

SIGMA

The Newsletter of PARSEC February 2018 Issue 383

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The Dean Drive

Francis Graham

Kent State University

An article about science fiction themes and memes in the December science fiction newsletter *Sigma* by Joe Coluccio was excellent, and also mentioned something I had never heard of before: The Dean Drive. Promoted by John W. Campbell, the editor of *Analog: Science Fact and Fiction* (formerly *Astounding Science Fiction*), this device was supposedly based on a previously unknown “Fourth Law of Motion” that Newton missed and violated Newton’s Third Law. It peaked my interest and here is what I was able to learn.

Newton’s Third Law is well known to almost everyone: “For every action there is an equal and opposite reaction.” Rockets work that way: it kicks out mass to the rear, in the form of hot gases, and the equal and opposite reaction pushes the rocket forward. This is why a rocket can work in the vacuum of Outer Space and needs nothing to push against. The Third Law is active in everything people do. Outside of the Green Mill Bar in East Liverpool, Ohio, at 2 AM, one would see one intoxicated person strike another with his fist, and break the target’s jaw. But then also the same force would act on the assailant and break the assailant’s wrist. An ambulance or two would then transport both target and assailant to the hospital.

Equal and opposite force is the rule. The trick of martial arts is to impart a force to damage your opponent while at the same time receiving the same force without damage to yourself.

If you stand up in a shopping cart with a 25 pound sack of onions and throw it one way, you and the shopping cart will move in the opposite direction. Try it next time you’re hopelessly lost in the aisles of the Giant Eagle Market District.

But what if you could make a device that would not have a reaction force? This is what Norman Lomer Dean (1902-1972) claimed to have invented, using mechanical means.

George Arfken, whose book on mathematical physics was one of my faves, considered the Dean Drive and wrote in his *University Physics*:

“According to Dean, even if the Device were enclosed in a giant plastic bag through which no force acts, and through which **no matter passes**, the Device would accelerate. Its linear motion would change with time.”



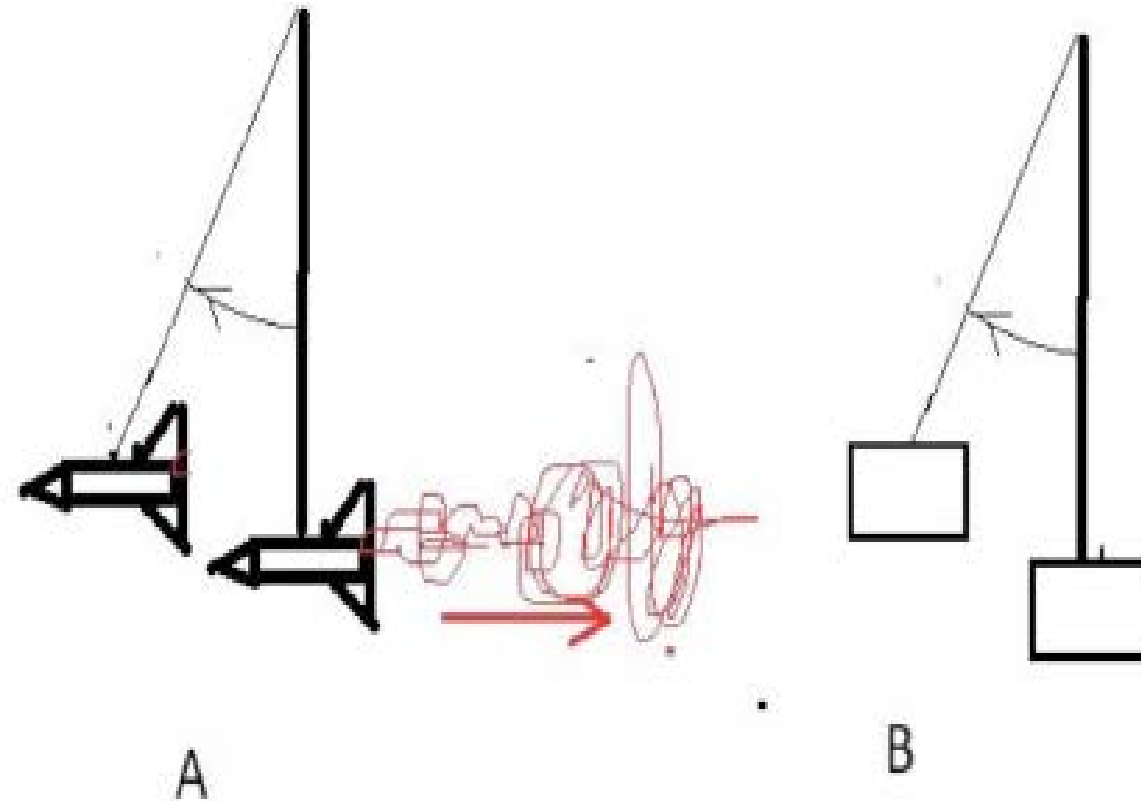
The Cover of Analog June, 1960 in which the Dean Drive was introduced. It shows a Dean Drive spacecraft like a submarine orbiting Mars.

