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See Appendix IP – Interventions Reference Sheet

“When you admire the sunset, does it admire you back?”
 – Riversong, Dr. Who, “The Husbands of Riversong” (2015)

*“All love is unrequited”*¹ – Lennier, Babylon 5, “Rising Star” (1997)

Sure as Hell: There are so many stupid, unnecessary things that happen every day in our daily lives, and it ‘*sure as hell*’ (idiom) isn’t for our benefit or enlightenment (hell is apparently a rather sure place, the only sure place in humanity’s universe). The concepts of some god guiding us to wisdom through events and tragedies in our lives are just outdated, worn out mythopoeic explanations. And what is this stupid thing exactly? It is that jackass, asinine event which, if it didn’t happen every time or nearly every time, you might think is really random, coincidental or just bad luck. Except that it happens or something idiotic happens, every time.

- ✓ Need an example do ya? You don’t know what I am talking about? Are you alive? Ok, I was just giving the cat his pill; the doctor said he has to take two of these pills (alpha blockers) per day for seven days. While giving the cat his pill, I set the bottle down and it fell over and went flying off the desk. All the tiny pills fell out, I only found one of the remaining four pills. Why did that have to happen? I was doing what I was supposed to do, caring for my cat. Yet, the stupid thing had to happen. Like being punished for doing what I am supposed to do, for doing anything at all, for living, for even getting up in the morning. You get punished by the universe for doing nothing at all too. Do you actually think this is random? Coincidence? How about if it happens every time? Like gravity.
 - Sometimes I feel like the character George Bergeron (Kurt Vonnegut, “Harrison Bergeron” (1961)).

- ✓ In July 2019, Pittsburgh Pirates closer Felipe Vázquez (né Rivero) was a sought after trade as the July 31st deadline loomed. He is considered one of the best closing pitchers in the MLB. Pirates fans were relieved when he wasn’t traded, being one of the few bright spots on the team that performed dismally after the All-Star Break; no team offered a trade that tempted the Pirates management to trade away an elite pitching anchor for next year’s team. In early September, he got into a locker room altercation with another pitcher which the broadcasters dismissed as typical end-of-the-season wear of seeing-the-same-guys-everyday; the participants were disciplined by the organization.

On September 18, 2019, Felipe Vázquez was arrested by Pennsylvania State Troopers on felony charges issued in Florida and Pennsylvania; and his locker had been cleaned out by that afternoon, all signs and promotional materials with his name or image removed from PNC Park. He instantly became a non-person, like many ex-Soviet dictators, no ‘innocent until proven guilty’ sentiments. During the game on September 18th, he was across the river incarcerated in the Allegheny County Jail, his bail denied by the Judge. On this date many teams were glad they hadn’t traded for him, while the Pirates’ *seemingly prudent no-trade decision* turned suddenly into a major headache.

- In the short term... As it turned out, the Pirates didn't need a closer anyway. From September 13 to September 22, 2019, the Pirates were clobbered by the Cubs in three games at Wrigley Field, then swept in three game sets by the Marlins and the Brewers, losing nine straight games, never needing a closer because most losses weren't close. When the Pirates finally won one over the Cubs on September 24, 2019 (the day before Vasquez arraignment), the score was equally lopsided and they didn't need a closer.

“And we have a saying that today’s tyrant is yesterday’s hero. And if you really look at the rhythm of the way things are, that’s often the case. You have political heroes, for instance... but if you go back to the classical sense, the definition of a hero, as far as we can decide, is that they’re the agents of evolution. They are the characters by which the world changes to a new order, usually for the better. They are the agents of evolution.

And they’re simply that. If they create a new order, and they love that world too much, then they become what you might-call holdfast. (This is all this stuff from Joseph Campbell who I think is by far the best writer on mythology.) They become holdfast, they love their world too much, and they want to hold on, and they won’t allow the next, natural evolution, natural change, to happen. [The world] becomes brittle and is doomed to change.

That’s what we wanted with Tina Turner; we wanted to have the sense that before she built Bartertown, she was a genuine hero. You could have told a story, almost like a Mad Max story, about her. But now, because she’s holdfast...

