Table of Contents

See Appendix EPAT1 – The Existential Patents
See Appendix EPAT2 – Existential Patents Quick Summary
See Appendix POQ – Patent Operational Qualities
See Appendix TECH – Technology Progress

"[The question whether there is a patentable invention] is as fugitive, impalpable, wayward, and vague a phantom as exists in the whole paraphernalia of legal concepts. It involves, or it should involve, as complete a reconstruction of the art that preceded it as is possible. The test of invention is the originality of the discovery, and discovery depends upon the mental act of conceiving the new combination, for substantially every invention is only a combination. Nothing is more illusory, as nothing is more common, than to assume that this can be measured objectively by the magnitude of the physical readjustments required.

Courts never tire, or at least in earlier times they never did, of expatiating upon the freshness of insight which observes a little, but fruitful, change which had theretofore escaped detection by those engaged in the field. When all is said, we are called upon imaginatively to project this act of discovery against a hypostatized average practitioner, acquainted with all that has been published and all that has been publicly sold. If there be an issue more troublesome, or more apt for litigation than this, we are not aware of it. (...)"

– US Judge Learned Hand in *Harries v. Air King Prod. Co.*, 183 F.2d 158, 162 (2d Cir. 1950)

Pet Rock: In the real world, if you invent a successful product, no matter how trivial, someone will come out and say they invented it first and that you stole it from them, threaten lawsuits, even though they never wrote it down, published it, you never heard of them, and there is no way to make a connection between your invention and their idea – inventions and ideas can occur independently (e.g., bread, writing, bow and arrow) in different places and times.[1]

- ✓ "Dahl continued to work in advertising; however, he avoided interviews for years, because 'a bunch of wackos' harassed him with lawsuits and threats. Dahl said in 1988: 'Sometimes I look back and wonder if my life would have been simpler if I hadn't done it.'" – from Wikipedia article, "Pet Rock," citing to The Milwaukee Journal, "Between a Pet Rock and a hard place," (no author credited), November 15, 1988 (available free on news.google.com/newspapers).[2]

I remember the Pet Rock fad from when I was young, I didn't get it, thought it was dumb even in elementary school. Some kid in my class brought one to school, with the box and everything.

- ✓ "Although Dahl was referred to as the inventor of the Pet Rock in obituaries that followed his 2015 death at 78, he never filed for a patent or trademark. Maybe he didn't get around to it – or maybe he figured that by the time his patent was approved, his fad creation would have run its course. That assumption would have proven correct, of course. The Pet Rock buzz lasted all of a year, if that, by which time Dahl estimated he had sold 1.5 million units. That was enough time to make him a rich man, driving a Mercedes and buying a swimming pool. Marguerite Dahl said he designed and built the Carry Nations Saloon in Los Gatos." – Reid Creager, "Timing, Marketing Made the Pet Rock Roll," Inventor's Digest, July 1, 2017.
- ✓ "There is no way to patent a rock as a rock. As of a few years ago, U.S. patent law allows genetically modified organisms to be protected, although the Pet Rock wasn't really one of those.

> If the Pet Rock were a new invention, it would have required a utility patent. Utility patents must meet three criteria to be approved: novelty, non-obviousness and utility (usefulness). In other words, it has to be a new idea, one that would not strike an expert in the field as obvious, and it must have some use. Although it may sound ridiculous, when it was introduced the Pet Rock met these criteria: It was a new idea, it was hardly obvious to geologists or toymakers, and it had utility, i.e., it made people laugh.
>
> With a really good patent lawyer, Dahl might have been able to get a utility patent to protect the Pet Rock as a new invention. The easier route would have been to trademark a design, etch it onto the rock, and to acquire a design patent on rocks etched with that trademark or logo." – 'lily kang 96,' "The Pet Rock: A Story of Invention and Creativity," Patent Club (blog), March 15, 2014.[3]

"Patent prosecution before the Office should not be viewed as adversarial. Instead it should be understood to be a cooperative investigation between the Examiner and the Applicant, which ensures an Applicant receives a patent only for that which they are entitled to in accordance with the Patent laws."

– Sue A. Purvis (Innovation and Outreach Coordinator), "The Role of the Patent Examiner," USPTO (NY Region), May 22, 2013 [4]

The Galactic Patent Office: The role of the Concierge with regard to Patents is very similar to the role of the U.S. Patent and Trademark Office (USPTO); the Concierge serves both an adversarial and advisory role with regard to Patents (and throughout the game in general). The Concierge is adversarial to Patents (and players and positions) in that the Concierge serves as the critical eye, the 'devil's advocate,' 'Big Brother,' the personification of Entropy, and the limiting factor to prevent abuse of the Patent Interpretation (or anything else).

