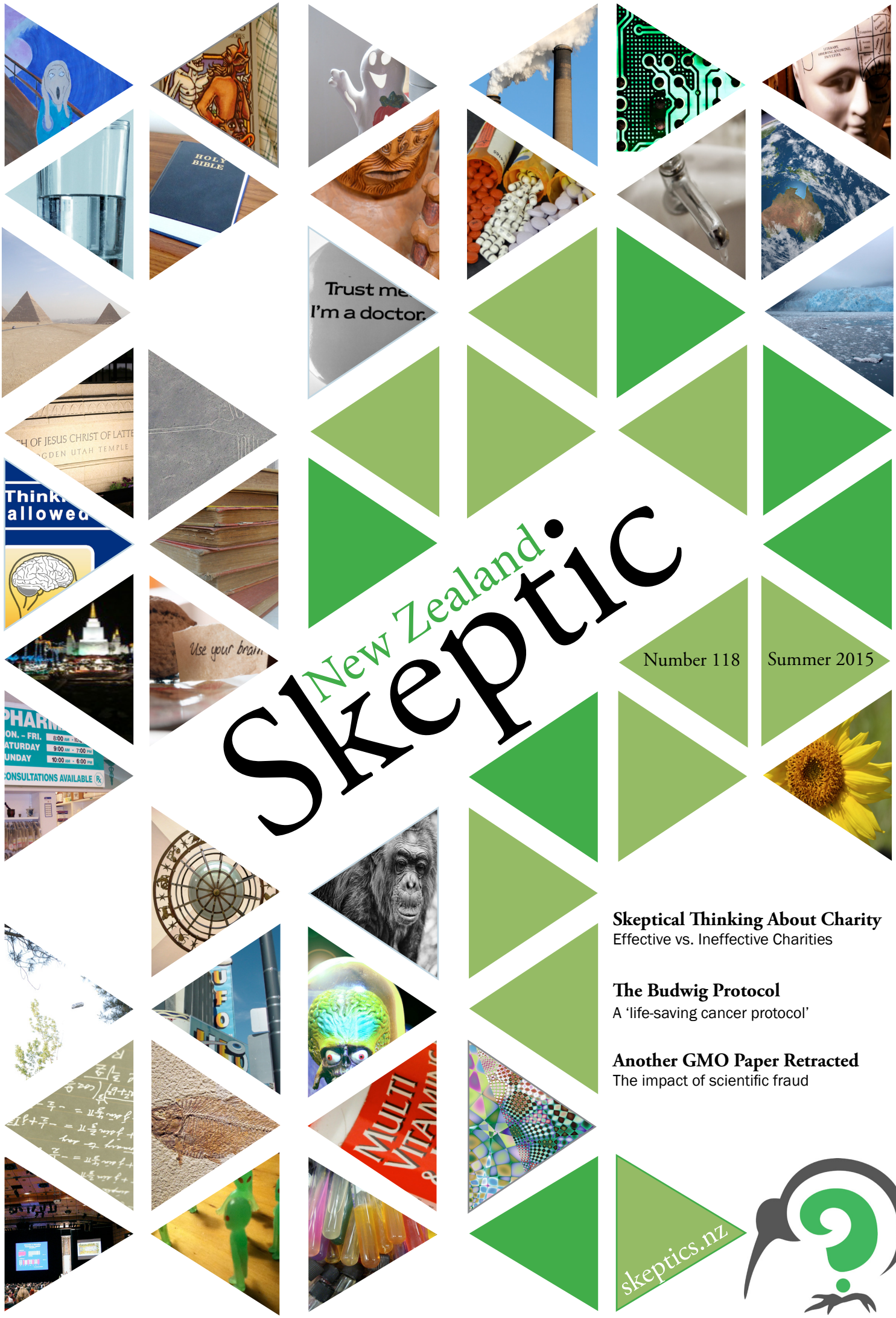

New Zealand Skeptic

Number 118 Summer 2015

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ARTICLE CONTRIBUTIONS

Contributions are welcome and should be sent to:

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Letters for the Forum may be edited as space requires – up to 250 words is preferred.
Please indicate the publication and date of all clippings for *Newsfront*.

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THE NEW ZEALAND SKEPTICS

form a network of New Zealanders including scientists, health professionals, teachers, magicians and many others from all walks of life. Members have a variety of religious faiths, economic beliefs and political leanings, but are all interested in examining what objective scientific support there is for claims of such things as psychic abilities, alternative health practices, creationism and other areas where science, pseudo-science and shonky science interact.

WELLINGTON

Follow the Wellington Skeptics Facebook Page

Sign up to *meetup.com/Wellington-Skeptics-in-the-Pub/*

Wellington Skeptics in the Pub
When: Every second Friday, 6pm
Where: Kitty O'Sheas

Wellington SBH Activism
When: Every second Thursday, 6pm
Where: Fork and Brewer

AUCKLAND

Follow the Auckland Skeptics Facebook Page

Auckland Skeptics in the Pub
meetup.com/Auckland-Skeptics-in-the-Pub/

Auckland SBH Activism
When: Every second Thursday, 6pm
Where: Rationalist House

Skeptics in the Pub

SitP across NZ

Dunedin
When: Third Wednesday of the month, 7pm
Where: Dog With Two Tails Cafe
meetup.com/Dunedin-Skeptics-in-the-Pub/

Palmerston North
When: Second Friday of the month, 7pm
Where: The Grand
meetup.com/Palmerston-North-SitP/

