.org.uk/>

**BHA Convention 2017**, June 9-11 in Cambridge. Speakers include Jim Al-Khalili, Mark Lynas, Andrew Copson, Alf Dubs, Ali Hamedani, Julian

Huppert, Tommy Sheppard, Robin Ince and Richard Wiseman. Visit:

<https://humanism.org.uk/bha2017/>

### COUNCIL OF EX-MUSLIMS OF BRITAIN

The CEMB has organised a wide range of meetings on rational thinking, freedom of expression, and human rights for 2017. A full listing is available at:

<http://ex-muslim.org.uk/2016/05/cemb-meetups/>

### RATIONALIST INTERNATIONAL CONFERENCE

The Rationalist International Conference 2017 will be held in Helsinki on 12- 14 (Friday-Sunday) May 2017 for rationalists, freethinkers, humanists speakers and delegates from all over the world.

<http://tinyurl.com/mzhconr>

### 17<sup>TH</sup> EUROPEAN SKEPTICS CONGRESS

See 'European Scene' earlier.

### SCIENCE EVENTS IN LONDON

Eventbrite lists a series of scientific meetings in London (some free, some not-so-free). At:

<http://tinyurl.com/m8374q9>

### FUNZING

'Funzing' organises evening talks at social venues in London, some being of interest to skeptics. See:

<http://uk.funzing.com/>

The following talks are by Chris French (*for it is he*):

**The Psychology of Ghosts and Hauntings**, 7 pm, 10/4/17:

<http://www.funzing.com/sd/XMI4En>

**The Science of Paranormal Activity**, 7 pm, 18/4/17:

<http://www.funzing.com/sd/1ZG3dS>

**The Psychology of Reincarnation**, 7 pm, 8/5/17:

<http://www.funzing.com/sd/P8awxy>

**The Psychology of Alien Encounters**, 7 pm, 22/5/17:

<http://www.funzing.com/sd/qzrA7N>

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## LOGIC AND INTUITION: ANSWER

### Different places, same temperature

#### Hint

If you have not yet solved the puzzle and would like a hint just read the following, then stop.

Start by considering any two antipodal points whose temperatures differ. Now consider how you move on from there.

#### Answer

Let's place the letters A and B at the two antipodal points you have chosen, with the temperature at A higher than at B. Hence the A minus B temperature difference is positive. Now imagine

moving A and B around the circle so they remain antipodal. Their temperature difference will vary as you move them so that when you are half-way round (so A is where B was and B where A was), the A minus B temperature difference will be negative. Therefore there must have been at least one occasion when the difference was zero.

This reasoning is an illustration of 'The Intermediate Value Theorem' and can be applied to any continuous variable, not just temperature.

I tried the puzzle out with Jon Scaife and he came up with the following: 'I used your hint. I

visualised it graphically, as a graph of temperature along a great circle, starting from the point with the highest temperature and stopping half way round. Then overlay a new graph starting at the "halfway" point and stopping at the point with the highest temperature. The two lines cross at least once and where they cross the temperatures are the same and the distances along the great circle from two antipodean points are also the same, so the two points where the temperatures are the same are also antipodean.

## **THE ASSOCIATION FOR SKEPTICAL ENQUIRY (ASKE)**

- ASKE is committed to the application of rational, objective and scientific methods to the investigation and understanding of ideas, claims, and practices, especially those of an extraordinary and paranormal nature.
- ASKE is committed to challenging the uncritical promotion of beliefs and claims which are unsupported or contradicted by existing objective and scientific knowledge.
- ASKE opposes the misinterpretation and misrepresentation of science for purposes which deceive the public.
- ASKE supports the objective evaluation of all medical or psychological techniques offered to the public and opposes the uncritical promotion of techniques which are unsupported or contradicted by existing scientific knowledge.
- ASKE supports all efforts to promote the public awareness of the rational and scientific understanding of extraordinary and paranormal claims.
- ASKE is committed to a rational understanding of the reasons and motives which underlie the promotion and acceptance of irrational and paranormal claims and beliefs.
- ASKE accepts the rights of individuals to choose for themselves their beliefs about the world.

### **About ASKE**

Founded in 1997, ASKE is an association of people from all walks of life who wish to promote rational thinking and enquiry, particularly concerning unusual phenomena, and who are opposed to the proliferation and misuse of irrational and unscientific ideas and practices. This is our quarterly magazine and newsletter. To find out more, visit our website (address below).

If you share our ideas and concerns why not join ASKE for just £10 a year? You can subscribe on our website, write to us at the address below, or email:

[m.heap@sheffield.ac.uk](mailto:m.heap@sheffield.ac.uk)

email: [aske1@talktalk.net](mailto:aske1@talktalk.net);  
website: <<http://www.aske-skeptics.org.uk>>