

Sonova Quark

Brought to you by Steven Vincent Johnson and Darlene P. Coltrain, snail mail address: 6666 Odana Road, 213, Madison, WI 53719. Email Steve: svj@orionworks.com. Email Darlene: dpcoltrain@gmail.com Web: <http://OrionWorks.com>. All material is Copyrighted © by Steven Vincent Johnson and Darlene P. Coltrain unless otherwise specified. Quark is brought to you by *OrionWorks* with occasional help from *Grasshopper Press* when I feel an inspirational mood overtake me. Final layout is assembled in InDesign CS5. Printing done on a HP Color Laserjet Pro MFP M277dw. Some might be asking how do you pronounce "Sonova Quark"? There isn't one.

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The Science Myction of Interstellar

Another Alternative Perspective

The problem with judging SF films on the merits of whether they are politically correct in depictions of physics displayed on the screen



Fig 1: <https://www.youtube.com/watch?v=z9tUFJG0IWA>

Warning: This review has spoiler alerts.

Myction? Pronounced as "mick-shun". Humor me. I'll get to it eventually...

Countless Rotten Tomatoes reviewers have weighed in on what they loved and hated about of the 2014 block-

buster film, *Interstellar*. Tomatoes notwithstanding, it was Greg's review that I was interested in, particularly since Greg shares many reviews in the pages of TURBO. Unfortunately, he posted his assessment before I had rejoined the APA last September. After mentioning my misfortune at Odyssey Con 2016 to Greg he promised to point me to an on-line review he had posted.

Greg followed through on his promise.

I suspect Greg sensed I came away enjoying *Interstellar* a lot more than he and Georgie had. I think Greg encouraged me to have at it, perhaps encouraging me to add a contrarian opinion. Because our reactions seemed so diametrically different I felt compelled to explore to a greater depth what might have been the underlying reasons why we both came away with such different conclusions. I want to thank Greg for allowing me to compare notes. You can read one of Greg's *Interstellar* reviews at:

<http://sinister-sigils.dreamwidth.org/265421.html>

I'll start my mentioning director Christopher Nolan and astrophysicist Kip Thorne apparently spent a great deal of time together debating the laws of physics as it would apply within the medium of cinema. Here's an on-line *Scientific American* article titled "Parsing the Science of *Interstellar* with Physicist Kip Thorne", from SA staff writer, Lee Billings, from November 28, 2014:

<http://blogs.scientificamerican.com/observations/parsing-the-science-of-interstellar-with-physicist-kip-thorne/>

Excerpt:

"You know, Chris also considered traveling through space faster than the speed of light as "non negotiable" back then, and that's something that was changed and is not in the final film. He used that phrase in our brainstorming, but in the end after in-depth discussions he came around. We'd always find some way to make things work together, though in this one instance of faster-than-light travel I gave him a series of reasons why we were quite certain the laws of physics prevented it. We went back and forth for several hours on and off over two weeks about it, until he reached the point where he appreciated intuitively that the problems I was pointing out were insurmountable. Then he simply abandoned the idea of faster-than-light travel and moved in another direction.

This business of the enormous time differential between one of the planets orbiting very close to Gargantua and the flow of time back on Earth – the problem seemed to be that no planet could endure the resulting gravitational forces. This was something that even I thought was impossible, intuitively, until I went and slept on it and did a few hours of calculations. I came to the conclusion that in fact it is possible. The black hole needs to be spinning very fast, but is possible for the spin to be fast enough for a planet in the necessarily close, stable, circular orbit to not be ripped apart. I can't fault anyone for saying, "Hey, that's not possible," without having first having the benefit of my book! Unless it's someone who is very deep into general relativity and who I would've expected to go do the calculations!"

It's my understanding Chris Nolan consulted with Kip Thorne Quite a bit. Nevertheless, compromises were made for cinematic expression which apparently left some reviewers disappointed.