As an initial principle, there are no perfect, indestructible, final, ultimate, or unstoppable technologies (see Patently Off-limits and Un-patentable discussions in 3 Patents, p. 750, *infra*), everything has a flaw, however microscopic – even Superman had a well-known vulnerability. The Concierge is advisory in the sense that the Concierge will communicate with players and help to balance technologies, and make rulings on particular situations when they arise in relation to the Patent as the game goes; the Concierge is there to facilitate the game and hopefully, no player or group of players will take umbrage to the Concierge.

- Fuzzy Things: The main point of the Effects and Costs statements in the Patent is to describe the major attributes of the technology. They do not have to be all inclusive, rather, they have to be sufficient to form a guide or general picture of the technology; some things may be assumed, and the Concierge will fill in the details of the technology through notes in the User Manual. Each Effect or Cost statement should relate to one attribute and be effectively, one statement, but when necessary, may contain two closely related statements.
- Balancing the Pin: Obviously, the point of developing a technology is to gain an advantage; positions are seeking to gain an advantage from a new technology. To obtain the new technology, the position is required to develop and expend valuable resources and time.

In any game where players may develop special skills, house specializations, magic spells, or technology, the development of the 'whateveritis' creates a special exclusive exception to the rules (which form only the baseline of the game) for that player or position in exchange for the cost of resources and the elimination of other possibilities.

Balance should not be construed to mean that there will be no advantage from the technology, or even that it's fair to the rest of the positions in the game. *Balance means a fair (and playable) advantage gained for the effort expended*. Balancing in GGDM terms is not an equal sign in an equation; the resulting equation must be unbalanced to have gain (e.g., synergy, emergence, profit, capabilities, 1+2 must equal 5). Positions are free to expend effort in whatever direction they choose, but no position can expend major effort in every direction at once. The Concierge is free to adjust the Effects and Costs sections as necessary to balance the Patent application and make the proposed technology playable (playability is very important) prior to the processing of the Patent. After the Patent is successfully processed, the Patent may not be adjusted or changed (so players need not fear that the technology will be changed after they begin using it), only the User Manual is available for the Concierge (and only the Concierge) to enter play notes as the game continues.

- ✓ Darkness of Silverfall (DOS) is a free online PBEM game that I played back around the millennia. The game hosts up to 30 players, and the premise of the game is that the Dark Lord has installed ten 'battlestations' near the center of the play area to create a black hole that will pull in all planets in the game area. A toothless non-player supreme counsel of Wizards who own the five neutral trading planets near the center, need the player races to find and destroy the Battlestations before the singularity catastrophe. All's well, because it never happens, the players cooperate in the beginning of the game and launch their attacks in time (it's a good mechanic to encourage player diplomacy); after the Dark Lord is stopped it's a free-for-all interstellar war to the end of the game. The problem with the game is the structure. The Wizards dole out rewards and special technologies (the only technological progression) throughout the game based on criteria such as number of ships, money, industry, etc. to the positions with the least (to level up, catch up), the 'most mediocre' (to push them forward) and the most/best (to reward them for achievement). This creates a situation where positions get rewarded for doing poorly in the game as well as for excelling, or being average. The pinball-game logic of this was that DOS was originally a pay-to-play PBM game and the rewards were to keep players paying instead of dropping out.

GGDM is structured much differently, I do not anticipate this being an issue, but it is an argument for why the Concierge is *not* 'rewarding' positions, is not 'fair' (in a childish sense), and is *not* to 'level-up' game positions through Interventions or Patents (or any other Interpretation). The Concierge will not issue 'make up' calls like an umpire or referee in sports.

- ✓ See previous Darkness of Silverfall discussion regarding cheating, 1 The Sidereal Stage, p. 111, *supra*, and spatial injustice discussion, Never Achievable, 3 Expansion, p. 908, *infra*.

➢ Razor Blade Floating on Water: The Concierge may take into account the circumstances of the game and any relevant factors at the time the Patent application is submitted. These may include, but are not limited to, the industrial base of the position (manufacturing expertise), the types and numbers of Applications on the Matrix at that time (e.g., a position who has

90% weapons and energy Applications, will have a difficult time developing a new colony ship technology), Fundamental Realities, Government Titles (and sociopolitical factors), the type of Patent under consideration, and other Patents and consistency with previous Patents, and anything else that seems relevant.

