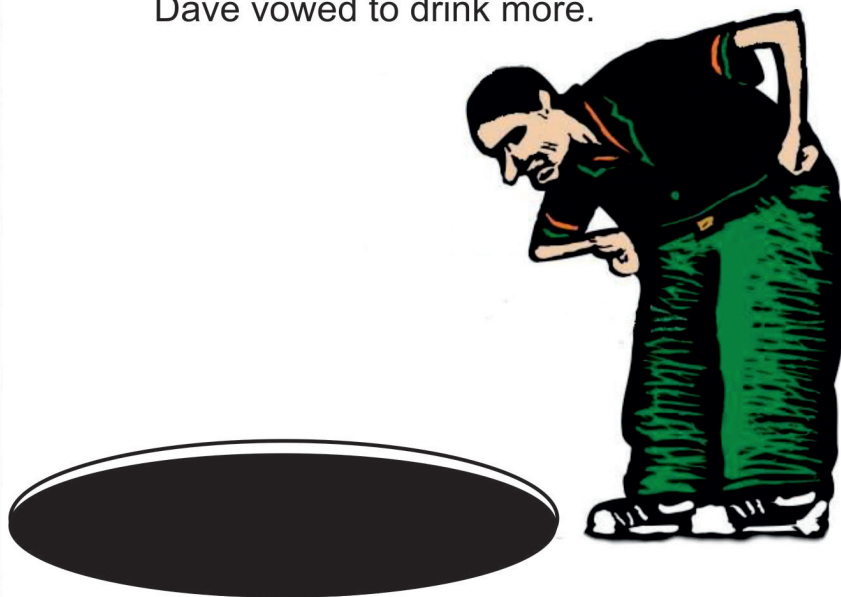


NOVACON

9-11 November 2018
Park Inn, Nottingham

PROGRESS
1
REPORT

Dave looked into the empty, soul-sucking void.
“What does this remind me of?” he thought.
“Ah, yes. A NOVACON committee meeting.”
Dave vowed to drink more.



Guest Of Honour Chris Beckett

**THE ANNUAL CONVENTION OF THE
BIRMINGHAM SCIENCE FICTION GROUP**

NOVACON

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**Alice Lawson, Doug Spencer
AND Richard Standage.**

In this PR I was going to write a piece about the current state of Stealth technology, so I went to the library to do some research. I asked the librarian which shelf it was on and went to look. Damned if I could see anything there though.

Other than that, it's been a tough week, and I'm a bit peeved, to be honest. I do a video cooking blog and I've just been shut down by the Home Office. Their spanking new anti-terrorist software, which detects suspicious content, apparently took objection to my last episode when I asked people to "tune in next time when I will be showing you how to make a Bombe". I think their software needs tweaking.

Anyway, welcome to **PR1** for **Novacon 48**. Please fail to read this and throw in the trash as usual.

All material contained within these pages is contained within these pages. If you have read anything else that is not contained within these pages you have been reading something else and it has nothing to do with us. We have proved this in court.

A ~~WARD~~ FOR WORD FROM OUR CHAIR



Well, hi.

Firstly, and most importantly, **Novacon** will be welcoming the excellent **Chris Beckett** as our **Guest of Honour** this year. There's more about Chris in later PR's, but I'm delighted he's agreed to attend and we'll be looking to build some programme items, not just around him personally, but the themes in his work, and ideas he's already suggested.

After the **Guest of Honour**, the most important person is everyone else. We welcome, indeed thrive on, the contributions, ideas and involvement of people who attend the convention. If there's anything you'd like to see/hear/do, then don't be shy about getting in touch.

Remember that, while we focus on the main programme, we have spaces for anything you'd like to launch, celebrate, announce, discuss, or inflict upon the members of **Novacon**.

Our venue remains unchanged: the Park Inn, Nottingham. To answer a common question, we do consider other sites, but the number of suitable venues in the Midlands for a **Novacon** is actually quite limited. Apparently suitable sites have turned out not to match the balance of facilities and location that we have at the moment.

At last year's pub quiz, one of the questions was: "who has never chaired a **Novacon**?" Dave Hicks was on the list of options. Almost nobody selected it. After all, I've been on the **Novacon** committee for so long that I must have been the chair at sometime, eh? Nope. I've adroitly avoided this position fifteen times (even I had to look it up, and I may still be wrong). I was finally persuaded by the same means they got me on the committee in the first place: intimidation and beer.

