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“The biggest population shift in modern times has been the colonization of the New World by Europeans, and the subsequent destruction of Native Americans (American Indians).”

– Jared Diamond, Summary of Guns, Germs, and Steel (2017) p. 9

Circumambulation: When Columbus (or the 10th Century Norse) discovered the New World,¹ it was the unfortunate meeting of separate prongs of humanity that had migrated out of Africa millions of years earlier, the closing of the circle that humanity had circumambulated through the Earth’s land masses. This poetic observation that I have not seen mentioned elsewhere, was probably the inspiration for Harry Harrison’s April 1964 Galaxy Magazine short story, “Final Encounter,” in which humanity has been migrating and exploring around the edge of the galaxy and meets on the other side of the galaxy, a seemingly alien species with different physiology, advanced technology, and unknown language and alphabet, only to discover that the ‘aliens’ were the evolved descendants of the other human civilization that left Earth and explored and colonized in the other direction around the edge of the galaxy, hundreds of centuries earlier.

As science-fiction literature is most always a reflection of Earth history (usually the bad kind), after a period of time (possibly centuries) the new extra-planetary, extra-solar colonies will develop, outgrow, and eventually throw off the political, military, and economic controls of Earth, which like the Old World in modern history, is worn out and consumed by its own internal bickering, while the new colonies have endless potential and a new start. This is the template for nearly all social science-fiction stories about space colonization.

- ✓ An interesting discussion I had at a game day recently was the fate of the Earth in various science-fiction universes and short stories. Frequently, Earth is either destroyed, or rendered uninhabitable by interstellar wars (e.g., Asimov’s Robots, Empire and Foundation series, The Matrix movies, the Aliens movies), or simply becomes a low population or almost abandoned backwater. Sometimes its location is even forgotten or it is considered mythical (e.g., Dune, Battlestar Galactica). Rarely the Earth fares out well enough (e.g., Star Trek) or survives but is much changed (e.g., Warhammer 40K).
- ✓ In Jerome Bixby’s The Man From Earth (2007), John, who claims to be 14,000 years old, described his prehistoric wanderings as he simply followed the Sun, and thus wandered through India, Nepal where he met Buddha, and ended up in Rome during the early Empire. This tale astutely reflects the Great Migration followed by migration to the New World and across the North American continent to the Pacific Ocean.

A Hitchhiker’s Guide: Expansion consists primarily of two groups of activities:

- 1) Searching and exploring new stars, planets and **alien colonies** (i.e. Exploration),
- 2) Loading, Transporting and Unloading or Landing colonist to either create new colonies or expand existing colonies (i.e. Colonization).

Thus, the Expansion Power must be activated for any of the six following purposes:

1. Looking (Exploration),
2. Scouting (Exploration),
3. Loading Population (Colonization),

4. Transporting Population (Colonization),
 5. Unloading Population (Colonization),
 6. Landing Population (Colonization).
- Exploration: Activation of the Expansion Power for the purpose of Looking requires one Act, and one Scene on the star that is being used for the Looking while activation of the Expansion Power for the purpose of Scouting requires one Act. One activation of the Expansion Power for the purpose of Scouting allows any number of Scout Ships to depart from one starsystem (no Scene required), whether or not controlled by the Scout Ship's owner, to any number of *unsupported* destination systems (i.e. no Supporting Colony).
- ✓ No checks are made for failure to obey Expansion Power Activations for the purpose of Looking or Scouting, that is, they will never fail to execute due to inactive Constructural Elements (see Power Off, 2 Constructural Elements, p. 193, *supra*).
 - ✓ Looking attempts may not receive the benefit of Enlightenment, but Scout Ships can if their Epistemological Constructural Element is active.

It is possibly not realistic or consistent with previous rules for Scouts to avoid checks for failure to obey the Expansion Power Activation for the purpose of Scouting, but they are curious explorers! It should be regarded as a game convenience concession. Perhaps we might assume that Scouts are drones, with no organic crews, perhaps they have crews who are the more adventurous type, or people trying to escape the bounds of their civilization?