Napier
skeptics.meetup.com/cities/nz/napier/

Hamilton
meetup.com/Hamilton-Skeptics-in-the-Pub/

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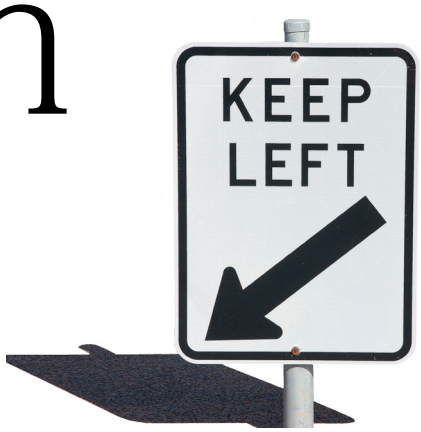
Driving on the Left



I love the summer because it means road trips. And road trips mean podcasts and audiobooks. And podcasts and audiobooks usually mean an hour or so of debate and discussion with whoever is unfortunate enough to be stuck in the car with me. Usually it's over something frivolous, like how an audiobook episode of *Doctor Who* couldn't possibly work because, you know, time travel. Other times it's something more serious, and then fun time is over.

This summer I listened to some of Sam Harris' podcast *Waking Up* (see the review in this issue's Skeptacular!). Now we probably all have our differing opinions on Sam Harris and what he does for the skeptical community, but I will be the last person to disrespect his willingness to put his name and reputation (and no doubt, mental health) on the line when it comes to standing up for reason and rational thinking.

I was particularly entertained with the episode "On the Maintenance of Civilisation" where he interviews the journalist Douglas Murray. While some of the conversation is rather vitriolic, as is Murray's way, a lot of the vitriol is aimed at a surprising group: the left.

Putting aside everyone's political leanings, I think we all can agree that a world which has Donald Trump as the American president is a world where something has gone seriously wrong. I can think of other Donalds that I'd much rather have as the president of pretty much the western world: Donald Duck. Ronald McDonald. Old MacDonald had a farm.
But the conversation between Harris and Murray brings up something interesting and worth considering: is the left failing us in today's society?

Throughout history, the left has to some extent been defined by the right: revolutions arose from monarchies, and movements from established traditions. The left gave us civil rights, women's rights, animal rights, democracy – ideals that pushed back against the status quo. But now, the argument goes, with racists and bigots in short supply, the left have become confused. In searching for them, they've become desperate; now anyone who dares criticise a foreign action is a bigot. The 'other' is always right simply for not being Western.

And so, we live in a world in which the US Democrats can't bring themselves to explicitly name the cause of the terrorism - Jihadism caused by Islamism - for fear of being branded bigoted or Islamophobic.
We have feminists who rightly get fired up and indignant over unfair work environments, but cannot bring themselves to oppose the burqa.
We have reached the point where the left is so afraid of stepping on a societal groups' toes, of being seen as discriminatory or intolerant, that they become apologists for truly medieval, misogynistic, murderous regimes.

Which leads us to Donald Trump For President actually being a possibility. Why have the republicans become the ones with moral perspicuity here? Why have liberals decided to place religious freedom above other freedoms? Is the left failing us here?

What do you all think? Do you agree or disagree with Harris and Murray? Please consider writing in to let us know. Which side of the road do you drive on? ❐

Read something of interest? Share it with us.
Email editor@skeptics.nz (Please indicate the publication and date of all clippings)

RIVAL FLAG DESIGN IS BAD FENG SHUI | Stuff, 14 Mar 2015 | The alternative to the New Zealand flag is "bad feng shui" and could bring bad luck, instability and even a stock market crash, a New Zealand feng shui consultant says.

The Kyle Lockwood black, white and blue silver fern design was chosen as the preferred alternative to the current flag, and voters will this month be voting for the one they want to represent the nation.

Auckland-based feng shui master Francis Lui said the new flag had a "yin" design, which wasn't good, and black on top was a bad omen.

"Black represents mourning, loss and implied loss, and it also resembles evil and sadness," Mr Lui, 45, said. "In feng shui, black also represents water and water makes stock markets go down."

Mr Lui, originally from Malaysia, said he supported a flag change but would not vote for the Lockwood alternative.

"Unlike Canada's maple leaf, which is steady and balanced on both, our silver fern cutting across the new design is indecisive," he said. "Even the blue is a lighter blue to the current flag, a mark that the country could get weaker."

Feng shui is a Chinese philosophical system of harmonising people with the surrounding environment.

According to Mr Lockwood, the bright blue represents the nation's clear atmosphere and the Pacific Ocean which all New Zealanders or their ancestors crossed to get here.

The silver fern was a New Zealand icon for over 160 years, he said, and had been worn by many generations.

Mr Lui also said overall, the new flag had "yin" characteristics and lacking in "yang" elements.

"Flags need more yang elements, like having more red and more solid emblems, that would energise and bring strong growth to a country," he said. "What we have here is a yin flag with a fluttering silver fern that marks instability and no growth."

SHANE WARNE BELIEVES ALIEN EXPERIMENTS TURNED MONKEYS INTO HUMANS | Stuff, 16 Feb 2016 | Cricketing great Shane Warne has turned his attention to the greatest question of all - where did we we come from? Warne's unorthodox views on evolution came up during his entertaining spell on reality show *I'm A Celebrity ... Get Me Out Of Here!*

"If we've evolved from monkeys why haven't those ones evolved," Warne said, pointing to monkeys loitering in the jungle. "Cos I'm saying, aliens. We started from aliens. Look at those pyramids, you couldn't do them. You couldn't pull them with a rope, those huge bits of brick, they make it perfectly symmetrical. It has to be (aliens).