In my panic, I have resorted to project management. One of the things we're doing this year is a much more detailed list of all the things we need to do and who does 'em that can be handed on to next year's **Novacon**. It may even be useful for other con-runners in future too. So if anyone gets out of line I shall have no alternative but to utilise synergy. If things get really bad, I may even facilitate empowerment. You have been warned.

Dave.



Mansfield Road, Nottingham
NG5 2TB



The Park Inn is an ideal convention venue, with all the main function space being on the ground floor. There is a downstairs area which we utilise for the Art show and off-piste function rooms, but this is easily accessible by lift from the main lobby.

We have a large area for the Dealers' Room next to the bar, so you don't have far to walk to spend any change you have left after buying the committee a drink.

The location of the hotel on a main road makes it easy to find, and easy to get into the centre of Nottingham should you wish to visit the Olde Trip to Jerusalem, one of the oldest pubs in England. Not that you will want to leave the convention, of course, in case you miss something. There are also shops, a supermarket and cashpoints nearby.

There is plenty of parking at the hotel which is free to residents: they also get use of the pool and gymnasium next door (actually run by a different company, so complain to them if the water's too cold). I've never set foot in there, so I wouldn't know.

Room Rates:

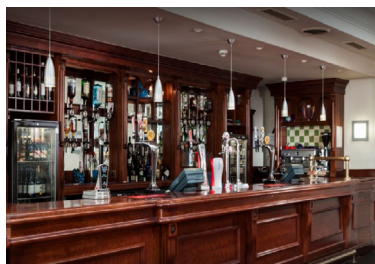
£49 pppn Double/Twin

£67 Single

Please remember to book your room early, as we need to give the hotel numbers. The Park Inn has a couple of family rooms, which are actually two interconnected rooms, but you need to get in asap. Things like z-beds and cots are available. If you intend to arrive on the Friday of the convention after 4pm (which is most of you) please ring the hotel on 0115-935-9933 to reserve your room with a card. You won't be charged, but it will stop the automated letting system giving your room to someone else.

The hotel is easily accessible by public transport, for those of you without a car, with busses, trams and taxis available to ferry you from the rail station in a short amount of time.

Tony.





CHRIS BECKETT

Chris is a past winner of the **Arthur C Clarke Award**, and has been writing SF since 1990. The *Dark Eden* novels have established a reputation for literate and humane writing. Chris writes: "My stories are usually about my own life, things I see happening around me and things I struggle to make sense of. But up to now, they've always ended up being science fiction."

Imagine my delight when the day before last year's Novacon started - the very day! - the writer I've just asked to be our next Guest of Honour got a stonking review for *America City* in *The Guardian* (URL below), linking back to their previously good reviews for *Dark Eden* and *Daughter Of Eden*. I commend all three pieces to you.

So, it's not just me who thinks he's good.

Like many of the best science fiction writers, Chris has a sound body of short fiction, too. There are examples on t'internet (see below), he's also written about the process of writing, and produced some engaging reviews of others' work as well.

Chris's background outside SF is as a practitioner, lecturer and writer in social care. It's informed some of his writing, such as the short story *To Become A Warrior* (2002, available on his web site) and, on the accompanying blog entry, he observes: "*If you leave people outside, they turn to others who offer to take them in.*" I'd suggest this is even more relevant sixteen years on from publication.

I'm looking forward to hearing what Chris has to say, to his contribution to discussions, and what it might move all of us to talk about at **Novacon** this year.

I'll leave you with something else he wrote:

"I once went to a doctor asking for help managing some symptoms which I knew were the result of anxiety. (The cause of it was no mystery: there was a very big thing I was worrying about). He had me fill in a multiple-choice questionnaire, totted up the scores and informed me that I was suffering from anxiety."

Dave Hicks

Opening phrase taken from the review of *America City* by Liz Jensen in **The Guardian**, 9 November 2017.

<https://www.theguardian.com/books/2017/nov/09/america-city-chris-beckett-review>

<http://www.chris-beckett.com/>



DARK EDEN

by
CHRIS BECKETT

Winner of the 2013 Arthur C Clarke Award

A Review by Helena Bowles

Six generations ago, two reluctant pioneers were stranded on a rogue planet with no sun. Rebellious astronaut, Tommy Schneider, and angry policewoman, Angela Young, were forced to make a life on the planet they called Eden. Eden could, and in fact did, support life. With a native ecology based on geothermal energy, there were enough resources for Angela and Tommy to survive and raise a family.