While discussing *Interstellar* with Darlene, she suggested the film was not so much science *fiction* as it

was science *fantasy*. I believe other reviewers may have expressed similar opinions whereas some simply stated, disparagingly, that *Interstellar* contained far more fantasy parading as science. To a large extent, Darlene's redefinition helped point me in a direction I was having some difficulty perceiving. It became easier for me to suspect Chris Nolan's primary concern had never been to craft a film based religiously on politically correct (PC) depictions of physics even though the director went to great pains consulting with Kip Thorne.

I suspect had Chris attempted to adhere to PC physics it would likely have gotten in the way of telling the story in the way the director wanted to tell it. What I seem to be suggesting is perhaps confusing since the film seemed to have gone out of it's way to have depicted PC physics, particularly in the astrophysics realm. While it may have succeeded in convincing many movie goers that it delivered on that claim I think it was a mistake to have implied that a major goal of the film was to create a sense of scientific realism. Granted, with all the obligatory CGI used to depict rocket ships and traveling space stations, of a mini-civilization habitat orbiting Saturn, of silent majestic images of Saturn utterly dwarfing a fragile space ship slowly tiptoeing in front of it, and finally, of course, the black hole, Gargantua, how could movie goers not conclude that *Interstellar* was anything but a nitty-gritty hard-core science fiction film, one based on PC physics.

The fly in the ointment is the inescapable fact that any SF film set in the future attempting to maintain a PC compliant rating will inevitably run aground when much of what transpires on the screen is based on blatant extrapolations of speculative physics. I mean physics that has yet to be accurately measured at close hand, let alone understood and possibly commercialized. (I'm still waiting for Mr. Fusion.) Granted, were Chris Nolan may share some blame for marketing his film as being a scientifically authentic film, I still think it is somewhat unfair to judge the merits of SF films like *Interstellar* on whether they failed to maintain a proper PC rating in the physics department.

It is why I decided to, just for TURBO's pleasure, come up with a different genre definition or sub-class of science fiction film. Doing so I hoped might better classify what type of film *Interstellar* is. I considered coining a more abbreviated phrase such as "science myction", pronounced "mix-shun". As far as I can tell the word, myction doesn't exist in any respectable dictionary. Therefore, it's fare game and I'll continue exploiting the term here. What I mean by science myction is that some of the alleged physics being displayed in the storytelling is allowed to incorporate unverified (or impossible to verify) scientific principals and physics. Science myction stories allow the physics of said-universe to incorporate mythic-like characteristics whereas hard core science fiction attempts to religiously maintain PC scientific standards throughout the telling of the story.

It's fair to ask, how would a science myction story be any different than the telling of a fantasy story? A key difference, as I see it, is that tales of fantasy rely on constructed universes built largely around the rules of magic as thought up by the author or screen writer. In

stories where fantasy is employed phenomenon based on scientific principles and applied physics is occasionally bypassed if not completely ignored. Science myction, on the other hand, may incorporate mythical principals into the logic, science, and physics. Myction physics can seemingly take on other-worldly mythic-like aspects

that aren't codified in contemporary text books on physics. For example, looking at the image of the black hole, Gargantua, surrounded by warped halos of light is a description of a contemporary iconic other-worldly image of mythic proportions. While there are claims the warped lighting effects are scientifically accurate

depictions of what an observer would witness close to a black hole, make no mistake about it, it's not just a black hole we're looking at. It's a gigantic, unfeeling, and ravenous monster. While the physics behind what we are seeing might have been painstakingly CGI rendered for accuracy it was done in order to help make this particular monster not just "accurate", but frighteningly believable to our 21st century sensibilities. Achieving scientific accuracy for the sake of maintaining PC physics is never the primary goal in a science myction tale. Science myction stories aren't interested in dazzling us with depictions of how accurate the physics had been rendered with CGI prowess. Science myction is more interested in enthralling us with visions of universes capable of allowing us to temporarily transcend and explore unexplored boundaries of reality we may not be familiar with. While science myction can allow us to explore aspects of science and physics we are familiar with, it is allowed to alter and extrapolate them in subtle, and perhaps not so subtle ways.