Scout Ships do have Constructural Elements like any other ship, regardless of assumptions (above) which they receive from their origin colony at the time they are built (see Maiden Voyage, 3 Construction, p. 677, *supra*) and thus may receive the benefit of Enlightenment (where applicable) if their Epistemological Constructural Element is active (see Skool Tyme, 2 Constructural Elements, p. 190, *supra*).

Conversely, if the Scouts were *departing for* any destination system with a Supporting Colony, that would require activation of the Movement Power (see Engage! and UniSIM, 1 Movement, pp. 738-739, *supra*) costing a Scene, instead of the Expansion Power and a check to see if the Scout obeys the Power Activation using the rules in 1 Movement, *supra*. This contradicts the preceding – it may even be silly – but does not ‘break’ the game, so to speak.

- Colonization: Activation of the Expansion Power for the purpose of Loading Population requires one Act and one Scene on the *colony planet* from which the population is Loaded.
- ✓ Activation of the Expansion Power for the purpose of Transporting Population requires one Act and one Scene on the *star* of the destination starsystem to which the population is being transported. See also Canned Food, 3 Expansion, p. 913, *infra*.
 - The game mechanical difference between Movement and Transporting Population is the placement of the Scene and of course the Vital Power activated (which may be important, e.g., for Government Title Conflict Checks).
 - ✓ One activation of the Expansion Power for the purpose of Transporting Population may be used to initiate interstellar movement of any number of *Colony Ships* from any number of origin systems to the destination starsystem (the opposite of normal movement where the Scene is on the origin star, convergence instead of divergence).

- ✓ Finally, activation of the Expansion Power for the purpose of Landing or Unloading (these are two separate purposes, Landing and Unloading are not the same, see Opening the Can Of..., 3 Expansion, p. 914, *infra*, The Landing, 4 Expansion, p. 920, *infra*) requires one Act plus one Scene on the *star* where the Landing occurs or on the *colonized planet* where Unloading occurs.

“The Jewish–Roman wars had a dramatic impact on the Jews, turning them from a major population in the Eastern Mediterranean into a scattered and persecuted minority. The Jewish-Roman wars are often cited as a disaster to Jewish society. The defeat of the Jewish revolts altered the Jewish population and enhanced the importance of Jewish diaspora, essentially moving the demographic center of Jews from Judea to Galilee and Babylon, with minor communities across the Mediterranean.

Although having a sort of autonomy in the Galilee until the 4th century and later a limited success in establishing the short-lived Sasanian Jewish autonomy in Jerusalem in 614-617 CE, Jewish dominance in parts of the Southern Levant was regained only in the mid-20th century, with the founding of the modern state of Israel in 1948 CE.”

– from Wikipedia article, “Jewish-Roman Wars,” captured September 7, 2019

Seeding Space: Activation of the Expansion Power in GGDM is ultimately about seeding space, it is the “flowering schedule” of the species, “short-distance pollen dispersal” and “long-distance gene flow” (Gérard, Klein, et al. (2006) quote from 5 Taxation & Census, EN 21, p. 351, *supra*) to prevent extinction, in addition to all of the other benefits, such as resources, information, scientific discoveries. It is into the night, against the nightfall.

As indicated in Primal States, 6 Beginnings, p. 61, *supra*, the homeworld may be forgotten, lost, or become unavailable. Or the homeworld may become just another colony in which the original species is but a minority among billions of aliens, see Pilgrimage to Earth, 2 Order, p. 541, *supra*. The migration may be forced by external forces or natural disasters. There is much human history to draw from, much room in GGDM for creation of backstories during play that relate to or expound upon the reasons why the position’s Native Population Type left home.