... Yeah, you want to keep the same thing going. We do it in families, we do it in political institutions, we do it in corporate institutions, we do in political ideologies – look at Russia, the heroes of the Revolution; it didn’t take long before they became the tyrants of Stalin. You look at tribes, at herds of buffalo, you look at anything; it seems to be a very simple rhythm in nature.”

– George Miller as quoted by Anne Billson, “George Miller Talks about Mad Max, Heroes & Tina Turner: The 1985 Interview,” previously unpublished interview published on Multiglom: The Anne Billson Blog, May 12, 2015

Entropy is not Unforeseen; Unforeseeable: Our ability to discuss entropy here abstractly as a concept and in historical hindsight implies that we may, can and do predict occurrences of entropy in fairly specific detail. With enough history and experience, one can predict or foresee that any action in a complex system will generate unintended consequences. That much is certain, but it is not the same as predicting what those consequences might be – new cottage industries arise, new forms of crime are devised, people leave or come in droves, demands might suddenly spike, new unforeseen inventions and innovations occur, processes slow or speed.

- ✓ “The different modes which nature takes to prevent or repress a redundant population do not appear, indeed, to us so certain and regular, but though we cannot always predict the mode we may with certainty predict the fact.” – Thomas Malthus, An Essay on the Principle of Population (1798).

While some events do appear to occur ‘out of the blue’ – for example, how could the Romans have predicted the displacement of the Huns from the northern borders of China? – most disruptions occur within the system (see 1 Expansion, p. 880, *infra*, for additional discussion of the

Hunnic migration). In game terms, then, players should expect most entropy to originate within the game with occasional incursions from the universe beyond the Galactic Space of the game.

- ✓ “While the late seventeenth century Europeans in India faced a declining empire, those who penetrated China found one on the ascendancy. In 1644, the Ming dynasty had succumbed to a recently formed confederation of invading northern tribes, the Manchus.... in 1662, the year following Louis XIV’s accession to absolute rule in France, an eight year old Manchu prince, Kangxi...became emperor of China. His impact on eastern Asia proved at least as great as the Sun King’s on Western Europe. During his sixty year reign, Kangxi...successfully wooed Chinese intellectuals through his respect for Confucian principles. Like Louis XIV, he subsidized classical forms of literature and learning....

Under Kangxi, Manchu China entered its golden age.... The Chinese peasantry probably welcomed the new regime. Out of the social turmoil of the 1640s emerged free tenancies and even independent peasant ownership.... He was sincerely interested in both Buddhism and Christianity and took European Jesuits as advisers. It was this tolerant, cultivated side of the emperor that captured the imagination of eighteenth-century Europe, which envisioned him as the archetypal Oriental sage, a philosopher king.” – Raymond Birn, Crisis, Absolutism, Revolution: Europe 1648 to 1789 (2nd Ed., 1992), pp. 162-163.

- Historical Accident: Prof. Joseph Tainter uses the term “historical accident” to describe the event that tips a complex civilization toward collapse; the event(s) that the system cannot handle. Merriam-Webster’s online dictionary’s definition at *accident* includes the words “unforeseen,” “unplanned,” “unexpected,” “uncontrolled,” “unfortunate,” and “lack of intention or necessity,” but the word “unforeseeable” does not appear anywhere in the definition, and that is no accident! Foreseeability is at once both a function of information processing and conscious will; we all know those who won’t (refuse to) see no matter what happened in the past or what is presented. Most historical accidents were foreseeable, even if only as speculative fiction; suppose that some speculative mind in ancient Knossos had tried to imagine the ways in which Knossos might end, understanding that nothing lasts forever? He would have been executed for sedition or sold into slavery in a distant land.
 - ✓ Pierre Curie (husband and Nobel Prize partner of Marie Curie) was killed in 1906 when he slipped and fell under a wagon while crossing a street. We tend, when we think about it, to assume traffic accidents are a phenomenon of automobiles, population and alcohol. Maybe we think there weren’t many accidents with horse-drawn wagons because horses are more intelligent than cars? Katharina von Bora, the widow of Martin Luther, was injured in a cart accident at Torgau, Saxony in a traffic jam at the city gates in 1552 and eventually succumbed to her injuries three months later. If this thinking is correct, to avoid auto accidents, cars must be made more intelligent than horses (and humans) and there would still be accidents because human pedestrians would be (are) less intelligent than cars!
- Standing on the Tracks: There are three ‘freight trains coming down the track’ – three events which at this time appear to be certain to happen in the next century: 1) Significant climate change from Global Warming (including rising oceans), 2) The Singularity and 3) Outbreaks of drug resistant or immune epidemics.² Any combination of these three added to and exacerbating existing problems, plus unforeseen collusions,³ will likely be catastrophic to global