Arfken then pointed out that the Dean Drive was never put to rigorous scientific tests, and would violate Newton’s Third Law.

One might conclude that Dean, in failing to allow others to evaluate his Drive, must have been therefore a fraud. But the structure of our society does not adequately protect legitimate innovators who do open demonstrations. Preston Tucker and Philo T. Farnsworth (inventors of the Tucker torpedo automobile and the analog television) both exhibited their inventions early and had adverse actions taken against them by large corporate entities. And there are many other examples of lesser stature to note. So, one cannot conclude that just because an innovator would not open his garage to inspectors his or her inventions are fraudulent. One can only say that the invention has not been *shown* to be true, and this is especially a fault because it violates known physical laws.

Two people, besides Mr. Dean, actually saw a demonstration of a Dean Drive and claimed it was true. The first was the editor of *Analog*, John W. Campbell (1910-1970). The second was model rocket pioneer G. Harry Stine. However, the demonstration was done under Dean’s supervision. They were not permitted to handle and inspect the device independently. G. Harry Stine also endorsed the occult science Hieronymous Machine and tended to be gullible on such matters, according to Jerry Pournelle. Pournelle wrote:

“Dean may or may not have been sincere, but he was certainly hard to deal with. He was so afraid -- or purported to be afraid -- that his gadget would be stolen that he wanted lots of money up front before he’d show it to us. Why he showed it to



Ballistic Test of Dean Drive. In a conventional rocket, mass or energy is ejected rearward, pushing the rocket forward, as in A. In B, the Dean Drive, no such reaction force exists, violating Newton's Third Law.

John and Harry I don't know; it was from their report that I concluded it was worth going back East and trying to buy the thing, and I convinced the General that we ought to put up the money. They decided to make it in a letter of credit valid if signed by me, the other science type, and a finance troop who was instructed to sign if both of us did. We went east, and I now know -- didn't then -- that 3M had sent a team with almost the exact same instructions to try to buy it if they thought it would work...

Anyway, nothing came of it all. If it worked I never saw it work, and neither did the 3M team. ..My own conclusion is that the thing didn't work. It would sit on a scale and vibrate enough that it appeared to lose weight, but that has to do with pendular motion and resonance with the scale springs. The same kind of thing will climb a string. It seems to lose weight, but it doesn't. I think Dean built the same gadget that excited Hitler, although I doubt that Dean ever knew of the earlier device.

Harry Stine died convinced that it he had seen a reactionless drive, and that one could be built. What Harry had seen wasn't on the bathroom scale, but on the floor, set to do horizontal motion, and he claimed that it pushed against his hand. He could feel the thrust. That's impressive because G. Harry Stine was nothing like a fool, although I do believe he was more gullible than some with his education.

He would have said "more open-minded," and I won't argue the point. I liked Harry."

The device "that excited Hitler" was an earlier claim of a reactionless Drive that has aroused my interest also but I've been unable to discern what Pournelle wrote of. Eric Laithwaite (1921-1997), the English engineer who invented maglev trains, also was briefly involved in Project Greenglow, which tried to use reactionless systems as anti-gravity drives—without success, alas.

Norman Dean obtained two patents but were not his final Dean Drive and according to Pournelle the patented inventions did not work.