- ✓ Maria von Wedemeyer was the fiancé of Dietrich von Bonhoeffer who was executed by the Nazis about a month before the Germans surrendered. She studied math at the University of Göttingen (according to the NY Times and encyclopedia.com) and possibly at Bryn Mawr College (according to Elizabeth Raum), and emigrated to the United States in 1948 (Bryn Mawr College is located in Pennsylvania, so both could be true). Thereafter, she worked for Remington Rand and Honeywell corporations on minicomputers, pioneering computer science, especially in emulation capability. She died in 1977, but her posthumously published collection of love letters provides an important historical source on Dietrich Bonhoeffer.[5]

  The lives of many German citizens intersect in this way in post-WWII between sociopolitical circumstances of their youth or early careers and later importance in contribution to technological and scientific advances wherever they happened to be living after the war. For these people, the choice of science and technology was an act against the futility and human failings of their birth nation and western civilization in their youth, math in particular is held by scientists, engineers and technologists to be the code of the universe and not of humanity, free of party ideology and failings.

"The politicization of the education system essentially replaced academic tradition and excellence with ideological adherence and trappings..."

– from Wikipedia Article, "German Nuclear Weapon Program," captured May 22, 2018 [6]

Deutsche Physik: One of the best-known and most thoroughly-studied examples is the failed German Nuclear Weapon Program during WWII. Much blame has centered on the politicization of German academia where, as well as, causing the emigration flight of certain famous scientists and a generation of lesser known colleagues from Germany in the 1930s, they sought to make physics 'German' or 'Aryan.'

- ✓ Nazi ideology had a problem – the most important discoveries in physics in the last three generations were made by people from groups they considered racially inferior. Subtracting the contributions of the 'racially inferior' German colleagues, German science in any field was not demonstrative of racial superiority. Remember Jesse Owens at the 1936 Berlin Olympics? It was all about racial superiority.

In place of tradition and critical excellence, the anti-Semite, *Deutsche Physik* movement – not just a club for colleagues or to insure scientific loyalty to the state – attempted to make physics 'Aryan' and to ignore or discount all non-Germanic contributions (especially or mainly from Jewish scientists) to physical sciences, by ignoring relativity and quantum physics.

Heisenberg, the 1932 Nobel Prize laurate in Physics, was called a "white Jew" by Himmler (a man whose education was *agriculture studies*) in an SS newspaper editorial, for lecturing on Albert Einstein's theory of relativity; Himmler suggested he should be made to disappear. *Id.*

- ✓ Wikipedia article cites to: "Klaus Hentschel (Editor) and Ann M. Hentschel (Editorial Assistant and Translator) Physics and National Socialism: An Anthology of Primary Sources (Birkhäuser, 1996). In this book, see: Document No. 55 'White Jews' in Science [15 July 1937] pp. 152–157."

Only racists would concern themselves with the irrelevant race and ethnicity of a scientific discoverer or inventor. Although the German *Deutsche Physik* took it to extremes, they were not the first to confuse science with social policy or nationalism or alleged racial superiority:

- ✓ "Despite the second Nobel Prize and an invitation to the first Solvay Conference with the world's leading physicists, including Einstein, Poincaré and Planck, 1911 became a dark year in Marie's life. In two smear campaigns she was to experience the inconstancy of the French press. The first was started on 16 November 1910, when, by an article in Le Figaro, it became known that she was willing to be nominated for election to *l'Académie des Sciences*. Examples of factors other than merit deciding an election did exist, but Marie herself and her eminent research colleagues seemed to have considered that with her exceptionally brilliant scientific merits, her election was self-evident. Notwithstanding, it turned out that it was not merit that was decisive. The dark underlying currents of anti-Semitism, prejudice against women, xenophobia and even anti-science attitudes that existed in French society came welling up to the surface.

  Normally the election was of no interest to the press. The most rabid paper was the ultra-nationalistic and anti-Semitic *L'Action Française*, which was led by Léon Daudet, the son of the writer Alphonse Daudet. [Maj. Alfred] Dreyfus had got redress for his wrongs in 1906 and had been decorated with the Legion of Honour, but in the eyes of the groups who had been against him during his trial, he was still guilty, was still 'the Jewish traitor.' The pro-Dreyfus groups who had supported his cause were suspect and the scientists who were supporting Marie were among them. Jokes in bad taste alternated with outrageous accusations. It was said that in her career, Pierre's research had given her a free ride. She came from Poland, though admittedly she was formally a Catholic but her name Sklodowska indicated that she might be of Jewish origin, and so on. A week before the election, an opposing candidate, Édouard Branly, was launched.