Whatever planet or planets they are on out there, they decided they were going to start more life on earth and study us. Maybe they turned a few monkeys into humans and said yeah it works."

NEW PLYMOUTH MAN GIVES UP RETAIL MANAGEMENT TO BE A GHOST-BUSTER | Stuff, 22 Dec 2015 | Herman Petrick's first experience with banishing what he calls demonic energy came out of the blue in a home in Wellington in May, 2012. He says he was staying the night at a friend's house when she sat up in bed at 2am and started screaming.

"The next day she told me all of these things that happened in her house and she's had family and friends stay over and they'd had issues with this house too," Petrick says. "She was being terrified every night. Just like demonic type stuff. She was going to church and the church came and blessed the house to get rid of these things and they couldn't do anything.

I remember just the next day walking through her house with my arms spread and I was speaking out loud and I said 'Whatever this thing is in the house you need to F-off. This is my space, you need to leave'.

Then about a week later I called her and I asked how her house was and she said it was the weirdest thing, because whatever it was, it was gone."

Petrick, who has worked in retail for most of his life and is the manager of New Plymouth's Farmers store, didn't really understand what had happened. To this day he describes the event as bizarre and yet claims he has gone on to research, study and, in his words, clear negative, dark or demonic energy from houses, humans and even household pets.

Now he runs a business called Global Energy Clearing that has become so successful that he and his wife Rebecca have quit their high paying jobs and are leaving New Zealand in early 2016 to travel the world as energy clearers.

"People contact me when they feel like they have ghosts or something in their house, or if they feel like there is something attached to them," Petrick says. "What I do is I connect to the person and I find out what energies they are carrying around and remove that energy and in most cases that really changes the person. Sometimes people say they feel lighter, in most cases everyone sleeps a lot better and sleeps a couple of hours longer."

The other side of his claims come from the countless people who are skeptics of his work, the fact Petrick has no scientifically tested evidence to back up his claims of healing, and the open admission that he is not a medical doctor.

Despite this the 45-year-old, who is originally from Portland, Oregon, claims that about 85 per cent of the population carries what he calls "negative energies". He says he can clear that energy from people or from their home remotely, while he is sitting in his house in New Plymouth.

Exactly how he does that is quite boring, he says. It happens in his mind. There's no chanting, no sage burning and definitely no crucifix waving.

"What I do is I connect with the person, in my mind. It

could be your brother's girlfriend's sister, you can tell me that and I can connect with that person just through the intent and find out what they have and do the clearing with them. It's not like I have this super duper ability where I can see negative energies on people. It's more of just like a feeling I suppose."

He describes people's auras as an invisible force field and says they protect the person from outside energies. However, the invisible force fields can get damaged. Traumatic events can lead to gaps, holes or creases, meaning the "the little energies that float around" can get in and attach themselves to people.

Petrick, who grew up in a highly religious Christian family, claims these negatives energies show their presence in various different ways, including mental illnesses, chronic headaches, sleeping issues and bad dreams.

Petrick, who charges between $50 and $250 for each individual job he does, says not everyone believes him, not even his family in Portland, Oregon. But it's more than just his family who refute his claims.

The chairman of the New Zealand Skeptics Mark Honeychurch says there is no evidence that the type of negative spiritual energy Petrick talks about exists, and no scientific basis for the concept of these energies.

"Although it can never be positively proven that this kind of energy doesn't exist, every attempt so far to prove that it does exist has failed and this lack of evidence suggests that it's unlikely there is any such thing as spiritual energy," Honeychurch says.

He goes on to say that there are many potential risks when dealing with people who claim to have a connection to, or understanding of, other-worldly powers or energies.

"The most immediate concern is that people are often asked to pay money to the practitioner, and it's generally not a good idea to pay for any service that doesn't have a good evidence base," he says. "Beyond monetary issues, belief in pseudo-scientific ideas such as those of spirit energies, ghosts and other supernatural entities and powers can cause people to make bad life decisions. People have been known to refuse proper medical care, make harmful financial choices and act on bad work or relationship advice."

Petrick doesn't see it that way. He believes he is helping people and he has a collection of stories and testimonies that seem to back up his claims. Among them is the story of a 5-year-old Taranaki boy.

"Since he was two years old he was too afraid to even walk down the hall by himself and he couldn't sleep in his own room," Petrick said. "So I did the energy clearing for this boy, and he'd been dealing with this for three years and then the next night he sleeps by himself, he finds himself walking down the hall by himself. He just completely changes who he was. That was over a year ago so it's really cool to see things. One of the really exciting things is working with kids who have issues, like sleeping issues or being afraid."

Honeychurch says recounts and testimonies should not be sufficient evidence to convince a potential client.

"If you're considering employing the services of someone who claims to have supernatural abilities, ask for evidence that the claims they make about their abilities are true.

The level of evidence should be proportional to the strength of the claims being made. If someone is claiming something that sounds unlikely to be true or doesn't line up with what science has taught us about the world we live in, make sure you set a very high bar for the quality of evidence you are willing to accept from them as proof of their claims."

Honeychurch also recommends taking a trusted friend along to any meeting with someone who claims to have special powers. "Especially if the issue you are seeking help with is a very emotional one for you, it's a good idea to have someone there who will help to ensure you don't make any rash decisions," he says.

Petrick also claims to do removal of curses or hexes, soul retrieval, the cutting of soul ties, chakra balancing and the closure of dark portals.

Honeychurch said if Petrick was serious about his claims, the NZ Skeptics would be keen to help him to test his abilities under controlled conditions.

"It is important that he takes the time to back up the claims that he is making."