So here's what I think. I think that the Dean Drive was a fraud. I am 99.999% confident it is. But I am not 100% certain. The fact that Laithwaite and an unknown German inventor also investigated these ideas is not good contrary evidence, since false memes are often carried along. In any case, the minute uncertainty regarding this has allowed a vast literature to develop about suppressed inventions and undisclosed laws of physics that allow purely hypothetical flying saucers to fly.

NASA finally got around to considering the Dean Drive in a report by Marc Mills and Nicholas Thomas, and concluded that its apparent ability to attract an object without being attracted, in the demonstration that G. Harry Stine observed, was due to oscillation friction, and it would not work in space.

January Parsec Meeting Minutes

I am still enthralled by William B. Hall's idea of a "Force Age" beyond chemical reaction propulsion and have constructed and tested electromagnetic and electrohydrodynamic lifters with erstwhile Tesla devotee and engineer Mark Barlow. These do not violate known physical laws, but are still novel ways of transportation.

It was proposed to test a candidate Dean Drive with a ballistic pendulum, but Dean did not permit this. The ballistic pendulum test is a powered pendulum whose amplitude can be related to expended energy. Unlike a rocket, the Dean drive would not shed matter in raising the ballistic pendulum.

Unfortunately the Dean Drive could pass a ballistic pendulum test by weight shifting, analogously to starting a swing up from a standstill. This is only possible if there is friction and extension in the pivot; greasing a swing makes starting it from a standstill much more difficult. But the friction is never zero, so it is always possible. But it still would not work in outer space.

A successful Dean Drive would be like Diet Smith's Space Coupe and would revolutionize space travel, if it could ever be invented! But so far there is nothing but an empty hand and old stories. Because it purports to violate known laws of physics I am entitled to doubt them.

I conclude with a poem:

"Equal and Opposite Reaction
Give us our walking traction!"
Said Newton in Latin lingo.
But why the Universe should care
If forces come by a pair
Hypotheses non fingo.

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Before the meeting I noted to Eric Leif Davin that I've seen the historical film *Darkest Hour* twice now, about Churchill becoming Prime Minister, and each time I see a distress telegram from a General Gort I can't help but flash back to that towering robot from *The Day the Earth Stood Still* (I prefer the original) and think "Gort? In trouble!? Now, this is serious!!!"

Our short story contest is accepting up to 3500 words on the theme *Flawed Reflections*. Eric has a story out in *Galaxy's Edge*, and President Joe is working on his OSHR class on science fiction cinema. Eric also talked to us about Karen Anderson, wife of Poul, and the art of haiku, and we determined that

our March meeting will be indeed be dedicated to generating Confluence panel topics (once Larry Ivkovich is done talking to us about rock music in February). Our raffle prizes were a trilogy by the personally appearing author Rex Jameson and Neil Gaiman's "The Graveyard Book." I won the Gaiman. (See what you miss?)

Our speaker was one Wendelin Gray, and the subject was ancient Chinese astrology. There are almost inevitably different constellations – although the Big Dipper endures – and the plane of the ecliptic is described as a Yellow Path. The Chinese followed a lunar Zodiac, as opposed to our "sun signs," and tracked a cycle based on Jupiter's path across our sky. Texts on this astrology may go back as far as around 2200 BC, detailing a system of over thirteen hundred stars and hundreds of constellations. This started out not very concerned with personal fortunes but instead focusing on major events such as war and pestilence.

We are used to the twelve-year cycle described on placemats – the Year of the Rat, of the Horse, of the Snake, so forth and so on – but there is, in fact, a 60-year cycle combining the animals with the Five Phases: Water, Wood, Fire, Metal, Earth. 2018, for example, is specifically the Year of the Earth Dog. In this system, the elements, the Phases, are better determinants of personality than the animals. There are also Four Quadrants of Heaven, these being the White Tiger (probably inspired by the snow leopard), the Black Tortoise, the Azure Dragon, and the Vermillion Bird (often interpreted as a Phoenix), and there are 28 Lunar Mansions. The astrological year is broken up into 24 solar periods of about fifteen or sixteen days each, and there are five seasons, with an extra one sandwiched between summer and autumn. Each day breaks down into twelve double-hours.