  The vote on January 23, 1911 was taken in the presence of journalists, photographers and hordes of the curious. The election took place in a tumultuous atmosphere. In the first round Marie lost by one vote, in the second by two. In all, fifty-eight votes were cast. A Nobel Prize in 1903 and support from prominent researchers such as Jean Perrin, Henri Poincaré, Paul Appell and the permanent secretary of the *Académie*, Gaston Darboux, were not sufficient to make the *Académie* open its doors. This event attracted international attention and indignation. It deeply wounded both Marie and indeed Édouard Branly, too, himself a well-merited researcher." – Nanny Fröman, "Marie and Pierre Curie and the discovery of polonium and radium," nobelprize.org, captured October 31, 2018.

We have this 20th Century history behind us, but can anyone say with certainty that this will never happen again? There is a brand of lunacy in it that would be dismissed as ludicrous, except that we know it happened (see 1 Dreamtime generally, *supra*, for Facts discussion). And that the same sorts of things happen over and over again.

- ✓ Heisenberg, crucial to The Man in the High Castle, was captured May 1, 1945.

The development of the nuclear weapon during and before WWII would be a milestone, equivalent to a Patent in GGDM (if it wasn't a pregame technology), discovery of fission in 1938 might be a Research Piece or Group. The Concierge has many Interventional tools available to simulate this sort of situation in GGDM, throughout the technology process and in Colleges.

"Science is a collaborative enterprise spanning the generations. When it permits us to see the far side of some new horizon, we remember those who prepared the way, seeing for them also." – Carl Sagan, Cosmos, Episode 5

Operational Qualities: Each Patent in GGDM is both a collaborative effort and a new horizon in the current game universe.

As noted previously, the Operational Quality assigned to the new technology has a major effect on the rest of the Patent. If you take a moment to think about the range of all of the possible technological ideas; all of those ideas can be broadly classified into two categories (just as we broadly classify all life as either plant or animal): technologies that introduce major new physical items or things or devices, and technologies that improve or enhance or add to existing physical items, things, or devices.

- ✓ This is similar to the Primal States, which consists of those species that were already in the Galactic Space and those which enter the Galactic Space at or near the beginning of the game. Each category is then divided into three possible Primal States.

Within this game, each of those two categories is further divided into two subcategories and those four subcategories form the four 'types' of technologies available, and define the Operational Qualities of those technologies, as follows:

- Physical Item Technologies (PITs): Physical Item Technologies introduce into the game the capability to produce new physical items, mainly ships, that function as the major units of the game (see View from a Height, 1 Construction, p. 660, *supra*, for discussion of game units concept). Generally, these physical items are intended to be mass produced and available throughout the entire position, wherever the capability exists to produce them. Any Patent for a ship *must have at least one Stardrive Application*.
  - ✓ Patents for Physical Item Technologies must have at least two and no more than seven Applications, and do not have an automatic 'base cost' (in RPs), rather, due to the variable nature of the possible physical items, the cost will be determined by the Concierge. PIT Patents include and assume all of the minor and lesser technologies required to make the new physical item work within the game.
  - ✓ 'Base Cost' as used here refers to the Cost section of the Patent where cost per unit is set in RPs; 'base cost' is simply a relative RPs cost guideline for Patents, it *does not* refer to any cost in RPs to prosecute the Patent (there is ***no RP cost*** to activate the Technology Power for the purpose of Patent prosecution, see Back to the Drawing Board, 3 Patents, p. 748, *infra*.) The 'cost' of Patent Prosecution is getting Applications on the Matrix and Technology Power activations.
  - ✓ A PIT Patent for any starship may not be prosecuted (or bought with IPs during the setup process) unless the position has first obtained a stardrive patent (i.e. the Generic Stardrive Existential Patent), because what is a starship without a stardrive? Further,

only the Scout Ship Existential Patent may be obtained if the position does not have the Ship System Existential Patent.

- Continuous Operational Technologies (COTs): A Continuous Operational Technology is one that presents a minor, non-expendable, improvement in an existing technology (i.e. Patent), e.g., gradual improvements in ship speed, or industrial production, or the range of an existing weapons system. Continuous Operational Technologies *may not add new capabilities* to units or installations, only improve the performance or output of existing systems/units.