civilization. We may not recognize the world of our grandchildren or even our great-grandchildren. The doom of humanity is probably not from alien invasion or a meteor strike. If you get hit by a train, it was because you were standing on the tracks.⁴

- ✓ “We had so much time to understand.” – Xandria, “Nightfall” (2014).

*“He knows changes aren’t permanent
But Change is”*

– Rush, “Tom Sawyer” (1981)⁵

Echo Chamber: The typical current use of “echo chamber” is somewhat derogatory (as a form of bias), as in “right wing” (or “alt-right”) and “left wing” (or “alt-left”) echo chambers.

- ✓ Example of the current use of “echo chamber.” I read an article by a conservative political columnist that was published in a regular media outlet. The article made some dubious conspiratorial assertions in the beginning, offered little evidence, and after a minute, I realized from the undertone of the article, that the writer of the article is probably one of those people who gleefully refers to liberals as “snowflakes” and therefore the assertions required no factual evidence because they were already accepted by the target audience and only needed to be recited (sort of like Biblical text). The writer was making assertions, but the tone of the article clearly suggested that it was written for the echo-chamber and that the writer was convinced of his own argument and only marginally interested in convincing anyone else. As we have recently become so aware, the social cost of the echo chamber is a breakdown of discourse that can be summed up by the old phrase, ‘you are preaching to the choir.’

While it is possible that groups of participants in this game might develop to reflect the current meaning of those terms, the term “echo chamber” as used within GGDM is intended to reflect how current real world events and circumstances (current or historical) might – intentionally or not – become part of the game or are reflected in the game narrative, actions of positions, and Interventions by the Concierge. That is, because of the scope and subject matter possible in GGDM as a literary sandbox macrosocial simulation, GGDM could and will likely become an ‘echo chamber’ of the real world of the participants. This is a similar process seen in fiction and ‘ripped-from-the-headlines’ legal drama television shows.

- ✓ To what extent do the extensive quotes throughout GGDM serve the same purpose as the current political use of the term *echo chamber*? Do extensive supporting quotes throughout the work – in the manner in which I have used them – serve to reinforce the author’s arguments while filtering out unfavorable information and other arguments – create or demonstrate cognitive bias? See Alison Griswold quote regarding Facebook filter bubbles, top of 3 Dreamtime, p. 158, *infra*, and Bob Moser quote about extremist information filtering, 1 Information, bottom of p. 1334, *infra*. What have I now just done? To what extent is a school or college paper filled with quotes – which is intended to demonstrate that the student has read and done appropriate research on the subject – simply a mechanism for enforcing the current paradigm on the next generation or a positive feedback loop to what the instructor already believes is true, playing back ideas they already find familiar and comfortable (see Andrew Oswald peer review quote, top of 2 Fallen to Earth, p. 1510, *infra*). ***Just did it again!***

- Human Drift-course: There is room within the powers and imaginations of the Concierge to introduce into the game all manner of subcultures:

Frontier Drift

“Competition between random genetic drift and natural selection play a central role in evolution: Whereas non-beneficial mutations often prevail in small populations by chance, mutations that sweep through large populations typically confer a selective advantage. Here, however, we observe chance effects during range expansions that dramatically alter the gene pool even in large microbial populations. ...