And the stories that we tell, the events we remember, are not usually about good happenings. No one just goes out for a spacewalk in the sunlight or to see the stars. We go into space for political prestige, to install spy satellites, for business purposes. Why would we not expect that when the technology is available, people will not go into space to get away from the Earth, to make a profit, to hide from the law, to seek vengeance, to fight wars, to get free lands, to steal, to spy, to gain power over the masses still on the ground?

- ✓ “Well, I dreamed I saw the silver spaceships flyin,’ In the yellow haze of the sun, There were children cryin’ and colors flyin,’ All around the chosen ones, All in a dream, all in a dream the loadin’ had begun, We were flyin’ mother nature’s silver seed to a new home in the sun, Flyin’ mother nature’s silver seed to a new home.” – Neil Young, “After the Gold Rush” (1970).
- **Be Fruitful and Multiply:** As you can imagine, *from the anti-natalist point of view*, sperm and egg banks are just ridiculous conceit. Although the technology and techniques developed for them, and the technical experience they provided in preserving sperm and eggs of humans is possibly important to the long-term survival of our species (e.g., the seed ships

mentioned previously in Uranium on the Cranium, 3 Beginnings, p. 40 and Assumptions of Light, 1 Stardrive, p. 781, *supra*), the concept of a sperm bank or egg bank is just absurd. It requires the donor to think that somehow their reproduction is ultimately important, even if done anonymously and without sexual gratification, and this is before we even consider the Kantian Imperatives. If human children are ever born on another planet, someone (probably us) is responsible for putting them there without their consent and they may curse us for it; there is no denying this as on Earth. Like Snorri Thorfinnsson or Virginia Dare, there will be a first human not born on Earth, or born in Earth orbit, or not born in our solar system, a first human born on the Moon, or on an exoplanet – unless, of course, we discover humans already out there. And they will be just names in a book.

- ✓ E.g., The Amazon blurb for John R. Brophy’s novel God’s Ground (2017) notes that by raising her children in a zero-gravity environment, the main character may be condemning them to life in space.

Judging from the Genesis Mandate, a strong anti-natalist sentiment existed in ancient times.

- ✓ “And God blessed them, and God said unto them, *Be fruitful, and multiply*, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.” – Genesis 1:28 (KJV) (emphasis added).

In forty-years wandering the desert, children were born, lived their lives and died in the Sinai and Negev deserts, because their parents put them there. They could not go back to Egypt, their only way was forward to Canaan or into still more deserts. In the desert environment, anti-natalist thought (possibly an extension of slavery or servitude or despair of wandering the desert) struggled against the need for increased numbers of tribal warriors to attack Canaan. Thus, the Genesis Mandate.

- ✓ Throughout the two seasons of the Stargate Universe series, various human and human like alien groups are left, stranded, crashed, or abandoned on planets along the Ancient Ship Destiny’s path inadvertently ‘seeding’, e.g., seven were left on Eden.

“Doesn’t take much to make some men happy. For me, I like a shave and a bath. Maybe get into town now and then. See a woman.”

– Flint McCullough, *Wagon Train* (1957-1965)

“That’s all any man can ask of you, but you know so many times the best is just not good enough. When you think of all the people, 75 or a 100 of ‘em who are gonna die when the cholera hits your camp without you knowin’ it’s comin’.. and that Indian war party that comes down off the high hills, their screams splinter the night and their arrows set fire to it... you say, ‘Well, I did my best.’ That’s what you say to all those silent dead, ‘I did my best.’”

– Maj. Seth Adams, *Wagon Train* (1957-1965)

Wagon Train to the Stars: There are three Existential Patents available to positions prior to the start of the game (see 1 Patents, p. 729, *supra*) that are directly related to and necessary for the Expansion Power: Scout Ships (which allows positions to build Scout Ships), Colony Transport Ships (“CTs,” which allows positions to build the basic Colony Ship of the game, the name is

self-explanatory), and Controlled Environment Technology (CET) – the classic domed cities of science-fiction lore – which is necessary to colonize Unpleasant and Hostile Class Planets (see *The Air that I Breathe*, 3 Taxation & Census, p. 315, *supra*).² It is strongly suggested that positions obtain these technologies before the game (are sometimes required to), or soon thereafter.