All in all, it made for an interesting alternate look on a seemingly familiar topic. More information can be found in the books of one Derek Walters. Gray is herself the author of stories of magic or horror such as “The Weary City” or the acclaimed “Haunting at Ice Pine Peak.”

Our headcount reached 16.

Secretary Bill Hall



OMNI IS BACK!

Science fiction magazine *Omni* is back in print. Being published as a quarterly edition by a lot of the same staff who worked on the magazine in its 1970's, '80's, and '90's heyday, it's the second attempt to reboot the popular magazine.

The first attempt was *Omni Reboot*, an online edition was around for several years, but was part of a legal battle over copyright and trademark infringements.

The first “collectors” issue of the new print edition came out last fall and contained the mix of fiction and nonfiction, science and art, which made the original incarnation so popular.

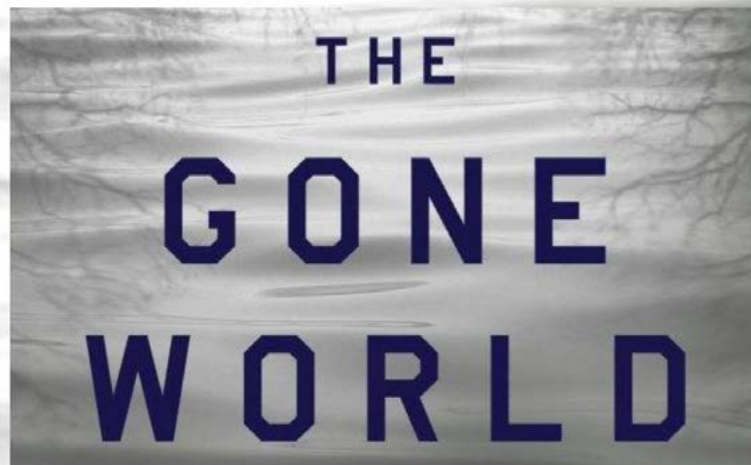
It includes a report on a space art project and an interview with author William Gibson. A short story by Nancy Kress titled “Every Hour of Light and Dark” is also part of the issue.

The fiction is once again being edited by award-winning editor Ellen Datlow.

Omni is being published by its original publisher, Penthouse Global Media, with Pamela Weintraub as editor.

Larry

BOOK LAUNCH EVENT!



by Thomas Sweterlitsch

Tuesday, February 6 at 8 PM – 9:30 PM

City of Asylum

40 W. North Avenue, Pittsburgh, PA 15212

Fantastic Artist Of The Month

Rhonda Libbey



Pittsburgh artist Rhonda Libbey has agreed to illustrate this year's Confluence T-shirt for free! Thanks and kudos to Barb Carlson for procuring this very talented artist to contribute her work.

Rhonda has been a professional artist and graphic designer since 1996. Some of her clients include the Pittsburgh City Paper, Pittsburgh Symphony Orchestra, Hide-E Hole Ferret Rescue, Pittsburgh Cultural Trust, and Fantasy Flight Games, among others.

She's exhibited her work in the Heinz History Center, Guanshanyue Art Museum, the Art Institutes of Pittsburgh/Phoenix/Minneapolis, and the Pittsburgh Center for the Arts.

Website: <http://www.rhondalibbey.com/>

Check out the new art book Rhonda's working on, called *Visions From the Dream Diary* through her patreon site:

<https://www.patreon.com/RhondaLibbey>

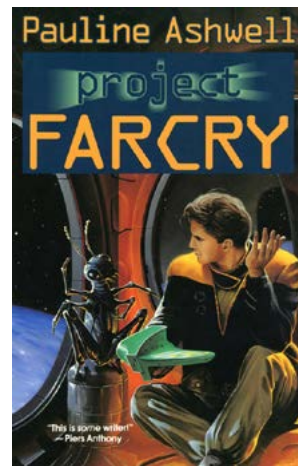
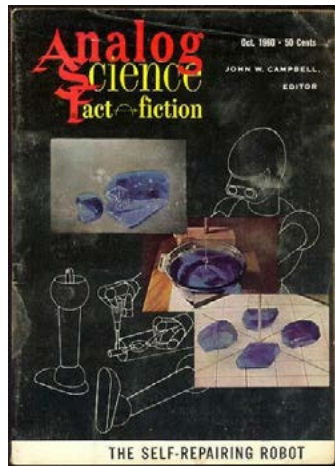