  - ✓ Continuous Operational Technology Patents may only have two **Effects** and must specify another previously successful Patent for a Physical Item Technology, Enhancement Technology or Continuous Operational Technology, to which the COT Patent is related. The COT Patent may not be submitted in the same Regular Turn as the Patent upon which it depends. Generally speaking, the 'base cost' of the COT Patent is the cost of developing it, and as such, *in most cases*, no RP cost will be assigned per unit to 'upgrade' the units, installations or enhancements to which the COT Patent relates.[7] The Concierge may take into account, however, the number of current items to be affected, and may impose minimal RPs cost to 'balance' the COT Patent. Time delays while upgrading are also an option for balancing the proposed COT Patent, e.g., upgrade when ships return.
  - ✓ Because Effects must equal the number of Applications minus one, this means that all COT Patents will use three Applications, no more, no less. See Effects, 1 Patents, p. 731, *supra*.
    - Delays in implementation of new, imperfect technology and improvements are at the core of Arthur C. Clark's classic 1951 short story, "Superiority," where the vastly technologically superior human fleets were overwhelmed by less advanced, but more numerous attacking aliens, leading to the surrender of Earth. Everyone blamed the R&D department for the humiliating loss. A parallel of Clarke's "Superiority" was, perhaps inadvertently, played out in the 1981 Eurisko AI situation quoted at length in Imperial Admiral Eurisko, 4 Colleges, p. 512, *supra*. See also WWII history.

- Enhancement Technologies (ETs): Enhancement Technology is the only means to add new capabilities or 'dimensions' to existing physical items, colonies, and colony installations technologies. Such enhancements may be expendable, like Ship Missiles, or may require a unit upgrade cost for the existing ships and installations to use the new capability. Most things built on colonies, such as industry and defenses, will be colony enhancements and are thus Enhancement Technologies.
  - ✓ The easiest difference between a COT and an ET is that a COT adds 'more of the same' whereas an ET adds 'something new' to an existing technology or game unit. There could be some fuzzy borderline cases.
  - ✓ Enhancement Technology Patents must use at least two Applications. If an ET Patent is not a colony installation or if it improves on existing colony installations, it is required to list an existing Patent upon which it is based, and an ET Patent may not be processed in the same turn that the Patent upon which it is based is approved. The base cost in RPs of an ET Patent is 5 RPs times the number of Effects used in the ET

Patent. An ET Patent may use between two and four Applications (hence, have one to three Effects).

- Technological Devices (TDs): Technological Devices are the ultra-powerful, extraordinary (within the setting), possibly one-of-a-kind or rare physical items that are not generally capable of being mass produced. For example, the dynamite-stick like Illudium Q-36 Explosive Space Modulator. Technological Devices are sometimes installations on colonies, sometimes they can be enhancements to existing ships, and sometimes, they can be a third major unit in the game. The key to Technological Devices is the think BIG.

  - ✓ Technological Device Patents require at least five, and no more than nine Applications, and have a base cost of 50 RPs times the number of Applications for production of each such device. Additionally, the Cost section must contain a statement limiting the number of such items on some logical basis, such as one per planet, one per system, or even one of a kind, for example. This may involve some storytelling.[8]

Technological Device Patents can act as either Physical Item Technologies (PIT) or Enhancement Technologies (ET), *ut supra*. Not all Technological Devices have to be massive weapons or useable as a weapon, but they usually are in video science-fiction:

- ✓ "Frequently, the Wave Motion Gun [as a TV trope/archetype big weapon] is made of Lost Technology, or is an experimental prototype, but sometimes they're a dime a dozen. It also explains how a small fleet can win consistently against enemies that grossly outnumber them: the defense units just have to hold their ground until the Gun(s) is ready to fire. Invariably, just before firing, The Captain has to order the attack." – TV Tropes (tvtropes.org), "Wave Motion Gun," December 19, 2018 (because the captain's only job is to look heroic and order the big gun to fire! – like Lt. Tawny Madison in Galaxy Quest (1999)[9]).

As mentioned in View from a Height, 1 Construction, p. 660, *supra*, the game has two major units: Colonies and Ships. Typically, something that would already be considered a unit in the game will not be a Technological Device, no matter how big. Therefore, for example, a Death Star is a starship, and no matter how big, it was intended to be mass produced (e.g., DS-1, DS-2) and the only production limitation was cost and time, so it would not be considered a Technological Device. However, the main weapon of DS-1 that could destroy a planet might be a Technological Device (acting as an ET). *The line can be a bit fuzzy.* On the other end of the scale, the Magogg Worldship in the Andromeda television series, consisting of twenty planets around a captive artificial sun, is one of a kind and would be a technological device (even if it is a 'generation ship,' a PIT) as would its main weapon, the Point Singularity Projector, that fired miniature black holes (as an ET) in that universe.

"The word enigma didn't jump from referring to riddles to referring to people. In between those uses, it was (and still is) applied to things that puzzle people. Egypt's meticulously constructed Pyramids of Giza or a theory of quantum physics, for example, might be described as enigmas. In these uses, the meaning is simply a figurative extension of the original 'riddle' sense."

– Merriam-Webster online dictionary article, "Are you an enigma?"