GHOST DRIVES STUDENTS OUT OF PRIVATE GIRLS' SCHOOL | Stuff, 8 Nov 2015 | Two boarders at the troubled Turakina Maori Girls' College have left the school saying they have been threatened by a resident ghost.

Parents of the girls are angry that the Rangitikei school - which faces closure by Education Minister Hekia Parata - has accused them of exaggerating or fabricating the ghost story. The ghost, or kehua, is said to take the shape of a man in a black cape and hat and has been seen in the boarders' hostel.

Kamaka Manuel, who is the head of the Maori department at Cullinane College in Whanganui, said he picked up his year 11 daughter from the hostel late at night last week and she would not return until the family was assured it was a safe environment.

"The site needs to be blessed and it also needs consistent follow-up to ensure the girls are kept spiritually safe."

Sightings of ghosts at the hostel date back at least 20 years. Former student Kelly Sliepen, 38, said she and her friends once saw a cup move across a table by itself and smash on the floor. After that incident a minister blessed the building, but later she saw an apparition on the stairs.

"I literally saw this lady walking down the stairs, a white ghost, I remember it clearly. I wasn't scared, it was more like, what the f...?"

But the male ghost is said to be threatening and violent and one of the girls who left the school last week claimed she woke up with a fat lip.

Manuel said he was concerned by the way Turakina had handled the incident.

"We feel they are genuine and the girls are not exaggerating. We are disappointed that's the view of [the school]."

He said his family were strong followers of the Ratana Church and after he picked up his daughter she was taken to the church temple to be prayed over.

"I think it would be a frightening experience for anybody. It was enough to scare her and put the chills down her spine."

Former Turakina boarder Kelly Sliepen says she saw a ghost on this stairway. Manuel said the kehua had caused girls in the hostel to wake up frightened and hyperventilating. Some had reported feeling heavy pressure applied on them and hearing the spirit speak.

"He's spoken about wanting to get them."

He realised some people would find the claims ridiculous, but he was firm in his beliefs.

"I believe that Satan, kehua, omens are about and attack vulnerable people, usually young people. As a parent you support your children. I believe my daughter is not making anything up. I strongly believe she's been through an experience."

He said his daughter and her friends should be concentrating on NCEA exams. "This is an added burden."

He wanted the school to create an "open forum" for families to voice their concerns.

Another parent, Manawai Martin, said the school was "in denial" about the kehua. When some of the girls called their parents two years ago to report seeing the spirit, the school confiscated their cellphones as punishment, she said.

Parents are upset that the Reverend Wayne Te Kaawa, moderator of the Presbyterian Church and chair of Turakina's board of proprietors, has suggested that any kehua were created by the girls themselves.

Te Kaawa went to the school on Friday to discuss the kehua with staff, students and parents. He said the school land was purchased in 1927 and was blessed by Presbyterian and Ratana ministers. "All said there were no kehua on the site. There was no pa site there, there were no burial grounds."

In recent years ministers had blessed the hostel.

"We don't do exorcisms because there are no bad spirits there as far as we are concerned. We have blessings, we bless the whenua, we bless the buildings and even the girls themselves."

None of the ministers who had visited the site had reported the presence of kehua, he said. "Where it's coming from, we don't know. One of our ministers said a rumour was started a few years ago by one of the girls that there was a ghost there. It could be that sort of thing happening again."

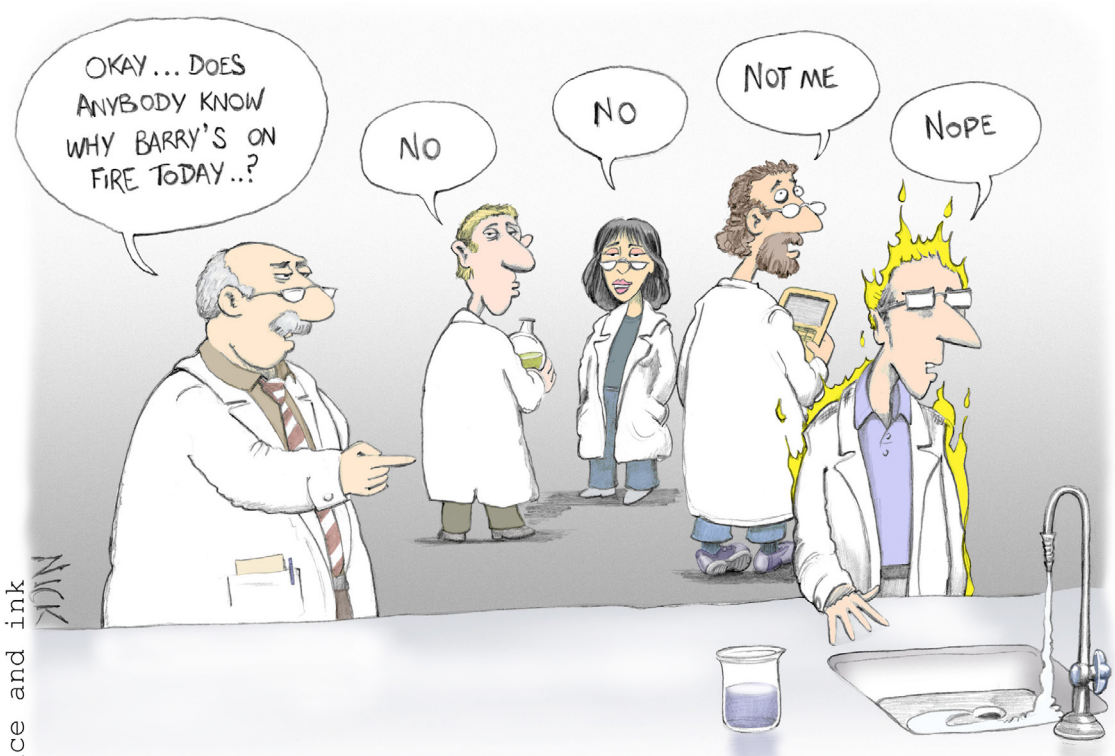
But Te Kaawa said he was concerned about reports of a girl being assaulted.