Six generations later, that family numbers around 500. There are serious problems due to what we can recognise as inbreeding: there are high rates of still births, many are born with what we would call learning difficulties, and certain congenital defects are common enough to have merited their own names – “batfaces” (cleft palate), after a resemblance to one of Eden’s bat-like creatures, and “clawfeet” (probably ectrodactyly, but possibly club foot). Society has regressed to the equivalent of the stone age which is possibly due to inbreeding depression. Out of necessity fatherhood has been lost as a social concept, though the basic biology is still understood. As women bear children to many different men, for the most part, sex has become a rather perfunctory business. A council of elders, both male and female, try to keep the stories of the past alive, but they struggle to remember the meaning of the teachings they pass down. It doesn’t help that a couple of generations ago they agreed to stop lessons for the children. They were needed to help hunt and gather. Life is hard on Eden and has been for what they think is 163 years.

Into this impoverished society is born John Redlantern. A “newhair” (adolescent) of twenty womb times (fifteen years) he is angry and frustrated by the refusal of his elders to listen to his ideas. The family have lived in Circle Valley since Angela and Tommy set up home there and, with their growing numbers, game is



starting to become scarce. The problem is that Gela (Angela), the figure they revere the most, told her children they must always stay together and keep the family intact. This has been interpreted to mean that the whole family must stay in Circle Valley, together, until Earth comes to rescue them. John is sufficiently bright enough to realise that unless they do move they are going to get a rapid lesson in Malthusian Population Theory. He sees the game trail over Snowy Dark (the mountains surrounding Circle Valley), puts this together with the story that, when Gela and Tommy approached Eden, they saw lights all over the planet, and he realises there must be other, maybe bigger, hunting grounds at the other end of the game trail. After all, the Woollybucks must eat something; they can't live in Snowy Dark. He works out that if the family can just get it together enough to travel over Snowy Dark, then things are going to be at least a bit easier.

John isn't an altruist though. In fact, he's an annoying, self-obsessed teenager who is unable to exercise patience, or use diplomacy. When he finally commits what we would call blasphemy or sacrilege, he is cast out. He storms off, with all the arrogance of youth, to try his innovative ideas out in a camp of his own. He is joined by his kind-of girlfriend, Tina Spiketree, his best friend, the easily-led Gerry, and Gerry's very clever, slightly odd little brother, the clawfoot, Jeff.

Eventually, others of the newhair generation join them. Clashes occur between the new family and the old one, and Eden is corrupted. There is an attempted rape and a murder forcing John to lead his family out into the dark.

So far, this is a straightforward "lost colony" story – the marooned survivors, the slow descent into barbarism etc, etc. There are a couple of things that make "Dark Eden" stand out though. The first is the language. Without having gone as far as Anthony Burgess in "A Clockwork Orange", Beckett has created a language that is as impoverished as the culture that uses it. The dialect of Eden is very simple, as befits a language that has devolved from the quotidian vocabularies of two ordinary people. Even the modifier "very" has been lost. A dreadful thing is "bad bad", a wonderful one is "good good", Snowy Dark is "cold cold". Each year, the family celebrates their "Any Virsry" at the site where the "Landing Veekle" once stood. Despite this, Beckett manages to paint a very visual picture of Eden, though one problem is that his multiple viewpoint characters do all tend to sound very similar.

Eden is a magical, if harsh, world. Deprived of energy from the sun, the base of the ecosystem is geothermal energy that is pumped from deep underground via the roots of Eden's "trees". Oddly, most animals seem to have developed a form of bioluminescence. I am reminded of a passage in Terry Pratchett's "Men at Arms":

'[...] mysterious caves and tunnels always have luminous fungi, strangely bright crystals or at a pinch merely an eldritch glow in the air, just in case a human hero comes in and needs to see in the dark. Strange but true.'

The source of most light on Eden are the "blossoms" on the "trees". Redlantern trees, Whitelantern trees and Starflowers surround and fill Circle Valley. Many creatures also have glowing feelers or bodies. There are deep, hot caverns filled with animals and plants, and the surface bodies of water are warm, not only because their source wells up from underground, as on Earth, but also where the "roots" of the "trees" pass through them, pumping heat upwards. Where Earth has cold, damp



'A strong contender for science fiction novel of the year'

Sunday Times



'A classic theme, beautifully told'

Sunday Telegraph

'Dark Eden is an incredible novel'

SFBook

'A captivating and haunting book'

Daily Mail

'A dazzlingly inventive science-fiction writer'

A.N. Wilson

'Dark Eden is stunningly written'

SciFiNow

DARK EDEN **CHRIS BECKETT**

mists, Eden has warm, damp fogs of (presumably) steam and warm water vapour.