Enigma: Technological Devices in GGDM border into the area of 'enigmas' – their rarity, uniqueness, unknown technology and outlandishness make them enigmas to future populations in the game universe. Technological devices can be small things, but taken to extremes in science-fiction imagination, they are often monumental, shading over into the interstellar neo-Egyptian trope of 'monument builders.'

- ✓ "Champollion was overwhelmed by the grandeur which surrounded him. 'It is the union,' he said 'of grace and majesty in the highest degree. We in Europe are only dwarfs. No nation, ancient or modern, has conceived the art of architecture on such a sublime, great and imposing style as the ancient Egyptians. They ordered everything to be done for people who are 100 feet high.'" – Cosmos, Episode 12.

A couple of modern real world strange musical instruments provide a range of examples related to the 'Technological Devices' in the GGDM sense here.

- ✓ While the Great Stalacpipe Organ is one of a range of litophone instruments, it is a unique, one-of-a-kind instrument, it exists only in the Luna Caverns in Virginia. Because of its location-specific construction, it will not be mass produced. Some primate shaman will find it 100,000 years from now and construct a religion around it.
- ✓ Wintergaren's Marble Machine could theoretically be mass-produced, but it will not be; it is a unique hand-constructed instrument for that band, and there is no market for it outside the band that constructed it. They have gained some notoriety from it, some trademark identity, and there is a video on YouTube.
- ✓ The strange-looking hurdy-gurdy, on the other hand, has been reduced in size from Medieval times and modern mass produced and is a staple of folk music festivals. There is even a fine young lady singer who plays the hurdy-gurdy and has adopted the instrument as part of her stage name, search for Patty Gurdy videos on YouTube.
- ✓ Finally, instrumentalist William Close created the Earth Harp, the largest stringed instrument in the world with 300m strings. Though the original one-of-a-kind instrument was constructed in Santa Monica, California, the instrument has been replicated and adapted to stage performance by a few musical groups.

The TARDIS is a one-of-a-kind, not-capable-of-being-reproduced, technological device in the Dr. Who universe. There were once many TARDIS ships – as shown in the repair shop scene where many TARDIS ships were lined against a wall. The TARDIS is considered the "most powerful warship in the universe" despite having no weapons or armor. Dr. Who features a number of Technological Devices, usually universe-destroying weapons – sort of a fetish of the show – such as The Moment, the handheld De-Mat Gun, the Reality Bomb, the Pandorica – and when the TARDIS explodes, it destroys the universe and causes a second Big Bang.

- ✓ "Trillian deduces that the Krikkiters have been manipulated, reasoning that the people of Krikkit could not simultaneously be smart enough to develop their ultimate weapon – a bomb that could destroy every star in the universe – while also being stupid enough not to realize that this weapon would also destroy them. The characters discover that the true force behind the war has been the supercomputer Hactar. Previously built to serve a warfaring species, Hactar was tasked to build a supernova-bomb that would link the cores of every sun in the Universe together at the press of a button and cause the end of the Universe." – from Wikipedia article, "Life, The Universe, and Everything," August 15, 2019.

- Life, The Universe and Everything (1982) was originally intended as a Dr. Who serial. As 1982 was near the end of the Cold War (though we didn't know it at the time), doubtless the Krikkiters weapon is a parody of the global obsession with nuclear weapons on Earth.

Control of massive natural phenomenon may also constitute a TD or require a TD Patent, for example, the Logopolitans control of CVEs (Charged Vacuum Emboitment) which they used (via Block Transfer Computation) to attempt to stave off the heat death of their universe in the Fourth Dr. Who episodes. This is analogous to someone on Earth, either now or in ancient times, having the ability through a device to control the movement of Luna. In Stargate SG-1 episode "Demons" (1999), the ruler of a village on a medieval Christian world had a ring on his finger that could very precisely control the weather, though there might have been many of those in the universe, it was an enigma and a TD to that setting.

"Their opinion might be roughly summarized in the words of Arnold Toynbee: 'With the increase in our power, our sense of responsibility and our sense of distress increases.' Toynbee has said that the growth of science and technology makes more acute the disparity between the real and the ideal."

– Brian Aldiss, Galactic Empires Vol. 1 [10]

The Rive: Has technology replaced the gods in the irony of modern humanity? That we have so much, but also are so little – secular removal of the parental god has left us small people on a small planet – and are seemingly very distant from our ideals. How will this play end? We at least avoided burning down the house so far, but ...

- ✓ "The expression cosmic irony or 'irony of fate' stems from the notion that the gods (or the Fates) are amusing themselves by toying with the minds of mortals with deliberate ironic intent. Closely connected with situational irony, it arises from sharp contrasts between reality and human ideals, or between human intentions and actual results. The resulting situation is poignantly contrary to what was expected or intended." – from Wikipedia article, "Irony," January 22, 2019.