"We're talking physical now, not the spiritual realm."

Turakina's roll has fallen from 152 in 2003 to about 54 this year and it's trust board is in serious financial difficulty. Submissions over its future closed on Friday.

Asked about the kehua, Parata said: "Students' cultural values are important. How schools acknowledge them is a matter for schools and parents." ❐

Cartoon by Nick Kim



Science and ink

Studies reveal that at the first hint of OSH paperwork, 82.3% of scientists are able to voluntarily jettison their short-term memories.

Catherine Low is a science and physics teacher living in Christchurch, and is interested in skepticism, ethics, philanthropy, environmental issues, and ranting on the internet. Contact her at cafelow@gmail.com

Skeptical Thinking About Charity

How the standards of skeptical thinking can be used to reject ineffective charities in favour of effective charities.

New Zealanders spend millions of dollars every year on alternative healthcare therapies that either have no evidence that they are effective, or have evidence that they are not effective. The practitioners of these alternative therapies usually want the best for their clients. As skeptics know, good intentions on behalf of the practitioner is an insufficient reason to get a health care treatment.

We expect treatments to have good evidence that they are effective, ideally based on rigorous, randomised controlled trials. It is not sufficient for the treatment to seem like it should work based on some theory (e.g. alleged "subluxations" in the spine causing disease, or the parts of the feet matching parts of the body.) Nor is it enough that the treatment is provided by a person that has the patient's best interests in mind. The treatment should actually work. And given that there is only so much money spent on healthcare, we'd prefer the most cost-effective treatments are used so that more people can be helped.

The same skeptical thinking that we use to reject ineffective alternative treatments in favour of effective conventional medicine can also be used to reject ineffective charities in favour of effective charities.

There are many ways in which medicine is different to charity, but the requirements that I described above for healthcare are very similar to the requirements I have for charity.

Just like in healthcare, I want charities to have good evidence that they are effective, ideally based on rigorous randomised controlled trials. It is not sufficient for the charity to seem like it should help based on some theory. Nor is it enough that the charity is run by people that have the best interests of their recipients in mind. The charity should actually work. And given that there is only so much money I can donate, I'd prefer to give to the most cost-effective charities so that more people can be helped.

Randomised controlled trials are the main method for how modern medicine is tested. In their simplest form, randomised controlled trials involve a group of people

with a particular health need. Some are randomly selected to receive a treatment, and the rest don't. The treatment is deemed to be effective if the people who are treated have significantly better outcomes than the people who are not.

Randomised controlled trials have been used to see if social programs and charitable activities work too. The use of these trials is fairly new compared to the long history of trials in healthcare. Also the conclusions are not as certain as those in healthcare. Nevertheless, there have been some very interesting results. In some cases the evidence showed that programs intended to help people, actually harmed them. One unfortunate case was the program Scared Straight, which took at-risk youth to prisons for a day to deter them from committing crimes in the future. Despite the best intentions, and a plausible theory, the program didn't work. Nine randomised controlled trials showed that this program actually increased offending in youth.

> "The charity should actually work. And given that there is only so much money I can donate, I'd prefer to give to the most cost-effective charities so that more people can be helped."

Conversely, some randomised controlled trials have identified programs that are very effective at helping people. The first large trial on international education was conducted in the 1990s and tested what interventions would improve student's performance in schools in Kenya. The trial tested class sizes and availability of school resources (for example textbooks), and found no discernable difference in student performance. Then they tried treating the kids for intestinal worms, and found that this made a significant impact on the education of the kids. In fact, they found that every $100 spent on deworming seems to result in 10 more years of education across the whole village, because the whole village has less of a disease burden. A follow up study 10 years later showed that the kids who were dewormed were employed for more hours as adults and earned more. Another 14 controlled trials back up these findings.

GiveWell is an organisation that assesses global health and poverty charities on their evidence base and cost-effectiveness. They currently recommend only charities that operate in developing countries, because the poorest people globally are worse off than the poorest in developed countries, and one dollar goes a lot further in the developing world compared to a developed country like New Zealand. Even within charities operating in developing countries, the effectiveness can vary by orders of magnitude, so GiveWell looks for charities with the best evidence base, the best cost-effectiveness, and room for more funding, so that donors can be confident their money will be used in the best possible way.

GiveWell's top ranked charity for 2016 is Against Malaria Foundation which distributes insecticide treated bednets for approximately $7 each, depending on the area. The nets go over sleeping areas to prevent malaria-infected mosquitos from biting people. Each net protects two or three people, and lasts for about three years. The randomised controlled trials of bednets suggest a fatal case of malaria is prevented for every $5000 spent, plus many non-fatal cases of malaria are averted. GiveWell believes this is the most cost-effective way of saving lives that they have investigated. Against Malaria Foundation has the added benefit that it is tax-deductible in New Zealand. GiveWell also recommends Schistosomiasis Control Initiative and Deworm the World, which treat children for intestinal worms for less than 50c per person per year, and GiveDirectly which gives unconditional cash grants to very poor households in Uganda and Kenya.