- ✓ There is no ability to move population in the 1st Era without a Colony Ship or Boat.

Venus, Mercury, the Moon and most other places in our Solar System would be Hostile or Uninhabitable Habitability Class, while Mars, the only place that even looks vaguely Earth-like, would be a very Unpleasant or Hostile place to live. CET does not change the relative Habitability Class of the planet, it is not terraforming technology.

- ✓ “Mars ain’t the kind of place to raise the kids, in fact it’s cold as hell.” – Elton John, “Rocket Man” (1972).

It may be possible to develop “Colony Transport System Boats” for in-system colonization or to be placed on Tender Starships. For Load and Unload Population purposes, Colony Transport System Boats act as regular Colony Transports. For the purpose of Transporting Population activities, the Tender Starship will act as a regular Colony Ship. Participants would need to determine if the Tender Starship can use it’s OSL to support the Colony Boats.

- ✓ As all sci-fi fans know, “wagon train to the stars” is how Gene Roddenberry sold the idea of Star Trek to blinkered network executives in the mid-1960s when television was dominated by weekly Westerns (e.g., *Gunsmoke*, *Bonanza*, *The Rifleman*). Star Trek: *The Next Generation* (1987-1994) was thus a major shift to a late Cold War outlook.
- Scouts Honor: Scout Ships (hereafter, “Scouts”) are the primary means of exploration in the game because they are small, self-sufficient *non-warships* that have two extra turns of Operational Flight and Supply Limitations (OFL/OSL) *with a Ship Systems Existential Patent* (see 3 Movement, pp. 855-856 *supra*), or two turns OFL/OSL without it. They are clearly the most economical ships in terms of cost and economy of action. Scouts are unarmed targets, can never be armed but they are slippery, they receive one Defensive Shift in Combat which helps them retreat safely. Scout casualty rate is high, which saves on pensions and health care costs as well. What’s not to like? Join the Imperial Interstellar Scout Service today!
 - ✓ “The Viking Lander is a superbly instrumented and designed machine; it extends human capabilities to other and alien landscapes. By some standards, it is about as smart as a grasshopper; by others, only as intelligent as a bacterium. There is nothing demeaning in these comparisons, it took nature hundreds of millions of years to evolve bacterium, and billions of years to make a grasshopper. With only a little experience in this sort of business, we are getting pretty good at it.” – Carl Sagan, *Cosmos*, Episode 5.
- Colony Cans: Any ship designed for the purpose of transporting large populations (i.e. population factors) over interstellar distances is called a “Colony Ship.” The 1st Era Colony Ship, the Colony Transport is the only early game ship that can move population.

Through the course of the game, it is probable that positions may develop next Era Colony Ships through PIT Patents (see *Physical Item Technologies*, 2 Patents, p. 739, *supra*), however, the transport of living populations (especially if they happen to be hostile or unwilling,

e.g., District 9 (2009), Alien Nation (1988)) is such a complex logistical task that it must be considered its own specialized technology. The purpose of a Colony Ship is generally incompatible with that of a Warship or Cargo Ship and thus, Colony Ship technologies should not be combined with any Warship or Cargo Ship functions.

- **Building Up:** Colony Ships and Scout Ships are built, as any other ship, by activation of the Construction Power (see Laying Keel, 3 Construction, p. 675, *supra*) for that purpose at any colony that is eligible to build ships, when the position has the proper Existential Patents. Colony Ships cost 10 RPs, and Scout Ships cost 8 RPs to construct. Unlike Colony Ships, however, Scout Ships *do not require* an Orbital Shipyard, but then cost 10 RPs.