The role of John Redlantern is that of the disturber of tradition. He is Cain and Moses rolled into one. His actions, and that of his antagonist, the older, unpleasant, bullying "batface" David, threaten the family's stability. Part of the "Cain" role also falls onto David's shoulders and it his actions and his jealousy, as much as anything else, that drive Tina and the other newhairs to follow John. Neither John nor David are particularly admirable figures. John is more intelligent than David, though considerably less so than clawfoot Jeff who comes to fulfil the "Leader's Wise Man" role. John is also undeniably physically brave, yet he is also impulsive, selfish, self-important, opinionated and full of hubris.

We get several outside views of John, most often via Tina Spiketree's point of view. Unfortunately, her narrative does little except talk about John. Often critically, admittedly, but it doesn't change the fact that the main female character spends her entire page-time talking about a boy. Though it is through Tina we learn of Gela's secret words to her daughters:

'Watch out for men who want to turn everything into a story that's all about them. There will always be a few of them, and once one of them starts, another one of them will want to fight with him.'

And yet, Tina's narrative keeps the story firmly about John. The nearest we get to Tina having a thought that isn't about John is:

'And the thought came to me—well, I didn't properly think it through, but I sort of glimpsed it in my head—the thought came to me that up to now it had been the women in Eden that ran things and decided how things would be, but now a time was coming when it would be the men. Some of them might be good men and some would be bad like David. But it would be men rather than women for the next bit. Something had changed, and it would never be how it was before.'

Neither Tina, nor the overall narrative, question this, or justify it. It just is. Obviously, the extradiegetic reason is that Beckett wants to use the patriarchal Abrahamic religions of Earth as a model for examining how the stories we tell are



used and shaped by societies, as well as how they simultaneously shape those societies, so he needs to set up a patriarchy after the expulsion from Eden. There's no real reason why this had to happen though. While Tommy and Angela's rules, handed down through the generations, talk about how the "right" way to live is one man and one woman and their children, the Edenites have never known this social system. They have no concept of familial or social fatherhood, only biological paternity, which is of very little interest to them. It's notable that the era of male power is ushered in with an attempted rape. There are some unpleasant – and narratively unexamined – concepts of gender at work here.

There are parts of the story where expedience seems to have won over realism. Genetically, two people is far too small a gene pool to breed five hundred people – even five hundred sickly people with a high incidence of congenital malformations, but it needs to fit the Abrahamic Eden myth, so it must be two people. Even with six generations of inbreeding, I find it hard to believe that people forgot the concept of making something to cover one's feet. And that those coverings could be waterproofed in a comparable way to how they waterproof boats. Or that sleeves and leggings are a thing. I realise, as modern people, neither Tommy nor Angela were likely to be good with a needle, but neither am I, and I reckon that given skins and sinew and I could probably manage something to insulate me while hunting woollybucks on Snowy Dark. And, if the intelligence of the society really has been flattened out to that degree, then how is it that John, sixth generation product of incestuous inbreeding, has the mental flexibility to invent All The Things, as well as rebelling against the Family's stagnant ways? And, as already pointed out, Jeff is also very smart. So is Tina. Their generation seems to have been rendered immune to the effects on the other Family members which is odd. Genetic diversity doesn't leap back up in six generations. Things should be getting worse, not better, yet John, Jeff and Tina have an intellectual dexterity unmatched even by members from three generations back – the ones who are old enough to remember Tommy and Angela from their childhood.

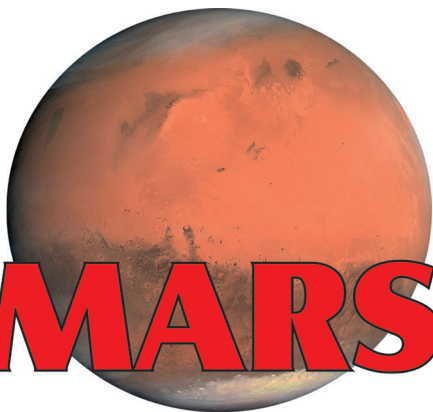
This isn't really what the story is about though. This is just the setting for the themes Beckett wants to work with, and that theme is stories, particularly religious stories.