The observations presented here strongly suggest that enhanced genetic drift at expanding frontiers can dramatically alter the genetic makeup of large microbial populations. ... More generally, our experiments demonstrate that mutations at expanding frontiers can sweep through a population without any selective advantage. This observation supports theoretical arguments and genetic evidence that common alleles in a population might not necessarily reflect positive selection but, instead, recent range expansions, which have probably occurred in many species.” – Oskar Hallatschek, Pascal Hersen, Sharad Ramanathan, and David R. Nelson, “Genetic drift at expanding frontiers promotes gene segregation,” PNAS, December 11, 2007 (available free online).

Language Drift

A good example is Afrikaans, a Dutch language spoken in South Africa that, with over four hundred years of separation, shows significant divergence from the mother tongue. It is still mutually intelligible (if somewhat difficult) with spoken Dutch, but many of its forms are either archaic or odd to native Dutch speakers.

Another example is the Great Vowel Shift.⁶

Spatial Injustice

“The normal workings of an urban system, the everyday activities of urban functioning, is a primary source of inequality and injustice in that the accumulation of locational decisions in a capitalist economy tends to lead to the redistribution of real income in favor of the rich over the poor. This redistributive injustice is aggravated further by racism, patriarchy, heterosexual bias, and many other forms of spatial and locational discrimination.

Cultural Drift

“This revolution made cosmos out of chaos. Here, in the sixth century B.C., a new idea developed, one of the great ideas of the human species. It was argued that the universe was knowable. Why? Because it was ordered. Because there are regularities in nature which permitted secrets to be uncovered. Nature was not entirely unpredictable. There were rules which even she had to obey.

This ordered and admirable character of the universe was called cosmos. And it was set in stark contradiction to the idea of chaos. This was the first conflict of which we know between science and mysticism, between nature and the gods. But why here? Why in these remote islands and inlets of the eastern Mediterranean? Why not in the great cities of India or Egypt, Babylon, China, Mesoamerica? Because they were all at the center of old empires. They were set in their ways, hostile to new ideas. But here in Ionia were a multitude of newly colonized islands and city-states. Isolation, even if incomplete, promotes diversity. No single concentration of power could enforce conformity. Free inquiry became possible. They were beyond the frontiers of the empires.” – Carl Sagan, *Cosmos*, Episode 7.

Oligarchic Drift

“We will continue doing everything that we can to oppose the drift which currently exists toward an oligarchic form of society, where a handful of billionaires exercise enormous power over our political, economic and media life.” – Sen. Bernie Sanders, July 4, 2016, at the White House.

Economic Inequalities

“An imbalance between rich and poor is the oldest and most fatal ailment of all republics” – Plutarch.

“Still, whether the numbers are strictly accurate, there are clearly immense wealth and income inequalities in the world. As a global population, we are wasting human resources, allowing suffering, and expecting large portions of the population to underwrite the lifestyles of a far wealthier minority.” – Erik Sherman, “Simple Redistribution from

Note again that these processes can operate without rigid forms of spatial segregation.” – Edward Soja, “The City and Spatial Justice,” JSSJ, January 2009.⁷

Political Drift

“Every so often—perhaps once or twice in a century – ideas move the unmovable. The weight of information and experience becomes so overwhelming that entrenched ways of doing things give way. Paradigms shift. Patterns of thought change and align with a new reality. In Eastern Europe, a political philosophy that shaped an empire evaporated almost overnight and brought down a dozen regimes with it.” – “Political Drift or Paradigm Shift?” A Mackinac Center for Public Policy Report, November 1994.

“Bureaucratic drift in American political science is a theory that seeks to explain the tendency for bureaucratic agencies to create policy that deviates from the original mandate. The difference between a bureaucracy’s enactment of a law and the legislature’s intent is called bureaucratic drift. Legislation is produced by elected officials, but is implemented by unelected bureaucrats, who sometimes act under their own preferences or interests. Bureaucratic drift is often treated as a principal-agent problem, with the House, Senate and Presidency acting as principals and bureaucracy acting as the agent. The government seeks to control bureaucratic drift in a number of ways, most notably congressional oversight and procedural controls.” – from Wikipedia article, “Bureaucratic drift,” August 26, 2019.