- ✓ This *implies* that Scout Ships might, unlike most ships, be able to land on the surface of planets; Colony Transports also Land to found a colony, but never take off again.

CET technology is a COT Patent (Continuous Operational Technology Patent, see 2 Patents, p. 739, *supra*); once completed, it is automatically assumed to be in use whenever a colony is established on an Unpleasant or Hostile Class planet. CET is specific and unique to each Native Population Type and must develop independently.

Admittedly, this is not very realistic, but it is a concession to ease of play. It is a grey area as to whether CET can be used to Land conquered alien population on a planet unsuitable for their Native Population Type. But this is space opera trope...

“Migration, a phenomenon often confused with war, now threatened a civilization too decadent to defend itself. The human waves which beat against the frontier were almost impersonal in their impact, like some mighty and restless force of nature. Behind them, lending tribal impulse to the movement, came more waves of land-hungry barbarians seeking a racial home”

– Lynn Montross, War Through the Ages (3rd Ed., 1960), p. 87

Core Worlds: In classic space-opera fiction, the historical effect described by Mr. Montross is invasion of decadent, wealthy, industrialized, urbanized, technological ‘core’ worlds by rebellious frontier star princes, admirals, pirates, or newly risen alien races who serve as the ‘barbarians’ of the setting. This is the subject of the card game, Core Worlds (2011), part of the post millennial trifecta of space-opera-themed card games with Race for the Galaxy (2007) and Eminent Domain (2011).

- ✓ **Most players** will tend to think of the game in terms of moves they made, decisions, Regular Turn Actions and Combat Orders issued, they will see the game from the player point of view. To make GGDM work as emergent storytelling, a shift from the godview is necessary; players should try to think of the game as if they were recounting the history of a starfaring people (e.g., the original BSG pilot is called “The Saga of a Star World” (1978)), the social and political conditions, zeitgeist, of a time past.

The Great Drama: Without doubt, the massive migration of human and animal populations across great distances is the single greatest drama of human history. Human examples include, the prehistoric migration of native tribes to North America and into Mesoamerica or from the Danube River Valley to Ancient Greece or from the Indus River valley through India or the Yellow River Valley south through China,³ the movement of the “Sea Peoples” of Mediterranean

antiquity, the Greek and Phoenician colonization, the legendary flight of the Nez Perez and other Native American tribes to Canada, the forced migration of the other Native American Tribes to reservations (aka the “Trail of Tears”), the conjectured migration of the Huns from the Chinese border through the Goth kingdoms of western Russia to the borders of the Roman Empire followed later by Tartars, Mongols, and Ottomans, and so forth.

The human magnitude of it is nearly beyond comprehension.⁴ While the populations of the game are represented as ‘factors,’ it is strongly suggested that participants take a moment to consider what is involved in uprooting and moving populations, not just armies or fleets. This is one reason why the Expansion Power requires more Scenes than other Powers. The essence of the Expansion Power is population shift.

- Huns on the Rostrum: In the year 406 A.D., the *Iranian* Alans tribe crossed the Rhine and migrated into Gaul of the late Roman Empire. They settled in Gaul and eventually came into possession of the ancient city of Orléans by the mid-5th Century. At Orléans, the Alans held off Attila the Hun long enough for the Romans to gather an allied army, they then participated in defeating Attila at the Battle of Châlons in 451 A.D. A branch of the Alans followed the Vandals into Iberia in 409 A.D. In Iberia, the Alans set up a kingdom stretching in an arc from the Mediterranean coast (Spain) to the Atlantic coast (Portugal). Less than two decades later, the Iberian Alan king was killed in battle with the Visigoths (their old foes from the Orléans area) where they were decisively defeated, and they then asked for protection under the Vandals. The Iberian branch of the Alans was absorbed into the Vandals and lost their *ethnic identity*, the leader of the Vandals took the title, “King of the Vandals and Alans.”