Watching *Interstellar* for me was not so much watching a science fiction story as it was watching a mythical contemporary 21st century saga. It is a tale possessed with many mythic artifacts. We see a bad-ass unfeeling monster called Gargantua. We see a shiny mirror-like bubble that turns out to be a portal that leads us to a different galaxy. We see mile-high tsunami waves reverberating through the shallow oceans of a strange alien world. We also see floating icebergs. We even get to land on one of those floating icebergs too! I would conjecture, these days, watching another film featuring *Godzilla* devour Tokyo (or New York, for that matter) doesn't seem to scare us much as watching what we

had been told is a scientifically accurate depiction of a black hole that would not hesitate to devour everything within its path. Nothing personal. It's just the normal behavior of an ravenous unfeeling monstrosity... a contemporary monster.



Fig 2: The devouring black hole, Gargantua, dwarfing the planet where seven years pass by for every hour spent on the planet's surface. Notice warped halos of intense bright light and matter surrounding a black hole.

One might think another story about saving all life on planet Earth from utter extinction is overused science fiction trope. You'd think Mr. Nolan's attempt to exploit the same trope again would bore us all silly. But it doesn't have to, not if the tale being told is done right. *Interstellar* did it effectively, at least for me in a modern mythological sense. For me, *Interstellar* turned out not so much a

science fiction film as it was a modern tale retelling the mythic adventures of a hero's journey along with his devout band of (mostly expendable) space mariners. Against all odds our heroes are forced to battle incomprehensible adversity in order to find a way to save the human race from being sentenced to a horrible fate of global starvation and asphyxiation. Unfortunately, it was not marketed as a modern mythic tale, probably because the marketing strategists saw less of a Return On Investment (ROI) if they had done so. They may have been right.

I have no idea if anyone will buy into my science myction explanation. Perhaps most will consider it a form of cultural heresy submitted by a crank. To actually give the word, myction, any credence could likely end up reclassifying the majority of science fiction films, for example *Star Wars*, *Galaxy Quest*, *ET*, *Contact*, *The Martin Chronicles*, *Blade Runner*, and *Solaris* - just to name a few. But other SF films might be more difficult to categorize as myction or fiction. For example, what about cerebral films, like Ray Bradley's *Fahrenheit 451*? We are to believe nobody is allowed to read in order to keep the masses from learning about dangerous new ideas that could upset the delicate social fabric of a well-controlled society. Forget about how hauntingly arresting and iconic the telling of *451* is. Is the story a realistic depiction of what could actually happen in our world? Well... maybe if Trump wins and society fractures in a hand basket. But sans Trump, is such a scenario feasible, scientifically? If it is feasible, it ain't myction. And what about 2001 *A Space Odyssey*. How scientifically accurate was the mind blowing star gate trip which swept Dave Bowman to his ultimate destiny

of becoming the Star Child? Do I really care that there is no way to scientifically verify any of that physics? Well, not for me! For me, it was Kubrick's depiction of physics that only a myction story can tell with breathless impact.

Science myction films might turn out to be the dominant sub-genre of SF films, whereas the genre of films that accurately depict PC science and physics could turn out to be an extremely rare gem. Come to think of it, I'm hard pressed to name a single science fiction film that remains completely PC compliant in how they apply the laws of physics. Perhaps the mistake all along had been to call science fiction: *fiction*. The "F" word in SF seems to have resulted in a lot of disagreement and disappointment.

* * *

I'm currently assembling an article to explore in more detail the occasionally acrimonious and confusing ramifications of what happens when controversial R&D projects clash with the Politically Correct community of physics. I hope to publish it in TURBO soon.

Or

What I Liked More About Interstellar Than What I Disliked

Yet Another Alternative Review

Warning: Booby trapped with spoilers.