- ✓ Think this quote is in the wrong spot? Read it again.

the Wealthiest Won’t Fix Income Inequality,” Forbes Magazine, January 16, 2017.⁸

Bureaucratic Drift

“The Peter principle states that a person who is competent at their job will earn promotion to a more senior position which requires different skills. If the promoted person lacks the skills required for their new role, then they will be incompetent at their new level, and so they will not be promoted again. But if they are competent at their new role, then they will be promoted again, and they will continue to be promoted until they eventually reach a level at which they are incompetent. Being incompetent, they do not qualify to be promoted again, and so remain stuck at that final level for the rest of their career (termed ‘Final Placement’ or ‘Peter’s Plateau’). This outcome is inevitable, given enough time and assuming that there are enough positions in the hierarchy to which competent employees may be promoted.

The ‘Peter Principle’ is therefore expressed as: ‘In a hierarchy every employee tends to rise to his level of incompetence.’ This leads to Peter’s Corollary: ‘In time, every post tends to be occupied by an employee who is incompetent to carry out its duties.’” – from Wikipedia article, “Peter principle,” August 1, 2019.⁹

“Parkinson’s law is the adage that ‘work expands so as to fill the time available for its completion.’ It is sometimes applied to the growth of bureaucracy in an organization. ... Much of the essay is dedicated to a summary of purportedly scientific observations supporting the law, such as the increase in the number of employees at the Colonial Office while the British Empire declined (he shows that it had its greatest number of staff when it was folded into the Foreign Office because of a lack of colonies to administer). He explains this growth by two forces: (1) ‘An official wants to multiply subordinates, not rivals’ and (2) ‘Officials make work for each other.’ He notes that the number employed in a bureaucracy rose by 5-7% per year ‘irrespective of any variation in the amount of work (if any) to be done.’” – from Wikipedia article, “Parkinson’s Law,” August 1, 2019.

GGDM is designed to simulate civilizations and historical process at a generally macro-level, and without such Interventions by the Concierge at least, or even with a little cooperation from the players or among the players, GGDM's civilizations might seem rather mechanical, bland and banal. It is thus the task of the Concierge to understand generally the narrative and dynamics of the game, and to not be afraid to toss in the monkey wrench (e.g., Joan of Arc, Hong Xiuquan, Marisa Coulter) at opportune and dramatic times and locations during the game; the Concierge needs to not only be thinking with the game, but also, ahead of the game.

- ✓ People who subscribe to some conspiracy theories such as the ‘white genocide conspiracy theory’ are confusing historical process with conspiracy, or trying to use wide-ranging, far flung conspiracy to explain a historical process they dislike: Rage and alienation looking for a target. There are historical processes going all the time, it is quite likely that globalization (which is what they really dislike, paradoxically enough because the Europeans caused it) has set in motion some multi-century process of genetic and cultural homogenization of humanity. But unless you believe that there was some alien or divine intervention to cause the Great Migration and the collapse of the Roman Empire, there is no conspiracy; no one to target or blame.

Katie: Time is never a problem on the God level. Or space. Whatever needed to deceive you was provided. But no more than that. That is the conservative principle in art at the God level. While I can't do it, not being at that level, I have seen a lot of it done. A skillful Artist in shapes and appearances does no more than necessary to create His effect.

Lucifer: Listen carefully. I am about to take you in to see – no, for you to be seen by – an Entity who is to me, and to my brother, your god, Yahweh, as Yahweh is to you. Understand me? ... To this Entity your lord god Jehovah is equivalent to a child building sand castles at a beach, then destroying them in childish tantrums. To Him, I am a child, too. I look up to Him as you look up to your triple deity – father, son, and holy ghost. I don't worship this Entity as God; He does not demand, does not expect, does not want, that sort of bootlicking. Yahweh may be the only god who ever thought up that curious vice – at least I do not know of another planet or place in any universe where god-worship is practiced. But I am young and not much traveled.

– Robert Heinlein, *Job: A Comedy of Justice* (1984)

Cosmic Impracticality: In 2014, William Gadoury, a teenager from Quebec, won the school science prize for his project that showed that Mayan cities, settlements and constructions aligned with the star patterns of known Mayan constellations. He even discovered a possible previously unknown city based on a missing star from one of the constellations.