Most Iberian Alans crossed into North Africa with the Vandals in 429 A.D. The Alans who remained in the *original homeland* between the Caucas Mountains and the Caspian Sea were driven into the mountains by successive invasions of other migrating tribes (incl. the Pontic Bulgars who lend their name to modern Bulgaria), remaining today in the Republics of Russia and Georgia, speaking Ossetian, a Northern Iranian dialect. Thus, the Alan migration began around modern Georgia about 375 A.D., through Russia, Ukraine, Poland, Germany, France, then to Spain, and finally into North Africa as far as modern Tunisia and Libya by 450 A.D., leaving traces of their yDNA Haplogroup G2 in populations along the wide arc of their migration. The physical appearance (in some sense, ‘racial appearance’) of modern Ossetians in early 20th Century photographs that I saw is markedly different from the contemporary Roman description of the physical appearance of the Alans in Gaul.

- ✓ Information extracted from Wikipedia articles, “Alans,” and “Orleans,” September 30, 2018.

So the Alans and the Huns had a long term thing going on... the Alans Kingdom was the first destroyed by the Huns around 372-374 A.D. on the Pontic Steppes and the resistance of the Alans at Orléans – invited into the region by the Romans around 408 A.D. to fight the rebellious Visigoths – contributed to the defeat of Attila the Hun at the Battle of Châlons in 451 A.D. The Alans weren’t friends with the Romans either and were probably present at the Battle of Adrianople in 378 A.D., but by that time, the Roman’s didn’t have many friends.

- ✓ “We of course have to mention as well the Huns who moved into Europe around the 4th Century A.D. and the Mongols who moved into Eastern Europe and the Near East in the Middle Ages. Neither of these groups were Chinese. Historians aren’t 100% sure where the Huns came from, likely Central Asia, but possibly farther east, and the

Mongols came of course, from the north of China and modern-day Mongolia. However, focusing on the larger picture of Western and Eastern contact, both groups were affected by and affected the larger politics of the day in both empires, especially the Mongols. The Hunnic invasions of Europe were possibly influenced by migrations that began by being pushed west by China and likely heavily influenced the future dramatic barbarian migrations that led to the fall of the Western Roman Empire. But ironically, the Mongols who conquered China, likely played a role in prolonging the time of the Roman Empire known to Westerners as the Byzantine Empire by invading their rivals. Exploring the relations between these ancient civilizations gives us a very important insight into what the perspectives and lives of past peoples were like; an important insight as to how human civilization as a whole developed. It was a time when the world was nowhere near as connected as it is today, but not as far apart as we might have assumed.” – Justin [Narrator], “Did Rome and China Know Each Other?” YouTube video by Fire of Learning (<https://www.patreon.com/FireofLearning>), posted February 22, 2019.

The sublime epic of the Hunnic displacement from the northern borders of China (mentioned previously in 2 Disruption, 3 Entropy, and 4 The Streams of Time, *supra*) was well established by the mid-1980s. R. Ernest Dupuy and Trevor N. Dupuy, The Encyclopedia of Military History, 2nd Rev. Ed. (1986) note the following:

- ✓ “After defeating the Hsiung-nu (later known to Europe as the Huns), Shih Huang Ti built the Great Wall along the northern border of his domains as a barrier to prevent further nomadic inroads.” *Id.* at p. 79.
- ✓ “A punitive expedition against the Hsiung-nu was led by Tou Shien ... who overwhelmed the nomads and drove most of them westward. It was the final Chinese victory ... which apparently set into motion the great Hun migration which swept into Europe a few centuries later. Replacing those Hsiung-nu who had departed ... the Mongol tribe of Hsien Pi moved into the desert-mountain region and northwest of Kansu. In a few years (by 101) the Hsien Pi were raiding Chinese frontiers just as their predecessors had done.” *Id.* at pp. 132-133.