I can see at least a plausible argument that Toynbee's observation of disparity is the origin of the dominance of modern ironic humor, in frustrated humor we sarcastically say what would have been ideal (e.g., 'Nice play, but he forgot something important – the puck!' or the common laconic-ironic responses, 'Not!', 'Dream on!', 'Right!' (or Bill Cosby's "Riiiight!") or 'Uh-huh!') in opposition to what actually happened or is expected to actually happen. We have been an increasingly frustrated people for the last three centuries and it almost killed us, and may yet.

Indeed, frustration is the cause of most sapient distress. We can see how things should be, should work, *ought to be*, in an ideal world or even the ideal way the job in front of us should proceed, and then what actually happens, *what is*. Mr. Toynbee had an early idea of what has become clearer now. Our ancestors either accepted that the chaos in their lives was unexplainable, or bad combinations of random chance, or more likely, invented mythopoeic explanations for it. But the chaos is too regular, too petty, and too predictable and certainly is a phenomena that we can now contemplate. We now have the framework to recognize the 'fracture' of the original order of the universe that are the emergences called life and sapience (see Order of Genesis, 1 Order, p. 522, *supra*), and the fault line is the petty chaos of our daily lives, all the stupid little

things that happen almost predictably in the pettiest ways. This fracture is both the frustration of sapience and the special relationship of sapience to the universe.

- ✓ "'Do not create an ideology out of something that a young girl has to say,' says Naomi Seibt, apparently without a trace of irony." – Harry Cockburn, "Anti-Greta: Far-right groups trying to turn teenager into climate change-denying version of Greta Thunberg," The Independent, February 25, 2020.[11]
- ✓ See Turbulence of Being discussion, 1 Entropy, p. 223, *supra*.

"In the 'Bad Nauheim Debate' (1920) between Einstein and (among others) Philipp Lenard, the latter stated the following objections: He criticized the lack of 'illustrativeness' of Einstein's version of relativity, a condition that he suggested could only be met by an aether theory. Einstein responded that for physicists the content of 'illustrativeness' or 'common sense' had changed in time, so it could no longer be used as a criterion for the validity of a physical theory. Lenard also argued that with his relativistic theory of gravity Einstein had tacitly reintroduced the aether under the name 'space.' While this charge was rejected (among others) by Hermann Weyl, in an inaugural address given at the University of Leiden in 1920, shortly after the Bad Nauheim debates, Einstein himself acknowledged that according to his general theory of relativity, so-called 'empty space' possesses physical properties that influence matter and vice versa."

– from Wikipedia article, "Criticism of the theory of relativity," captured September 4, 2019 [12]

Endnotes.

[1] Commentary: This latter happens to me all the time. Sometimes I see an article that has a striking idea that is new to me, e.g., Kate Becker's 'quantum intuition' article, but most often in designing GGDM, I find articles or stumble on quotes or writings that support, accord with, or add to commentary and ideas I had already expressed years ago in the GGDM text. Do I suffer from confirmation bias? Or am I part of a larger churning process where multiple intellectuals arrive at the same ideas, conclusions, insights, concepts independently from their own angles, publish them and others publish them as reinforcement or addendum to their own somewhat similar thinking? Is anything new?

[2] Citation: "But wealth and fame came with burdens. Dahl was reportedly sued by one of the Pet Rock's original investors and had to pay a six-figure settlement. Gimmick inventors crawled out of the woodwork to pepper him with the next Pet Rock. 'I'm sick of the whole damn thing,' he told the Houston Chronicle. 'Most inventors call me because they've come up with their own novelty idea. A pet stick or pet poop or pet gravel. I've seen them all – they're all bad. …' 'There's a bizarre lunatic fringe who feel I owe them a living. Sometimes I look back and wonder if my life wouldn't have been simpler if I hadn't done it.' The Chronicle dispassionately summarized his life, post-Pet Rock: 'Dahl got rich, got cocky, had a damn good time, opened a bar, bought a big house, drank too much.' He 'sold his bar, dreamed up a few clever but cataclysmic marketing flops, took up golf, got a real job, sued, got sued, felt betrayed.'" – Reid Creager, "Timing, Marketing Made the Pet Rock Roll," Inventor's Digest, July 1, 2017.

[3] Citation: Text from this article was quoted at the bottom of the preceding Inventor's Digest article without a link or date, referencing just "The blog Patent Club." I found the original Patent Club article by Google search at https://lilykang96.wordpress.com/2014/03/15/the-pet-rock-a-story-of-invention-and-creativity/. Presumably the author is 'lily kang 96' as no other author is attributed. No qualifications were provided for the author, the blog's About page is just a standard template and the blog seems to be inactive since December 15, 2014.