Dark Eden is also close to an allegory – yes, obviously a religious one. Beckett is very interested in stories and their use within human societies. He comments on our Abrahamic Eden myth by showing the formation of a new one in a mirror held up to our own story. Recursive? Oh, yes. There is an extended sequence during the "Any Virsry" celebration where the Edenites re-enact the story of how Gela and Tommy came to Eden: their founding myth. Beckett holds a lens to the process of this myth formation. As readers, we understand the re-enactment in a very different way to the Edenites. Things that they take for granted, or see as funny, reveal to us a tragic story behind their "Adam and Eve". Beckett manages to make Angela and Tommy real people in our eyes, just by showing them to us via the distorted memories of the Edenites, and that is a real feat of writing.

(Please join us at Novacon where Helena will be demonstrating how to make clothes and shoes out of skin and sinew – Ed)



GET YOUR ASS TO **MARS**



Mars has been in the news of late; mostly due to the likes of Elon Musk and a few others planning daring expeditions to the Red Planet years before more established organizations have planned theirs, and a lot of focus has been on the difficulties of keeping a crew happy, healthy and, above all, alive. The difficulties of such a perilous voyage cannot be understated. A crew will be pushed to the limits of endurance... THEN, they have to set up a home on another planet... which, some might say, is the hardest part.

But, little time is taken to consider just how hard getting to mars is in the first place. I'm not talking about how difficult it is for the crew: I'm taking about just launching and getting a payload, any payload, to the Red Planet.

The difficulties are many and varied, and so are the solutions

So, I know what you are thinking.

"Hey, I've got a couple of Billion spare, I'm going to send a probe to Mars, or beyond. How hard can that be?"

Who amongst us can honestly say that they haven't, at some point in time, had this thought?

What, really..... just me? Weird...

So, if you really want to do this, you are going to have to cope the following problems:

The first incredibly difficult task you have is building a probe that can withstand the stresses of launch without rattling itself apart. The stresses of take-off are incredible. In most cases the acceleration these probes are exposed to during take off would kill a human. Imagine putting your home PC in the boot of your car and driving down a cobbled street at speed. Do you think it would boot up when you took it out? If it's running on **Windows Vista** would it normally anyway? So, you need some very savvy engineers and some very tight nuts (steady...).

Another, and slightly surprising problem, is that of getting out of Earth orbit, and on the correct course (you would be surprised how many fail at that point). A software glitch, electrical failure or communication problem has left quit a few multi-million-dollar probes to circle the Earth.



Thirdly is to travel through the hazards of interplanetary space, what with the high radiation, space dust travelling at thousands of miles an hour, and, of course, sabotage by any interstellar space farers, who want to keep us pinned here on Earth at any costs. OK, the last has very little evidence for existing... OK, none... but still, worth taking into account.

The fourth hazard is being slammed into a planet (though this bit may not be your goal, it may be the end result).

So, if you still think it sounds relatively easy, believe me it really isn't. You see, getting your probe to its destination is trickier than you might think. You can't just aim at a planet and click; you have to aim at where the planet is going to be at the date your probe arrives. Not only do you have to take into account the speed of your craft, but also the relative speeds of the body you are launching from, the body you are trying to hit and everything else up there, which in some infinitesimally small way will try to pull your craft off course.

Your probe will have its course deflected, not only by the gravity of the planet from which it was launched, but also by the Sun will also be trying to drag it back all the way, while all the other bodies in space will be tugging and pushing. At one point it was thought that the mathematics to predict such deflections and plot a course were virtually impossible.

That was until a spotty little 25-year-old mathematics graduate called Michael Minovitch came along in 1961 (at time of writing I have no evidence to prove he was spotty).

While studying at **UCLA** he became excited by the university's acquisition of the new **IBM 7090** computer (It operated with a basic memory cycle of 2.18 μ s (approximately 0.0005 GHz, to compare to modern processor speeds, it cost \$20 million but could be rented for \$30,000 a month.... Bargain! It was the fastest computer on Earth at the time) and the possibilities it presented. Minovitch decided to use it to take on the hardest problem in celestial mechanics: the "three-body problem".

The three bodies it refers to are the Sun, a planet and a third object, such as an asteroid, comet or spacecraft, all travelling through space with their gravities acting on each other. The problem is predicting exactly how the gravity of the Sun and the planet will influence the third object's trajectory. Astronomers had been pondering this problem for at least 300 years, ever since they'd started plotting the path that comets took as they fell through the inner Solar System towards the Sun.

Undeterred by the fact that some of the finest minds in history, including Isaac Newton, hadn't solved the three-body problem, Minovitch became focused on cracking it. In his spare time, whilst studying for his PhD during the summer of 1961. Instead of drinking like any other student, he set about coding a series of equations to apply to the problem.