Brief Bios

Eric Leif Davin

"Pauline Ashwell" (Pauline Whitby) (1928-)

As far as America is concerned, John W. Campbell discovered British writer "Pauline Ashwell". He published her first American story ("Unwillingly to School," Astounding, January, 1958), which was later Hugo-nominated for best short story of the year. Because of it, she was nominated for "Best New Author," a promising debut for any writer. Campbell also published her second and third stories, the latter ("The Lost Kafoozalum," Astounding/Analog, October, 1960) also being Hugo-nominated for best short story.



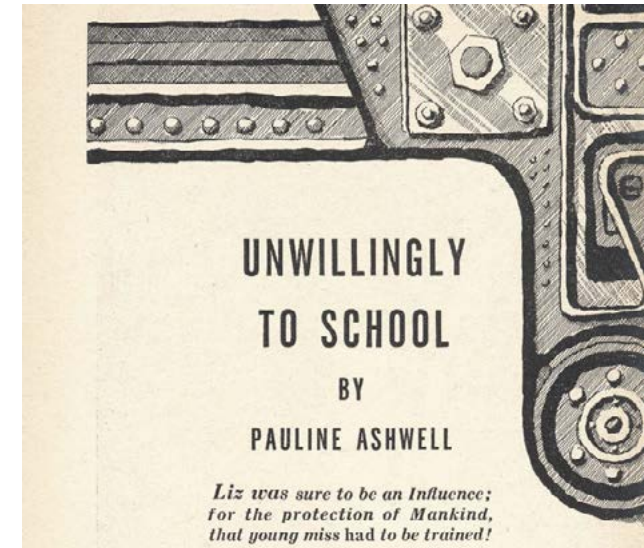
However, she actually made her debut as "Paul Ashwell" with "Invasion from Venus" in an obscure wartime British SF magazine, Yankee Science Fiction (No. 21, July, 1942), which, despite "No. 21," only published three issues. At the time, she was only 14 years old.

After her American debuts, she published nothing more until two stories appeared in 1966 under the pseudonym "Paul Ash." One of these, "The Wings of a Bat," was a Nebula nominee that year, the first year the Nebulas were awarded. Thereafter she dropped from sight again, not reappearing until 1982 when her story, "Rats in the Moon" appeared, also as by "Paul Ash."

There was nothing more until 1988, when she published a spurt of stories, including "Fatal Statistics," "Interference," "Make Your Own Universe," "Shortage in Time," and "Thingummy Hall." In 1990 she published "The Hornless Ones" and in 1991 "Man Opening a Door," which was a Nebula nominee for that year. In 1993 her novel, "The Man Who Stayed Behind," was serialized in Analog, but it never appeared outside that magazine. Her first novel to appear in book form was Unwillingly to Earth, published by Tor in 1992. This was followed by Tor's 1995 publication of

Project Farcry. That same year she published the short stories "Hunted Head" and "Time's Revenge." In 1996 came "Bonehead."

Having twice been nominated for the Hugo and twice for the Nebula, and having been hailed in the Fifties as one of the "Best New Authors," no doubt her talent would have won her a larger reputation had her output not been so sporadic over the decades.



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Joe Coluccio (President)
Bonnie Funk (Vice President)
William Hall (Secretary)
Greg Armstrong (Treasurer)
Michelle Gonzalez (Commentator)
Joe Coluccio & Larry Ivkovich (SIGMA Editors)



Rupert Gregson-Williams Deserves An Oscar

by Bill Hall

I haven't cared much at all about the Oscars in any year beginning with the numeral 2, as I have tended to find the nominees either disengaging or unimaginative, and I expect to remain unmoved. While I confess that I am a downright smitten Wonder Woman fan, and it's been nice to hear Oscar buzz for it, I never really believed in that buzz, and I'm pretty happy the way things are. 2017 turned out a fine crop of movies – my own mother is solidly, if not militantly, a Three Billboards fan – and I entirely understand how my WW got crowded out of contention.



HOWEVER.