- ✓ In presenting this, I exercise my own judgment. What lily kang 96 states seems to accord with my own ***non-attorney*** understanding of patent law in the U.S. as a litigation paralegal of many years.

[4] Citation: https://www.uspto.gov/sites/default/files/about/offices/ous/PatentExaminerRole_20130514.pdf.

[5] Commentary & Citation: Information on Maria von Wedemeyer is sparse on the internet, information here comes from articles on encyclopedia.com (mostly repeating the NYT obituary article, available free online in NYT archives) and awesomestories.com (captured May 26, 2019), the latter of which cites extensively to (and quotes) Elizabeth Raum, Dietrich Bonhoeffer: Called by God (2002).

[6] Commentary: Sort of like working on the White House staff.

[7] Commentary: The most pervasive current example of a COT are the constant, annoying, interminable, mostly unnecessary 'upgrades' and 'updates' pushed out by software and OS providers for their products to justify their jobs.

[8] Commentary: Godsfire boardgame was published in 1976 by Metagaming, a year after they published Stellar Conquest. Godsfire is and was considered one of the most complex and 'realistic' strategic interstellar conflict games ever designed. Unlike most war games, and much like GGDM, it focused on politics, economics and sociology as much as the warfare; it also had a three-dimensional movement system on a flat game board. I have never played Godsfire or read the rules (I don't own a copy and have not seen one in many years); I looked at a copy of it briefly in 1985 when I was playing Stellar Conquest at The Caisson E-club on Ft. Sill, OK, but it was too complicated to learn and play quickly so the gaming group passed on it. However, the game was legend, especially for the Godsfire mechanic: Too many ships equipped with Stardrive in the same system at the same time could tear a rip in reality and release the catastrophic *Godsfire* event which would explosively flood the entire star cluster with extradimensional radiation. This is an example of a TD-like reasonable restriction of numbers of devices in a system.

- ✓ I have become aware from reading commentaries about Godsfire that GGDM may be considered in many respects similar to that vaunted boardgame. Three insightful comments by BGG user cannoneer were striking: The first that the space combat system is pedestrian once you get past the unique 3D movement system, and second that the designer abstracted the right things; he also noted that the game is better political theory than game. BGG user Rick Smith (from Canada) notes that "The designer innovates, innovates, innovates, but things don't QUITE come together" (emphasis in original). All of these things I sadly fear may be true also of GGDM.

[9] Commentary: I usually don't go for comedy movies, science-fiction themed or otherwise, but Galaxy Quest was surprisingly well done. This is one instance where I agree with the critics.

- ✓ I've never been a sitcom viewer, not even when I was young. Sitcoms are cheap humor punctuated with fake audience laugh tracks, and like cheap wine, you get what you pay for. And the cheapest humor is to make fun of intelligent, educated, career adults and prodigal, gifted youth.

[10] Commentary: This quote is referenced in 2112 Absurd Words, *supra*.

[11] Commentary: When I read this, I thought, did someone write that line for her? Did she read it somewhere? Did she not think it sounded odd when she said it? Has she not heard of Mary who claimed she was still a virgin?

[12] Citation: "On the other hand, Einstein stresses that illustrativeness is a changing concept. The Galilean mechanics is for us the highest point of illustrativeness, while it was very non-illustrative for Galileo's contemporaries. And in the present we find electricians, for whom nothing is more illustrative than the electric field, and for whom the electrical phenomena even become images for mechanical ones. Thus one cannot use such a changing concept for or against the theory. To the example of the decelerating train he remarks, that this is without any doubt an interaction between masses, and for the success it is irrelevant, which mass is moved against the other. To let decide the 'common sense' in this question, is no less problematic as it was before in respect to illustrativeness. To the example of the rotational motion it has to be said, that the role of the speed of light in the general theory of relativity is completely different as in the special theory, and that the first requires no constant speed of light at all. – Nearly all other speakers in the debate agreed with Einstein in the essential points – for example von Laue, Mie (who responded to Lenard that the aether was abolished not only by the theory of relativity, but already three decades earlier by H. A. Lorentz) and particularly inspired by Born, who feels attracted to Einstein's theory just because of its illustrativeness." – translation from K. Körner, Die 86. Versammlung der Deutscher Naturforscher und Ärzte in Bad Nauheim (1921), Zeitschrift für Mathematischen und Naturwissenschaftlichen Unterricht, 52, pp. 79-84 (translated 81-82) on Wikisource at https://en.wikisource.org/wiki/Translation:The_Bad_Nauheim_Debate.