- ✓ “‘The Mayans were extremely good builders, but they often built in places that made little practical sense – far from rivers, far from fertile areas. It seemed strange for a civilization that was so intelligent,’ he told the Canadian Broadcasting System.” – Mary Bowman, “Canadian teen may have discovered ancient Mayan city,” USA Today, May 11, 2016.¹⁰

The Mayans apparently had significant impracticality built into their civilization. Impracticality among humans individually, and in human civilizations, is a result of a perception of abundance and wealth without apparent end or responsibility. In most civilizations, it is the wealthy who engage in the most impractical behaviors as a matter of status, to flaunt their wealth for political purposes and to demonstrate to the masses the wealth gap (as part of their status).¹¹ This exists in all civilizations, in all times, the level of pure impracticality in every civilization corresponds to that civilization's concept of its own wealth and place in the world.

- ✓ Merriam-Webster online dictionary at *impractical*: not practical: such as: a: not wise to put into or keep in practice or effect.

Now, we also know that the Mayans had a very cosmic religion and an unusually long view, as evinced by the famed Mayan long count calendar (which is a combination of the two). If you take a culture saturated with a powerful cosmic religion and add to it a built-in level of impracticality, the result or the combination explains the recently-revealed Mayan building patterns.

That is an interesting combination, not seen many times in this world that also points somewhat to their demise; because people only become practical and resourceful when pressed by scarcity or by outside forces. If the Mayans subsequently encountered famine and drought (which also destroyed the Mississippian culture about the same time) and a dwindling of resources, but continued their traditional civilization, the probable end result is easily evident.

- ✓ “On whim, to pass a slow half-hour, she can command more energy than the entire nation of Portugal can spend today, and use it to launch a weekend satellite or remold a crater on the Moon.” – Frederik Pohl, “Day Million,” (1966).¹²

What will interstellar civilizations do with nearly infinite – limited only by their own production, transportation and consumption abilities – energy and matter? What sort of impracticalities might they develop? Some classic sci-fi answers are that interstellar ancient civilizations build monuments and enigmas around the Galaxy, or go off in seemingly pointless and petty endeavors, such as sorting sand grains by size and color.

- ✓ **Alex:** I have never been a Millenarianist. I am aware how often the number one thousand appears in the Bible, especially in prophecy – but I have never believed that the Almighty was constrained to work in even millennia – or any other numbering patterns – just to please numerologists. – Robert Heinlein, Job: A Comedy of Justice (1984).

“In the second paragraph I declare without the slightest evidence or argument, that ‘physical reality’ (note the scare quotes)... is at bottom a social and linguistic construct. Not our theories of physical reality, mind you, but the reality itself. Fair enough. Anyone who believes that the laws of physics are mere social conventions is invited to try transgressing those conventions from the windows of my apartment. I live on the twenty-first floor.”

– Alan Sokal regarding the Sokal Hoax ^{13,14}

Endnotes.

¹ Commentary: What does this say about the “love of God”?

² Citation: “At a time when germs are growing more resistant to common antibiotics, many companies that are developing new versions of the drugs are hemorrhaging money and going out of business, gravely undermining efforts to contain the spread of deadly, drug-resistant bacteria. ...

Experts say the grim financial outlook for the few companies still committed to antibiotic research is driving away investors and threatening to strangle the development of new lifesaving drugs at a time when they are urgently needed.

‘This is a crisis that should alarm everyone,’ said Dr. Helen Boucher, an infectious disease specialist at Tufts Medical Center and a member of the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria. ...

Drug-resistant infections now kill 35,000 people in the United States each year and sicken 2.8 million, according [to] a report from the Centers for Disease Control and Prevention released last month. Without new therapies, the United Nations says the global death toll could soar to 10 million by 2050.” – Andrew Jacobs, “Crisis Looms in Antibiotics as Drug Makers Go Bankrupt,” The New York Times, December 27, 2019.