Feeding data on planetary orbits into his model, Minovitch had made progress by the autumn, but was anxious to check his data. So, in the summer of the



following year, during an internship at **NASA's** Jet Propulsion Lab (not as the Tea Boy I'm guessing), he persuaded his boss to give him more accurate data on planetary positions to re-test his model. He ran the simulations again with this new data, and found his solution still worked. Not only had he solved this seemingly unsolvable puzzle, but what he had achieved made possible an extraordinary breakthrough in spacecraft navigation.

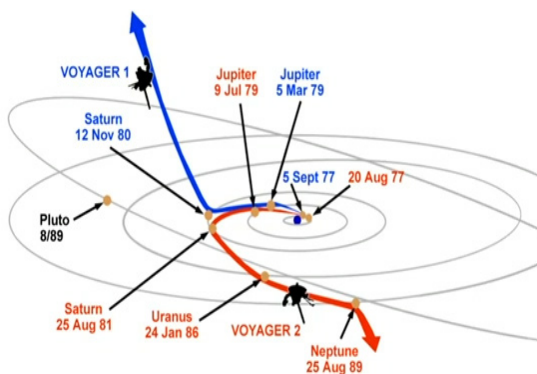
As a bonus, Minovitch's equations also showed that as a craft flew close to a planet, it would steal some of the planet's orbital speed. Gaining this extra acceleration, without using a single drop of rocket propellant, seemed too good to be true. Many critics were quick to try to discredit his data... but they couldn't. Further, this orbital acceleration would allow spacecraft to reach speeds that a conventional rocket launch would not be able to achieve. Suddenly, objects so distant that they were thought unreachable in a realistic timeframe were now theoretically available to us.

Thanks to Minovitch's solution to the three-body problem, and his sling shot equations, **NASA** realised, that if the timing was just right, an epic voyage could be planned and in 1977 **Voyager 1** and **2** were launched. Thanks to these breakthroughs, the **Voyager** probes were able to make their historic tour of the outer Solar System, swinging around planet after planet, gaining the velocity needed to get out to the far reaches of the Solar system, and bring us pictures and data that it would have been impossible to do, using established rocketry methods.

But, suppose you don't want to go to Uranus (snigger)? What if you just want to go to Mars?

For Mars, we have launch opportunities every 25 months, because of the repetitive relative alignment of the planets. These are the opportunities when our launch vehicles have enough energy to send a spacecraft to Mars by the shortest path. This path is not necessarily the best. Some missions, such as orbiters, for example, may benefit from a longer trajectory that delivers the spacecraft to the planet at a lower arrival velocity. That way, less fuel is needed to brake the spacecraft when it arrives.

Either way, your probe will have to fly through about 300 million miles (short route) of deep space, and that environment isn't friendly. Hazards range from what engineers call "single event upsets", as when a stray particle of energy passes through a chip in the spacecraft's computer, causing a glitch and possibly corrupting data, to massive solar flares that can damage, or even destroy, spacecraft electronics. There



are also the hazards of space debris (travelling in excess of 20 thousand miles an hour these can ruin the day of any probe or spaceship they happen to cross paths with). Only recently, the **International Space Station** suffered a 7mm circular chip in its glass viewing dome from a suspected paint chip that hit it.

Your probe, after streaking through space at mind-numbing speeds for 10 months or so, will have to slam on the brakes if it hopes to enter orbit around the Red Planet, or it'll fly right on by Mars and be lost in the depths of space.

Slowing down is a tricky and hazardous manoeuvre. Normally, for this, you will have to fire the probe's main engine. This has been dormant for the entire trip as there's no other need to fire it on the way to Mars. You only when you get there, and it had better work right, first time. In August 1993, **NASA** lost contact with its **Mars Observer Orbiter** just days before the craft was to reach the Red Planet. A leak during a pressurization test of the vessel's braking engines caused an explosion which destroyed the craft.

Assuming your engine works fine, an orbit-insertion burn doesn't have to be absolutely perfect to be effective. For Mars, such firings are typically designed to last 30 minutes or so, and executing about 95% of that burn should result in a successful orbital insertion.

If you have plenty of time on your hands, you might try a slightly different approach such as that recently used by the **ESA's ExoMars Trace Gas Orbiter** or **TGO** (who says scientists don't know how to give something an interesting and snappy name?). This probe has made one of the slowest parking attempts ever by completing an 11 month aero-braking manoeuvre that has seen it slow down from between 42,000 Mph to an almost circular orbit at an altitude of 400 miles above the Martian surface. For those of you who don't know what Aero-braking is, it's when a spacecraft dips into the upper atmosphere of a planet, and uses the drag caused by this to slow down. The bonus of this being that you don't have to drag lots of fuel around the solar system to slow your spacecraft when it reaches its destination. Aero-braking also sounds way cooler than "firing retro's" which is so 1960's.