Why didn't I end up feeling as disappointed as some reviewers felt about Interstellar. My best guess is that it became easy for me to stop judging the film on the merits of scientific accuracy. That happened fairly early on when I had to accept the absurd premise that almost everyone within the United States, and perhaps the entire planet for that matter, had somehow bullshitted themselves into believing NASA's Apollo moon program had been totally faked. Apparently the program was all just a government-run publicity stunt where the main goal was not to visit the Moon but to bankrupt Russia's economy. How such a disinformation campaign could ever have been carried out is never made clear. It seemed to me that critics were often lenient on this matter, accepting the premise that the public basically turned on NASA, presumably when survival at home started taking a nasty turn for the worst. Granted, when the planet is faced with mass starvation from an unstoppable blight plant disease which is predicted to eventually destroy plant life resulting in mass starvation and asphyxiation, taxpayers probably won't have much a stomach left over for allowing their tax dollars to be spent shooting rockets off into outer space. I either had to accept what I felt was an unrealistic premise or else dismiss everything else that was about to unfold on the

screen. I chose to accept the premise, as-is, and I'm glad I did. It allowed me to take my personal critic temporarily off-line so that it wouldn't continue to behave as if it was a nagging backseat driver constantly complaining about the way the director, Chris Nolan, was driving his film. It allowed me to let Nolan's cinematic vision take me to places the director wanted to lead me.

So, what did I find interesting, or surprising, and perhaps even entertaining in Interstellar? These are a few of my favorite things, not necessarily in cinematic order:

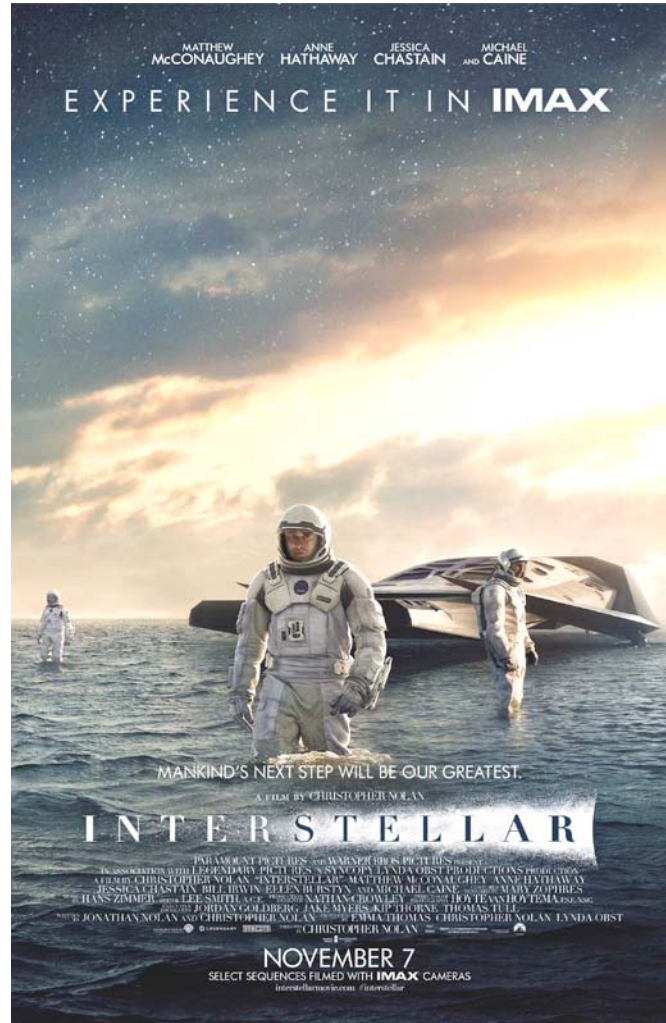


Fig 3:

- **AHOY! ICEBERG AHEAD!:** On one alien planet our intrepid space ship's wing clips a deceptively looking fluffy-white cloud, a cloud that turns out to be a very solid iceberg floating in the planet's atmosphere. This was a real WTF moment for me. Is this a scene out of Flash Gordon? Are we approaching Frigia? But, hey, it's Nolan's story, and Nolan's in the driver's seat. I'll let it pass by in the fast lane. The dirty little truth is that I enjoyed being surprised when the incident occurred. Our pilot presumably realizes they had better dodge the rest of them fluffy clouds. Eventually they end up landing on top of one. Months later, after I had seen the film

a few times more, I rationalize the possibility that had the atmosphere been sufficiently dense it is conceivable, I repeat, remotely conceivable that solid objects like gigantic mountains of frozen ice might be capable of achieving air-born buoyancy. This might possibly happen if the surrounding atmosphere becomes more dense, to the point of becoming heavier than the mass of the iceberg. Fortunately, the floating iceberg concept struck me as such a novel idea that I didn't care that the physics work-around continued to jerk me around. Just go with it, Steve!

● **CATCH A WAVE!:** I spent a lot of time thinking about this one. At first glance the terrifying mile-high waves that repeatedly sweep through the deceptively calm ocean surface on the briefly visited planet deep within the gravity well of Gargantua do not at first glance appear to be based on any form of physics that I am familiar with. Include the apparent fact that the ocean seems to be a couple of feet deep and I found myself wondering how in Poseidon's name would any wave have been capable of building up to a terrifying height greater than a foot. My understanding of the physics involved in the genesis of Earth-generated tsunamis typically involves a massive topological displacement, usually the result of an underwater earthquake or a massive underwater landslide. A displacement has to occur deep within Earth's ocean depths. But then, Bingo! That's when I came up with how it might be possible. Perhaps the majority of the ocean depth on this planet is much deeper, perhaps miles deep. Perhaps repetitively generated tsunami waves experienced on this alien planet are due to massively strong tidal forces (originating from Gargantua) that effect the planet's oceans where the depths are miles deep. I think this might be plausible if the planet is tidally locked in an ELLIPTICAL orbit around a star or black hole. As far as I know, all planets orbit in elliptical paths, some more eccentric than others. Orbiting a star in a perfect circular orbit simply doesn't happen in nature due to too many external variables. I'm therefore assuming this planet possesses an eccentric orbit as well. That means there will be repeated stretching and squeezing of the planet's mantle and oceans as the planet's rotation wobbles clockwise then counter-clockwise along in its elliptical orbital around the black hole. Ocean surface displacement where ocean depths are miles deep don't have to be altered by more than a couple of inches up or down to eventually produce huge tsunamis. The displacement just has to happen over a wide surface area of, say, hundreds if not thousands of square miles. When those subtle surface displacements eventually travel towards shallower ocean depths the massive amount of water displaced underneath the surface would start building up on the surface eventually generating huge tsunami waves. Suddenly watching mile-high tidal waves heading straight for the tiny little space ship became terrifying plausible for me. That said, I have to agree with Greg on one crucial point: Assuming thousand foot title waves were being generated the astronauts should have easily spotted these monstrosities from space. They should have prepared accordingly. I think Chris Nolan could have easily incorporated a deadly urgency of relentless tsunami waves into the challenge of visiting the planet. But, apparently, Nolan wanted to introduce the surprise element into the plot

line. Again, since I'm not in the driver's seat.

● **POMPEII, EAT YOUR HEART OUT!** If there is a lot of persistent stretching and squeezing of the planet's mantle occurring due to Gargantua's tidal forces it seems logical to assume the amount of friction and heat generated would have turned the entire planet's surface into a seething ocean of molten lava eons ago. Settling down on Jupiter's moon, IO, probably would have been much safer. But, again, that's not where Chris wanted to take his story-line. Pass!

● **CALIFORNIA SUNSHINE:** The bright daylight shown at the ocean surface of the planet in the grips of Gargantua have struck some critics as an unrealistic depiction of how much light the astronauts would have actually had to work with at the surface of the alien world. The question some have asked is where is all the "sun" light coming from when the planet is orbiting a massive black hole. According to a CGI model based on Dr. Thorne's own calculations (see Fig 2) there appear to be warped halos of intense bright light and matter surrounding a black hole. A considerable amount of the this warped light would congregate close to the accretion disk in a manner similar to the rings of Saturn. What I took away from that scenario was the possibility that there very well may have been a sufficient amount of daylight at the surface of the planet.