- ✓ In early 2020, a news report said that it would take at least a year to develop drugs to treat and vaccines against the coronavirus. Do the math: Any outbreak that inflicts massive losses on humanity in less than a year – especially losses of trained medical professionals and researchers – would collapse civilization. According to the same news article, the coronavirus had infected 75,000 people and 2,100 had died as of February 2020, a low mortality rate and a contained example; it had not yet become a global pandemic.

³ Commentary: In late April 2020, it began to be reported that the COVID-19 (coronavirus) was found to adhere to particles of air pollution aiding its spread. That is, manmade industrial air pollution. Unforeseen collusions.

⁴ Citation: “Let’s imagine. If you glimpsed the future and were frightened by what you saw, what would you do with that information? You would go to... Who? Politicians? Captains of industry? And how would you convince them? With data? Facts? Good luck. The only facts they won’t challenge are the ones that keep the wheels greased and the dollars rolling in. But what if... What if there was a way of skipping the middleman and putting the critical news directly into everyone’s head? The probability of widespread annihilation kept going up. The only way to stop it was to show it. To scare people straight. Because what reasonable human being wouldn’t be galvanized by the potential destruction of everything they have ever known or loved? To save civilization, I would show its collapse.

But how do you think this vision was received? How do you think people responded to the prospect of imminent doom? They gobbled it up, like a chocolate éclair. They didn’t fear their demise, they repackaged it. It can be enjoyed as video games, as TV shows, books, movies. The entire world wholeheartedly embraced the apocalypse and sprinted towards it with gleeful abandon. Meanwhile, your Earth was crumbling all around you. You’ve got simultaneous epidemics of obesity and starvation. Explain that one. Bees and butterflies start to disappear. The glaciers melt. Algae blooms all around you. The coal mine canaries are dropping dead, and you won’t take the hint! In every moment, there is the possibility of a better future. But you people won’t believe it. And because you won’t believe it, you won’t do what is necessary to make it a reality. So you dwell on this terrible future, and you resign yourselves to it. For one reason, because that future doesn’t ask anything of you today. So, yes, we saw the iceberg, we warned the Titanic. But you all just steered for it anyway, full steam ahead. Why? Because you want to sink. You gave up. That’s not The Monitor’s fault. That’s yours. Put them through. Thanks for visiting, Frank. It was genuinely nice to see you again.” – Governor David Nix (speech), Tomorrowland (2015).

- ✓ ‘Bad guy’ *mens rea* monologue from Tomorrowland (2015). Mmmmm... chocolate eclairs! Director Brad Bird has been criticized broadly for being preachy, elitist, favoring gifted, superior people in his movies (gee... what a list of crimes against humanity, *Hostis humani generis* alrighty). But what if, as movie critic Matt Zoller Sitz asked in his review of Tomorrowland:
 - “*Is it a problem, story-wise and message-wise, that Frank’s chief antagonist ... makes more sense than the heroes who oppose him?*” (Italics in original).
- ✓ In case you have wondered ... GGDM would never be published without the internet, in the age before the internet, I would have needed to have copies printed and bound myself at my cost, to give away. I would have done that, without complaint. Back to the matter at hand, ideas aren’t worth anything unless business can find a way to make money from them, i.e. sell, cheat, steal. There is no value in GGDM and by extension, my time working on it, unlike an attorney, doctor, or other important person, is worthless.
- ✓ See Bad Guy discussion, 1 Entropy, p. 216, *supra*. There’s even a discussion on Reddit about this speech which people found relevant and timely and criticism of the critics who called it preachy and dark.

⁵ Commentary: One day, as the Lumpkin Revolutionary Army approached, the Wizard began experimenting with dull gray rocks and some other explosive stuff. That is why Emerald City no longer exists; but it still glows at night.

⁶ Commentary & Citation: The Great Vowel Shift was identified by Otto Jespersen; this subject that confused the h*** out of me in college, is addressed in fascinating video on The History Guy YouTube Channel (January 2020).

⁷ Commentary: The ultimate and true spatial injustice is that we have to live in this universe. Death is not a cure; assuming for sake of argument that there is an ‘afterlife,’ how can we be sure that the afterlife is not just a move from one part of the prison to another? The people who claim to know have no demonstrable evidence; the fevered mystical dreams of our ancient ancestors translated through multiple languages, are not proof.