I must object to one snub. I've seen most of the nominees for best music, and the candidates are good. I particularly appreciate the delicately romantic whimsy and bold strangeness of the score for *The Shape of Water*. But come on – Wonder Woman had the best music.

We tend to forget that music, in particular, original music, is not a "given." Some movies are very satisfying with barely any music at all, and when a movie does have music we probably don't even think twice about it, we accept it as some tradition, a nice one but perhaps not that crucial, one all too easily overwhelmed by actors, story, and spectacle. Once in a while a movie like *Wonder Woman* comes along, a vast, lush, panoramic, ambitious, and frankly bizarre project. It can use all the help it can get. If such a project gets lucky, it finds music that becomes the wind in its sails. Even George Lucas never felt that confident about *Star Wars* until the very first time he saw footage with the now iconic John Williams score mixed in. My thesis is that very much the same thing happened to *Wonder Woman*.

I last wrote about 2017 as a year of movie "alchemy," a bolt from the blue, the most pleasant of surprises, and that extends to *Wonder Woman*. Legions of movie buffs groaned at the prospect of Patty Jenkins directing, they rolled their eyes and declared "She's not an action director." Well, that didn't last, did it? I must confess to my own prejudices. I am not an Adam Sandler fan. In fact, I suspect he has a contract sealed in some vault which bears his signature in blood. The composer, Rupert Gregson-Williams, scored thirteen – yes, thirteen – Adam Sandler comedies. That is not what I call an encouraging statistic. Perhaps all those movies were part of making this man what Malcolm Gladwell calls an "outlier" – that is to say, there are no overnight successes, you put in enough work, and at last you begin to master your talent.

RGW, as I prefer to sum him up, deserves an Oscar. To remember *Wonder Woman* is to remember his work. Our first grand view of Themyscira, sailing out into the world in the mist, No Man's Land, Tina Guo's sexy-as-hell electric cello of battle, fighting Ludendorff, the heartbreak that is the human race, the eerie calm and certainty that comes to Diana as she fights Ares, the sad celebration of war's end, even the ending credits – all of these I find inextricably bound to the music. Usually, good music decorates a movie, gives it a little boost. RGW's score clarifies, magnifies, and propels this movie. It is a Best Supporting Actor.

It feels vaguely appropriate to be writing this just as we have lost Ursula K. Le Guin. My own love of Le Guin has an oddly tight focus. Yes, of course, *Earthsea*, yes, by all means, "The Dispossessed" – but for me, it all comes down to "The Lathe of Heaven." History tells us that in 1972 "Lathe" was merely a contender for the Hugo Award, which went to Philip Jose Farmer's "To Your Scattered Bodies Go." (Yes, there was also Anne McCaffrey's "Dragonquest.") It seems to me that over the decades we have not cared nearly as much about "Bodies" as we have about "Lathe." "Lathe" endures and echoes with a resonance and integrity all its own. A Hugo would have been nice, but it's not essential. Our memories and our love are sufficient. In my heart, Ursula K. Le Guin won the 1972 Hugo for best novel, and Rupert Gregson-Williams won the 2017 Oscar for best music, and there is no convincing my heart otherwise.

2047: Short Stories from our Common Future

Edited by Tanja Rohini Bisgaard

Review by Larry Ivkovich

This anthology of climate change-inspired stories, visual art, and poetry posits near-futures which attempt to answer the following questions as set out in the book's introduction by editor Tanja Rohini Bisgaard:

"What will the world look like in another thirty years if global warming and environmental degradation aren't reduced as much as we hope? And how will we deal with those problems? After all, no matter which models scientists are using today, it's impossible to accurately forecast what will happen."

Most of the stories in the anthology are very strong, including one by Pittsburgh author John Frochio. Many of those pieces don't envision a happy ending but all are of different aspects of how global societies and their members deal with an extremely altered world.

"Still Waters" by Kimberly Christensen is a bittersweet tale of love lost because of a futile obsession to save a dying species.

"A Modern Cronkite" by Richard Friedman is a modern fantasy with an ancient character never named but fully recognizable as she moves forward to save a ravaged planet, no matter the cost.

"The Outcast Gem" by Tanja Rohini Bisgaard is one of the more positive stories centered around a sibling rivalry.