GiveWell is one organisation that is a part of a growing social movement and philosophy called effective altruism, which encourages people to do the most good that they can. There is of course a lot of debate within the effective altruism community about how exactly each person can do the most good. Some people are concerned about global poverty, some think that you can do more good by investing resources into reducing animal suffering, others think your time and money might be better spent ensuring a good life for future humans by avoiding catastrophic risks to humanity such as extreme climate change or nuclear war, and still others are researching to find out if there are any other cause areas that might be very effective to work on.

When I first encountered these ideas I was compelled by just how easily a person like me, living in a first world country, can make such a huge difference in the lives of others, without significantly affecting the quality of my own life. Despite me slaving away all year trying to give teenagers some understanding of science, the good my donations do probably far outweigh all the good I do in my job. I live very comfortably on 90% of my income, and with the remainder I get to provide enough bed nets so that statistically speaking, I am likely to save a life and a half every year! Imagine if I went around saving a life of a child or two every year around my neighbourhood. I'd be the stuff of legends, a hero! And yet, due to accident of birth, and the perversity of extreme inequality, I can use skeptical thinking and evidence to save lives pretty easily with no great skill, superpower, or sacrifice.

Learn more about applying skeptical thinking to doing good at charityskeptics.com, or look into effective altruism in New Zealand at effectivealtruism.nz ❐

Alison Campbell has expertise in the disparate fields of animal behaviour and science education, with a particular interest in students' understanding of the language of science; gaps in student knowledge (and how to bridge them); and attitudes to the theory of evolution. Read her *BioBlog* at sci.waikato.ac.nz/bioblog/

The Budwig Protocol

A friend recently pointed me at a post on *healthnutnews* (which reads a bit like an offshoot of *mercola.com* – this, it turns out, is hardly surprising). It's been a while since I've read anything so full of total nonsense – well, a few days, anyway!

The post, by one Erin Elizabeth, is a paean to someone called Johanna Budwig and her 'life-saving cancer protocol'. I hadn't heard of this particular person before, and according to Erin, this is because all knowledge of her work has been censored by the evil Western medical establishment, along with Big Pharma and the nuclear industry, all of whom would be, like, totally out of a job if everyone followed Budwig's advice. Being curious, I thought I'd check – surely there'd be time for a search before the men in black arrived...

To my complete surprise (I was shocked! Shocked, I say!!!), typing 'budwig protocol' into Google brought up 142,000 results. Some, like Cancer Research UK, are obviously trying to repress knowledge of the dietary protocol (or at least, advising that It Doesn't Work); but an awful lot of the others provide recipes, advice, and testimonials about miracle cures.

Not a lot of repression going on there, then.

In fact, the entire post is a concatenation of quackery, woo, and mythinformation. Plus an appeal to authority:

> This German doctor was nominated six times for the Nobel Prize for medicine, which means that it would be wise to take her health work seriously.

Really? Nominations are secret and by invitation, and nominees need to have a fairly solid body of research under their belt. However, a quick pubmed search didn't come up with anything by Budwig, but did give a number of papers whose authors had looked into this and similarly restrictive dietary protocols and concluded that It Doesn't Work (see here, and here, for example).

What else do we have?

"Cancer is ... a modern man-made epidemic"? Apparently so, evidence from antiquity notwithstanding: in the world according to Erin, the reason ancient Eyptians suffered from cancer, for example, was mass heavy-metal poisoning.

"Medicine is the 3rd leading cause of death in the United States"? Well, that one's easy to check, and it's not correct – you'll find the list here.

"Surveys show that most oncologists would refuse their own treatments if they had a cancer themselves?" Nope. This is cherry-picking, pure and simple. A 1985 survey about the then-new drug cisplatin, which has significant side-effects, did find about 67% of the oncologists surveyed would be reluctant to use it.

A follow-up survey in 1997 found a significant reversal: 64% would now use the drug if they needed it. And why? Because science-based medicine moves on and those side-effects can now be minimised or better controlled, or different drugs may be available.

There's also a misrepresentation of Otto Warburg's work around tumour formation and physiology (work for which he really did receive a Nobel Prize), and the rather startling statement that "The secret to beating cancer is that life-giving breath of God: oxygen."

Apparently all that is needed to cure cancer – any cancer – is to provide cells with sufficient oxygen again. My immediate response was, so why is lung cancer so common, then?

And how do you get your tissues back into that oxygen-rich state? With a rather complicated and restrictive diet, of course!

At least Budwig's patients were spared coffee enemas, but they did get flaxseed oil via the back passage if too far gone to take it by mouth. And champagne was on the list of OK things to ingest!

Frankly, the only reason to repress this nonsense would be to reduce the harm done to people gullible enough, and desperate enough, to invest time and money into following it.

Was that a knock at the door ... ? ❐

Steven Novella, MD, is an academic clinical neurologist at the Yale University School of Medicine. He is also the president and co-founder of the New England Skeptical Society, the host and producer of the popular weekly science podcast The Skeptics' Guide to the Universe, the author of the *NeuroLogica Blog* and founder of Science-Based Medicine.

Science-Based Medicine
Exploring issues & controversies in science & medicine

sciencebasedmedicine.org is dedicated to evaluating medical treatments and products of interest to the public in a scientific light, and promoting the highest standards and traditions of science in health care.

Another Anti-GMO Paper Retracted

Retraction Watch is a great website. As the name implies, it focuses on a key aspect of quality control in science: the retraction of scientific papers that have already passed peer-review and were published when serious concerns about those papers come to light.

Retracting published papers is similar to phase IV clinical trials – tracking side effects of drugs that have already been approved and are on the market so regulatory agencies can monitor for post-marketing concerns and recall the drug if necessary.