⁸ Citation: According to a 2016 Oxfam study, the wealthiest 8 people in the world have as much as the poorest half of the world population (approximately 3 billion people). The 10 biggest corporations have revenue greater than the 180 poorest countries combined. “Study: 8 people have same wealth as the world’s poorest half.” – Kim Hjelmgard, USA Today, January 15, 2017.

- ✓ On Monday, January 22, 2018, Oxfam again reported that 82% of the wealth generated in 2017 went to the richest 1% of the world population, while on December 27, 2017, Bloomberg reported that the 500 richest people in the world gained \$1 trillion in wealth in 2017.
- ✓ “One brutal sentence sums up the dismal state of wealth disparity in the US. ‘The bottom half of Americans combined have a negative net worth,’ Ben Steverman wrote in a recent Bloomberg article. This statement is based on the research of economists Emmanuel Saez and Gabriel Zucman, who study wealth inequality. Zucman is a ‘wealth detective’ who spends hours combing through spreadsheets of tax tables, macroeconomic datasets, and international money flow calculations to find the secret money stashes of the world’s richest people. Saez and Zucman’s research on wealth inequality also found that 20% of American wealth is controlled by the top 0.1% of taxpayers – or about 170,000 families. The top 1% control about 39% of the country’s wealth, and the bottom 90% hold only 26%, despite years of economic growth in the US overall. ‘The pie has not become bigger’ in the US, Zucman told Bloomberg. ‘It’s just that a bigger slice is going to the top.’ These statistics are perhaps not surprising considering how many Americans are weighed down by substantial student debt. Millennials are saddled with more than \$1 trillion of student loan debt, Business Insider’s Callum Burroughs previously reported. And it’s not just millennials who are suffering. More than 3 million Americans aged 60 and older are still paying off their student loans, INSIDER’s Kelly McLaughlin recently reported. Credit card debt is also on the rise. More than 40% of US house-holds carry credit card debt, and the average debt balance is \$5,700, according to a 2018 report from ValuePenguin. And about one fifth of Americans don’t have any money saved up, according to a Bankrate survey.” – Katie Warren, “One brutal sentence captures what a disaster money in America has become,” Business Insider, May 24, 2019.

⁹ Commentary: In the U.S. Marines, if not the military generally, the Peter Plateau is usually called ‘terminal rank,’ usually referring to Lance Corporals, Sergeants, Lieutenants, Captains and full-bird Colonels.

¹⁰ Commentary: From 2016 to 2020, LIDAR surveys from the air have revealed tens of thousands of unknown Myan buildings in the jungle, plus a raised road network built similar to Roman roads, one road running 100 km, demonstrating a far more populous and sophisticated civilization than previously thought in one of the worst places to live.

- ✓ See “BREAKING NEWS – Hidden Mayan Road Network Uncovered in Yucatan Rainforest Using Laser Technology,” Pete Kelly YouTube Channel, April 19, 2020, for LIDAR images and information.

¹¹ Commentary: In the 1999 movie, *Hornblower: The Wrong War* (aka *The Frogs & the Lobster*), after the marquis evicted the revolutionary peasants from his home, he asked what happened to his art collection; the mayor replied, it seemed of little practical use, so they used it to start fires.

¹² Commentary: It’s a sunny warm Saturday in the spring. You decide to wash your car and vacuum out the interior. How much water do you command in an hour, how much electricity? What do you think a desert dweller would think of your semi-recreational car cleaning? Frederik Pohl, simply multiplied existing conditions.

¹³ Citation: John Gross, *The Oxford Book of Parodies* (2010).

¹⁴ Commentary & Citation: It is interesting and odd that in August 2015, nearly 20 years after the Sokal Hoax, the eminent contributors of Times High Education (THE) were holding a vigorous debate about whether to scupper the entire peer review system for journal articles and the Sokal affair is not mentioned (though it seems to have been the elephant in the room, that some of the contributors had in mind but would not call out by name). See, “The worst piece of peer review I’ve ever received,” Times Higher Education, August 6, 2015.