The Huns arrival in Europe (about 372-374 A.D.) resulted in a domino effect that sent the Goths and Alans streaming into the weakened and confused late Roman Empire:

- ✓ “The Hsiung-nu tribes driven from Mongolia by the Chinese 2 centuries earlier ... were apparently the ancestors of a fierce Mongoloid people – the Huns – who now entered European history. They invaded the lands of the Scythian-Germanic Alans ... in the region between the Volga and the Don. The Huns won a great victory at the Battle of the Tanais River...; in less than two years the kingdom of the Alans was overwhelmed. Some of the survivors were absorbed by the Huns; other refugees wandered through the lands of the Goths, and some reached the Roman Empire where they joined the imperial cavalry.” *Id.* at p. 155.
- ✓ “While vainly attempting to repulse a major Hunnish invasion, the ancient [King] Ermanaric was killed, or committed suicide. His successor, [King] Withimer, was soon after this also defeated and killed. The Ostrogoths – men, women, and children ... began to steam across the Dniester, seeking refuge from the Huns. [King] Athanaric,

leader of the Visigoths, planned to stand and fight the invaders, but most of his people, infected by the panic of their Ostrogothic cousins, also began to migrate *en masse* toward the Danube.... There were between 700,000 and 1,000,000 refugees, of whom more than 200,000 were warriors. Athanaric and the remainder of his people then sought refuge in the Carpathian and Transylvanian forests.” *Id.* at p. 156.

- ✓ “The panic-stricken Visigoths appealed to [Emperor] Valens to grant them refuge and protection. Valens reluctantly agreed, on condition that the warriors give up their arms, and that all male children under military age be surrendered as hostages. The frantic Goths agreed to the terms and began to cross the Danube. Most of the boys were surrendered and scattered through Asia Minor, but the Visigoths were slower to give up their weapons, bribing venal Roman officers with gold and other treasures, including the favors of their wives and daughters. Meanwhile, the remnants of the Ostrogoths reached the Danube, and appealed for refuge in the empire. When this was refused, they crossed the river anyway, since the Romans were too busy trying to look after the Visigoths – and their women – to pay much attention...” *Id.* p. 156.
- Roman Parley: Imagine for a moment having to give up your underage son or brother to the Romans to be able to cross the Danube River and settle in Pannonia.⁵ Sophie’s choice?
 - ✓ “Roman officials in Thrace, not knowing what to do with the great influx of barbarians, took advantage of every opportunity to exploit and mistreat them. Frigiter and Alavius apparently tried to cooperate with their presumed protectors, but soon lost patience and began to negotiate with the Ostrogoths to present a united front against the Romans. At about this time, the Romans treacherously attacked the Visigothic leaders at a parley...” *Id.* at p. 156.

This was apparently a normal late Roman move, as Dupuy & Dupuy notes (*Id.* at p. 155) that Gabinus, King of the Quadi (a Teutonic tribe) – not to be confused with the earlier St. Gabinus – was killed by a Roman general during peace negotiations in 374 A.D. which caused the enraged Quadi to invade Pannonia and lay waste to it. It was also how the Ostrogoth leader killed Odoacer at the end of the Western Roman Empire, so the ‘barbarians’ learned well.

- ✓ I have heard arguments that the early Romans – the Republican Romans in the Punic Wars – were willing to risk it all to win big, they took chances that other conservative states would not have considered, and they overall won big. Chance-taking remained a Roman ‘virtue’ to the end, but the difference by the 4th Century A.D. was that the situation was both much more complicated and deteriorating, and that the late Roman leadership was not as ‘sharp’ as their Republican predecessors, and the chances they took in the mid-4th Century often were disastrously unsuccessful.