Infascelli's woes

Recently the journal *animal* retracted a paper by Italian researcher, Federico Infascelli. Here is there announcement:

> From late September 2015, we received several expressions of concern from third parties that the electrophoresis gels presented might have been subject to unwarranted digital manipulations (added and hidden bands or zones, including in the control samples and the DNA ladder). A detailed independent investigation was carried out by *animal* in accordance with the Committee on Publication Ethics (COPE) guidelines. This investigation included an analysis of the claims using the figures as submitted, and reassessment of the article by one of the original peer-reviewers in light of the results of the analysis. The authors were notified of our concerns and asked to account for the observed irregularities. In the absence of a satisfactory explanation, the institution was asked to investigate further. The University of Naples concluded that multiple heterogeneities were likely attributable to digital manipulation, raising serious doubts on the reliability of the findings.
> Based on the results of all investigations, we have decided to retract the article.

It looks to me like the authors of retraction statement are trying very hard not to use the words 'scientific fraud'. The "observed irregularities" essentially were due to alleged digital manipulation of images of electrophresis gels.

Retraction Watch recounts a *Nature* report which stated:

> …sections of images of electrophoresis gels appeared to have been obliterated, and some of the images in different papers appeared to be identical but with captions describing different experiments.

The picture taken from the now-retracted article showed images of electrophoresis gels. Let's be clear – the images are the data. The bands represent identified pieces of DNA. When you add or delete bands from the images, you are manipulating the data. Data manipulation is scientific fraud.

This is the second paper by Infascelli retracted due to concerns over data manipulation (the first was retracted in January). A third is under investigation but has not yet been retracted. All of these papers were used to raise concerns about the safety of genetically modified crops and have been used for anti-GMO lobbying.

Given this revelation, I don't see how any research by Infascelli or his team can ever be trusted. He now joins Seralini as a researcher who publishes dubious articles which seem motivated by an anti-GMO ideology. In Seralini's case he was not accused of fraud, just egregiously poor scientific rigor.

A deeper problem

This one paper is not an isolated event. Nor is the problem unique to Infascelli, or even anti-GMO papers. There are two aspects to this phenomenon I want to consider – scientific fraud in general, and the emergence of an ideologically-motivated scientific fringe or subculture.

> "Outlier researchers produce the impression that there is more of a controversy than there really is. They create 'two sides', and the press often misses the fact that those sides are decidedly asymmetircal."

Scientific fraud is increasingly being recognised as a serious problem. I don't want to overstate the issue – most scientific studies are perfectly legitimate, and the system tends to work itself out over the long haul. Fraud is the exception within the scientific literature, but it happens often enough to be a serious problem.

Estimating the prevalence of fraud (or more generally, "misconduct") is difficult, because first you have to agree on an operational definition. Then there is the problem of finding and reporting all cases of misconduct. A recent paper estimates that there have been hundreds of recent cases of exposed misconduct in the US, and about 50 cases per year in the UK alone.

An anonymous survey sent to researchers found that 2% admitted to outright fabrication of data. However, 33% admitted to some dodgy research practices. These practices include throwing out data that contradicts their hypothesis, deliberately fudging the design of studies in order to get a desired result, and altering a study design at the request of the sponsor.

Fudging the study design has a powerful effect on the outcome. Simmons et al showed that such design manipulation can generate a false positive result to a 0.05 significance from dead-negative data 60% of the time.

All of this is why independent replication is so important. This is part of the reason we set the threshold for being convinced by scientific evidence as high as we do – it has to rise above the noise of false positives. That noise is a lot louder than many people realise. Small studies, one-offs, or outcomes that only seem to come from one researcher, are just not convincing.

In addition to the background noise of varying degrees of scientific misconduct, there appear to be dedicated scientific subcultures that always seem to produce results that are against the scientific mainstream but consistently support a particular ideological position.

There are a few researchers who consistently produce results which call into question the safety of GMOs, for example, despite the fact that the rest of the scientific world finds that genetically modified foods are safe for human consumption.

There are a few researchers who consistently produce results which call into question the safety of vaccines, despite the fact that the rest of the scientific world finds that approved vaccines are generally safe and effective. The same can be said about anthropogenic global warming and the safety of cell phones.

Unfortunately, these outlier researchers produce the impression that there is more of a controversy than there really is. They create 'two sides', and the press often misses the fact that those sides are decidedly asymmetrical.

They also produce scientific studies that can be cited by those with a particular political or ideological opinion, giving their position the false appearance of being science-based. Work by Seralini and Infascelli has become the centerpiece for anti-GMO lobbying, for example.

Solutions to scientific misconduct?

Fortunately, I think we are already heading in the direction of addressing the issue of scientific misconduct. Efforts like Retraction Watch are helping. Journal editors need to have more of a process in place to sniff out fraud and misconduct during the peer-review process. Failing that, any concerns about misconduct raised post-publication need to be taken seriously, investigated, and then transparently corrected when necessary.

Obviously when a researcher is found to have committed brazen fraud, their career must be over. Their research can never be trusted again.

However, there is a vast gray zone of scientific misconduct that can be addressed through education. Researchers need to be explicitly trained about the nature of scientific misconduct, how to avoid it, and put on notice that such misconduct will not be tolerated.

The institution of science depends upon both transparency and trust. That trust is a product of the culture of the institution. Scientific culture cannot tolerate cutting corners, looking the other way, compromising rigor to get a desired outcome, fudging protocols, or yielding to pressure.