● **"EVERY TIME I CLOSE MY EYES I CAN TOUCH THE COLORS AROUND ME":** What about all of the intense deadly radiation the nearby planet would constantly be bombarded with, being so close to the black hole. Perhaps the planet conveniently possesses an equally strong magnetic field effectively resulting in the generation of a protective shield similar to how the Van Allen belts protect Earth. Perhaps there are spectacular northern light shows in the evening skies assuming there are places on the planet's surface where evening skies might actually exist.

● **"YOU'RE LIKE GRAVITY, PULLING ME":** We are treated to terrifying journeys through an artificially constructed worm-hole. Cooper, (Mathew McConaughey), along with his faithful AI monolith side-kick, TARS, make the ultimate sacrifice and plunge through the event horizon of Gargantua. The dark monster consumes them. While theoretical physicists have worked hard to figure out what might happen when biological life-forms meet the event horizon, most of the results don't appear to be very conducive to our survival. It's all theoretical conjecture at best, based on courageously complicated advanced math worked out by our best crackerjack theorists. But no matter, Cooper and TARS passing through the event horizon of the black hole turns out to be a pivotal plot line device. How the both of them manage to subsequently escape the appetite of Gargantua is not dealt with. Not only that they get conveniently dropped off in orbit around Saturn, which means they also had to go back track through the artificial worm hole gateway, where Cooper, along with TARS, are miraculously rescued with only minutes of oxygen left in Cooper's space suit. All this is glossed over. Again, Nolan is the driver, not me. Perhaps Nolan's Illinois I-Pass account had sufficient funds to

pay for the round tip. For sentimental reasons I wasn't going to complain that Cooper hitched a ride and lived for another day.

● **AS THE WORLD TURNS:** On a more somber note, due to the effects of dramatic time-dilation involving the close encounter with Gargantua, our astronaut hero, Cooper must endure witnessing a series of emotionally painful videos. He watches videos left for him, from loved ones who never know if what they had dutifully recorded over the decades will ever reach him. Cooper must passively watch his family relive major life-pas-sages, both good and bad. He watches helplessly as they age before his eyes. I personally didn't feel emotionally manipulated watching Cooper being wrenched back and forth as family members record passages of joy followed by chapters of despair. Considering the unusual time-dilation circumstances the crew was going through I did not personally feel as if I was being overly manipulated emotionally. It struck me as plausible gut-wrenching drama.

● **PHANTOM OF THE OPERA:** I enjoyed the hauntingly lonely musical score that lavishly employed a concert hall pipe organ at key points. I confess, I'm probably a real sucker for listening to orchestral arrangements incorporating a bad-ass concert organ, assuming the music doesn't get too churchy and the acoustics are good. Incidentally, I'm guilty of having once witnessed a naughty little organist at First Congregational Church located at old University Avenue, Madison, suddenly riff out a spontaneous little ditty of light-hearted jazz on the church's pipe organ. I suspect the organist felt a satanic need to briefly misbehave while rehearsing for next Sunday's program. I enjoyed



Fig 4:

Up close and personal with the Walt Disney Concert Hall organ, plus video of Joanne Pearace Maratgin playing Bach

his impromptu recital.

So, why did I enjoy *Interstellar*? Probably because I allowed myself to get lost in the telling of a story.

Or

Other Stuff...

Further adventures of *Confession of a Science Fiction Artist* will return in later TURBO installments. Ditto with my on-going *Kepler* R&A work.

Spring is rapidly coming to an end. No longer can I manufacture excuses allowing me to rationalize why I can't touch up the exterior of our house. Paint has been bubbling and peeling off on certain walls, especially in shaded damp areas. If I can scrape, prime and repaint the affected areas it may grant me another couple of years grace before having to bite the bullet and hire professionals do the entire house and garage. We just had our driveway repaved. That was expensive enough for one fiscal year.



Johannes, You'll just have to wait a couple of months.

Or