Where was I? Oh yes 95% of the burn... any less than that and you have a problem. The engine on Japan's **Akatsuki Venus Probe** failed during its December 2010 insertion burn by firing for just three of a planned 12 minutes. **Akatsuki** shot by Venus and is now in orbit somewhere around the Sun.

If getting into Mars orbit sounds hard, landing there is even harder. The entry, descent, and landing have been described as "seven minutes of terror" and quite rightly so. With the time lag for radio transmissions being up to 24 minutes between Earth and Mars, the first you hear about trouble is half an hour after you've smacked into the planet.

Mars is a particularly tricky body to land on. Its atmosphere is only 1% as dense as that of Earth at sea level; far too thin for just parachutes and air friction to do the job of slowing your probe down for a landing.





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The Mars Rovers, **Spirit** and **Opportunity**, landed on Mars in the early 2000's. This is how they did it.

Approaching Mars, they fired their engines, slowing down and hitting the Martian upper atmosphere traveling at a now more reasonable 13,000 miles per hour. During the first four minutes of descent, they used friction with the atmosphere against their heat shield to slow down to about 1,000 miles per hour. They then had only 100 seconds left and were at an altitude that a commercial airliner typically flies. Things then happened pretty quickly. A parachute opened to slow the spacecraft down to a mere 200 miles per hour, but now they had only 6 seconds left and were only 91 meters off the ground. Then, the retro rockets fired to bring the spacecraft down to zero velocity, but at the height of a four-story building above the surface. The spacecraft dropped the rest of the way cocooned in airbags to cushion the blow. They hit the ground at 30 miles per hour. Bounced as high as a four-story building and continued to bounce afterward, perhaps 30 times all together. What's inside the airbag weighed approximately half a ton and was comparatively fragile... and they did this twice!

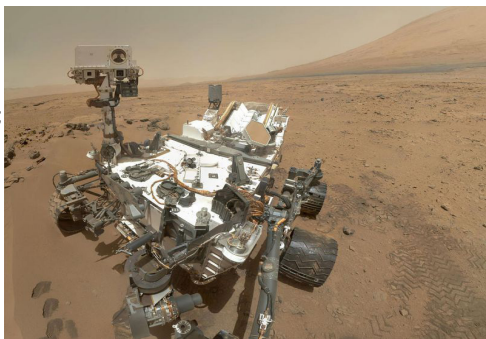
Some do it slightly differently, some, unfortunately, just bang into the planet like a cannonball (which wasn't the plan if you were wondering). Landing is further complicated by difficult terrain; massive impact craters, cliffs and jagged boulders. Even the toughest airbag can be punctured if it hits a bad rock. If that isn't bad enough, the weather can be terrible, even worse than in Wales. Winds can also stir up massive dust storms which are so large they can be seen from Earth.

Here's the thing, however, and I'm sorry to all of those who enjoyed *The Martian* movie (I did). Martian storm winds usually top out at about 60mph and the air is so thin that even at this speed you would have difficulty getting a kite into the air. There are no winds on Mars capable of stranding an astronaut or damaging equipment.... Sorry. It gets a bit dusty and a bit breezy, like Blackpool in the summer... but colder..... though not by much.

Missions planning to put a Lander or Rover on to the surface have to fly much more precisely during the final stages of their journey. With orbiters, you only have to hit the target to within about 30 miles - the target being a certain altitude above Mars. But with lander or rover missions you've got to hit that target within less than about 6 miles. Surface missions are also more complex, because they carry entry, descent and landing systems to get their payloads through the Martian atmosphere and safely down to the ground. With greater complexity and an increased number of tasks comes a greater chance of something going wrong.

Only about 50 percent of the 40-plus missions to Mars over the decades have achieved full mission success. Some don't make it off the ground, some have malfunctions early on which either leaves them embarrassingly stranded in Earth orbit, or they just vanish on the way out. Others just fly straight by Mars, or go into orbit and fail. A few decide to pre-empt the Earth/Mars war, and simply smash into the surface like the first salvo of a bombardment. Some have deployed landers that we have simply never heard from again. It's tough, expensive and very complex.

As Kennedy famously said, “We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard; because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win ...”