To a large extent the culture of science does promote honesty and transparency, but it seems we need to make a push even further in that direction. ❐

In Your Area

By Clive Hackett
Organiser of Christchurch Skeptics in the Pub

The Christchurch Skeptics in the Pub, (or Skeptics Lite, as I like to call it) has had a very good year being skeptical, currently having 285 members, and around 50 active ones.

The main feature of the Skeptics in the Pub, obviously, is the pub meetings themselves. These meetings served as a fun way for skeptically minded people to meet, have intelligent discussions and occasionally argue in a safe environment. Many fantastic Christchurch pubs were sampled including the Pegasus Arms by the Avon river and Smash Palace in the heart of the city.

Another way we got together was through regular viewings of the television show Cosmos presented by Neil deGrasse Tyson. These were more intimate meetings at my house with a maximum of around 12 people allowed, so space was eagerly sort after. They were able to include people who did not want to meet in the pub, or who wanted to do something other than sitting around talking. The Cosmos viewings were great for those already interested in science, and also for introducing to science those who would not normally find a show like Cosmos on their own. For reasons unknown the Cosmos showings helped to increase the female population of the Skeptics in the Pub, diversifying our group.

We also expanded our minds during the year by going to the Canterbury University What if Wednesday events and the Royal Society lectures. It is fair to say some were mind expanding, some confronting and others quite dull, but at least the after-match functions were always good to discuss what had been said and to try the local brews.

One very satisfying thing that has developed within the Christchurch group lately is that the meetings are about 50 / 50 women and men which is a huge improvement over a few years ago when the group was primarily male. We are a much more representational group now.

Meetings over the last few months have been a bit Conference focused, as many of the group were also Conference committee members. Now that we have successfully negotiated through this marvellous event, we will be back to fixing the world's ills over an ale. ❐

From the Vault

Here's a look back to 1989...

Twins, souls and abortion

"I wonder if skepticism toward pseudoscience has any contribution to make to the abortion debate?

The thought arises because the theory of L Ron Hubbard … that foeti can hear and understand voices outside the mother and react to them, is clearly pseudoscientific. What about the theory of the anti-choice brigade that 'the human being' comes into existence at the 'moment' (now known to last hours) of conception?

There is a reductio ad adsurdum of this view: while most conceptions go on to produce one individual, identical twins arise after at least one division of the zygote (fertilized ovum), more hours after conception. Therefore, in the anti-choice view, twins and other multiple births comprise only one 'human being'.

If that were the case, the Auckland doctors recently faced with the decision whether to separate conjoined twins should have had no hesitation in sacrificing one of the twins: only one 'human being' had come into existence at conception, and they would have merely been restoring the status quo.

...What most anti-choice people really believe, but never say in the abortion debate, is that a supernatural entity called "the soul" is infused into the foetus at the "moment" of conception, and it is this that makes it human."

H Young, NZ Skeptic 14, August 1989

Review: PODCAST

WAKING UP WITH SAM HARRIS

Available at *http://www.samharris.org*

If you think you'd enjoy listening to brainy conversations delivered in soothing (even slightly soporific) tones, then I recommend this podcast for you. Sam Harris isn't one to shy away from any topic, however controversial or inflammatory, but he does so almost entirely as if he's leading you through a guided meditation. There is no shouting from the rafters here.

No fan of God, gods, or the religious, Harris is renowned for his damning critiques of faith, and specifically the wrong-headiness of Christianity and Islam. And yet his interests are much broader - cosmology, vegetarianism, artificial intelligence - and this podcast is a perfect platform for live explorations of them. It is a treasure chest of free-ranging conversations, exploring shared interests and probing difficult and fascinating areas.

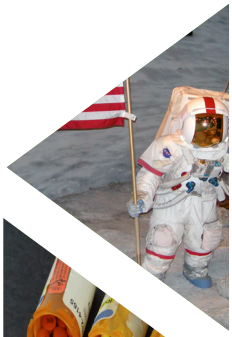
Don't expect a normal interview structure for the most part though. Harris does quite a lot of the talking too, which is great if you're a fan. If you're not and are used to more traditional interview formats then there's the chance it might grate a bit. But if you are a fan of his other work, then prepare to have some other assumptions challenged too. There are no sacred cows on this show.

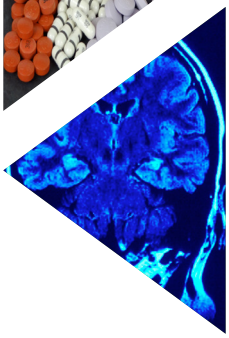
Harris should have a higher reputation in the skeptical community, I think. Whilst he might not even deem himself a 'skeptic', he has the philosopher's knack for presenting familiar topics in a new light, and the poet's knack of condensing controversial or difficult views into a sentence or two. He is also completely open to being wrong; not something you see often from public intellectuals. Also, recently, he's taken it upon himself to try to build bridges with those with whom he has disagreed but thinks there might be a path to mutual understanding. His recent published dialogue with Maajid Nawaz, *Islam And The Future Of Tolerance*, started out from a place of hostility but via conversation became about friendship and mutual enlightenment. His other live attempts to do the same have ranged from very successful (Jonathan Haidt), to didn't happen at all (Noam Chomsky), with a few painful to listen to episodes in between (Omar Aziz). I think Harris should be commended for walking this path and attempting to forge common ground through conversation. In our world of 'comments section' antagonism and trolling, we need more adults engaged in difficult conversations that aren't just debates.

Excellent audio quality, a snappy intro, no ads, thoughtful engaging conversations on wide-ranging topics…yep, this might be my favourite podcast. ❐

Science makes people reach selflessly for truth and objectivity; it teaches people to accept reality, with wonder and admiration

-Lise Meitner





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