"NuVenture™ TEMPO-L: A QuickStart Guide" by Isaac Yuen is full of black humor as it addresses climate change and how the corporate mindset and humanity might adapt, or exploit.

"Driftplastic" by John A. Frochio is an upbeat tale of how art can not only imitate life but how it can save it.

"Willoy's Launch" by LX Nishimoto also reflects on big corporations but focuses on their individual members and their aspirations, and how those can change in the blink of an eye.

This self-published work, funded by an Indiegogo campaign, is available on Amazon.

<https://www.amazon.com/2047-Short-Stories-Common-Future-ebook/dp/B077T7BZ56>

Highly recommended. Do yourself a favor and check it out.

Because Science



by Larry Ivkovich

Television show *Because Science* is a half-hour program hosted by Kyle Hill on the Alpha Channel. Each episode, Hill discusses, refutes, or supports the science behind SF, Fantasy, and Horror tropes. All in good, educational fun. Of course, he's quick to point out some of his hypotheses are just that.

Hill is a science writer/communicator from LA. He has a BS in civil and environmental engineering and a Master of Arts in Communication, both from Marquette University. He's written for *Scientific American*, *Wired*, and other magazines.

Hill's a fun, engaging host (with great hair!), simply standing in front of a black screen with no props whatsoever. He uses a marker to write and draw on the "TV screen" to illustrate his points. Oftentimes, depending on what he's discussing, little animated drawings will appear, such as fangs in his mouth when talking about vampires. That type of thing.

Some of the subjects he's discussed have been:

The Science of *Star Trek's* Deflector Shields.

Could a Lightsaber Cut Through Wolverine's Claws?

Could an Anime Nosebleed Turn You into a Rocket?

How Does Catdog Poop?

Should You Eat Brains?

Let's Build a Death Star!

Is *Stranger Things'* Eleven More Powerful Than a Jedi?

Can the Flash Take a Truly Hands-Free Selfie?

and many more.

Here's a link to the episodes on nerdist.com:

<https://nerdist.com/videos/because-science/>



Parsec Meeting Schedule February 10, 2017

FEBRUARY PARSEC MEETING PRESENTATION

Larry Ivkovich will present *SF and Rock n' Roll*, a relatively short, non-comprehensive, and entirely subjective look at rock and pop musicians whose work has been inspired and influenced by speculative fiction.

Topics will include "One Hit, or so, SF Wonders," "Artists with a Body of SF Work," "Concept Albums," and many more!

And, yes, there will be music! Make sure to bring earplugs and old-style Bic lighters.



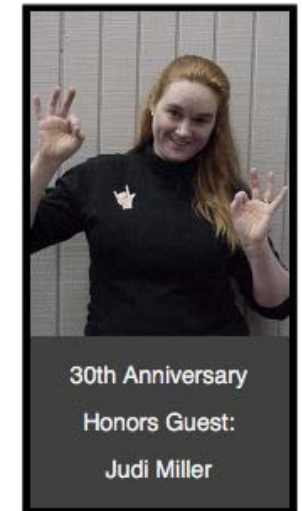
Squirrel Hill Branch of the Carnegie Library
Room B - Next to the Rear Entrance
1:30 - 4:30 PM
Come in and introduce yourself
The room is open at noon.



Guest of Honor:
Catherynne M.
Valente



Music Guest:
S.J. "Sooj" Tucker



30th Anniversary
Honors Guest:
Judi Miller

Writing Workshop at Confluence

The workshop will be held Saturday morning, during Confluence weekend. Award winning author, David D. Levine will be our workshop coordinator this year.

"If you are a science fiction or fantasy writer, published or unpublished, who wants feedback on your work, Hugo-winning SF writer David D. Levine will conduct a Writers' Workshop at Confluence for up to six writers. You'll have the chance to have a professional writer critique your work, along with several of your peers. Critiques will be done in a round-robin Clarion West style. This workshop style allows all the participants to read and critique everyone's work.

The cosplay/costume contest will return for another round in 2018!

We have the following judges willing to face the challenge of choosing the best costume and costumer at Confluence in 2018: Karen Schnaubelt, Lisa Ashton and Tom Higgs. **Please say you'll join us!**

For Registration and further information please visit:
<http://parsec-sff.org/confluence>