Despite the overtly political reasons for that speech and for America getting to the moon first, it's still this striving to win despite the odds, and to expand our horizons that is still driving us forward today. The risk of failure does not outweigh the gains in knowledge that come with every success. We will still keep sending our probes to Mars, and beyond, and one day, we will walk in their footsteps/tracks/impact craters while we wonder about all the people who dreamed and struggled to put them there. Or maybe we will be too busy doing the chores of our Martian robot masters, who have evolved from the robots we sent today, and returned to the Earth to conquer and destroy... or maybe not

Gary Starr

DEALERS TABLES

Dealers' tables are available for £20 for the weekend, (when we say dealers.... you know what we mean right? We don't want to have to confiscate anything, or call the police, or have really wild room parties (*Editor's Note: **Novacon** in no way advocates the use of illegal mind-altering drugs.... no matter how much they would MASSIVELY improve committee meetings.*)).

If you want a table, but don't wish to attend the convention, we can talk about this too. Either way, contact Steve or Tony at the email addresses on page 2.

ART SHOW

If you want to show your art it is free, but you will need to reserve space. So, if you need half a table, a whole table, a wall or, God forbid, you are planning to bring a whole installation, then it might be a good idea to let us know so that we can do a little planning (I know, why start now right?).

Contact Tony or Steve (see inside cover) and tell them what you need, you like, your hopes and dreams...

CONVENTION TABLES

These are free to any poor damned souls who are also running a convention. God help you.

Contact Tony or Steve for reservations, help, support, drink, a massage... whatever you need.



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MEMBERSHIP LIST APRIL 2018

1 Chris Beckett	36 Caroline Mullan	71 Hal Payne
2 Adrian Tchaikovsky	37 Charlotte Bulmer	72 Jodie Payne
3 Juliet McKenna	38 Neil Summerfield	73 Morag O'Neill
4 Dave Hicks	39 Simon Dearn	74 Stan Nicholls
5 Tony Berry	40 Dave Tompkins	75 Anne Nicholls
6 Helena Bowles	41 Martin Hoare	76 Giulia de Cesare
7 Cat Coast	42 Tim Kirk	77 Steve Davies
8 Eve Harvey	43 Margaret Austin	78 Anthony Smith
9 John Harvey	44 Martin Easterbrook	79 Wendy Smith
10 Alice Lawson	45 Harpal Singh	80 Gerry Webb
11 Steve Lawson	46 Arthur Cruttenden	81 Mali Perera
12 Douglas Spencer	47 Chris Stocks	82 Alan Webb
13 Richard Standage	48 Roger Robinson	83 Pauline Morgan
14 Gary Starr	49 Roger Earnshaw	84 Chris Morgan
15 Vanessa May	50 Jim Walker	85 Paul Dormer
16 Luke Smith	51 Niall Gordon	87 Margaret Croad
17 Rob Jackson	52 Steve Rogerson	88 Melica Smith
18 Sally Rowse	53 Claire Briailey	89 Martin Smart
19 Laura Wheatly	54 Mark Plummer	90 Michael Abbott
20 Barbara-Jane	55 Anne Woodford	91 Anne Wilson
21 Markus Thierstein	56 Alan Woodford	92 Hazel Ashworth
22 Tim Broadribb	57 Steve Dunn	93 Serena Culfeather
23 MEG	58 Sue Edwards	94 John Wilson
24 Dave Hardy	59 Steve Jones	95 Alison Scott
25 Julia Daly	60 Peter Mabey	96 Steven Cain
26 James Odell	61 Julian Heathcock	97 Greg Pickersgill
27 Chris Bell	62 Adrian Snowdon	98 Catherine Pickersgill
28 Vernon Brown	63 Al Johnston	99 John Jarrold
29 Pat Brown	64 Marcus Rowland	100 John Bray
30 David Carlile	65 Tim Stannard	101 Henrick Pålsson
31 A C Baker	66 Penny Hicks	102 Caroline Humes
32 Peter Wareham	67 Christine Davidson	103 John Richards
33 Gwen Funnell	68 Michael Davidson	104 Maerryon Richards
34 Brian Ameringen	69 Harry Payne	
35 Emjay Ameringen	70 Omega	

There will be a **Code of Conduct**, substantially similar to the code of conduct last year. The **Novacon** code of conduct is revised continuously, but the version to be used at any given **Novacon** is fixed and published a couple of months in advance of the convention itself.

By taking a membership of **Novacon 48**, you signify your consent to be bound by the code of conduct as published in PR3 and the convention programme book.