The core cause of the decline and decadence of the Roman Empire is the story of the warping and disregard of the answers to Why Not questions into sheer capriciousness, as illustrated by the insanity of the reigns of Emperors Nero (54-68 A.D.) and Commodus (177-192 A.D.). These two are only historical stand-outs, the overall trend of the empire made it difficult to maintain sensible answers to the Why Not questions when the Emperor had absolute power, was the worship object of the Imperial Cult, and was surrounded by immense wealth, with few or no effective reality checks. The loss of Roman virtue was the failure to answer the Why Not questions each generation as internal wars, assassinations, and bribery of the Praetorian Guard determined who would be the next Emperor.

- ✓ Although it is noted in many places that Mike Resnick never really explains why the human empire fell in Birthright: The Book of Man (1982) e.g.:
 - “Then, after there is no more room for conquest, the only way left is down: internal struggles as well as deep-seated resentment of aliens result in a decline of human power that takes nearly as long as the rise, but is described far less extensively. Somehow, despite whatever enabled humans to achieve total power, they were unable to keep it.” – Wikipedia article, “Birthright: The Book of Man,” May 15, 2019.

– it is clear that his overall historical model is the decline of the Roman Empire. And thus, the pattern may be the same, the situation was both much more complex after humanity had conquered all of the alien races of the galaxy, and human leadership took gambles that led to disaster.

- Valens & Alans: The search for *ultimate causes* in the “natural experiments” of history (see Jared Diamond, *et al*, *Unsolved Problems*, 3 Constructural Elements, pp. 209-210, *supra*) is really a search for *ultimate dynamics*. Industrial human population explosion and immigration led to the impetus, as described by Joel Shurkin in 3 *Taxation & Census*, pp. 314, 323, *supra*, for the development of electronic computers, starting with selling electric adding machines to the U.S. Census Bureau. Could we have predicted it? Did Malthus see it coming? In *hindsight* we think we or he might have...

The example of the Goths on the Danube in 376 A.D. is precisely a historical example behind the rules for Unloading and Loading population (and forced Balkanization) in GGDM, e.g., *Forced Balkanization*, 2 *Disruption*, p. 273, *supra*, and 3 and 4 *Expansion*, *infra*, which the Concierge could consider in *Interventions* and *disruption effects*.⁶

- ✓ “Either by coincidence or – more likely – some sort of informal alliance among the Germanic tribes, the entire European border of the empire now erupted from the mouth of the Rhine to the lower Danube.” *Id.*, Dupuy & Dupuy at p. 156.⁷
- ✓ “Yet it is evident on the eve of Adrianople that the Goths had no intimation of a victory that was to send the Empire tottering to its ruin. They had been literally pushed across the Danube by the pressure of migrating hordes behind them, only to be hemmed in by the Romans who had imprudently offered them refuge. Preservation must have seemed their only hope.” – Lynn Montross, War Through the Ages (3rd Ed., 1960), p. 88.

The Battle of Adrianople, where Roman Emperor Valens was killed by the Goths and Alans in a devastating Roman defeat, occurred in August 378 A.D. in Thrace, no more than six years after the Huns attacked the Kingdom of the Alans in the Pontic Steppes (Russia), between the Volga and the Don Rivers.⁸

Meanwhile, the Huns kept migrating, attacking the Eastern Roman Empire and the Persians (Sasanian Empire) in 395 A.D., attacked the Eastern Romans again in the 440s for failure to pay annual tribute to the Huns, and eventually invaded Gaul in 451 A.D. and Northern Italy in 452 A.D. in Attila’s bid to marry Honoria, the sister of the Roman Emperor.

- They Kept Coming: Westward mass migrations to Europe did not end with the Goths, Alans, and the fall of the Western Roman Empire. Later came the Bulgars, Avars, Magyars, Lombards, and others who beat against the borders of the Byzantine Empire and the Frankish

Kingdoms (Franks and Saxons were in Europe in the 4th Century A.D.), invaded northern Italy and southern England and eventually either ‘vanished’ as an ethnic group or tribe (like the Avars of the Pannonian Basin, between 790 and 870 A.D.) or became Christianized and settled down (the Magyars in Hungary accepted Christianity around 1000 A.D., the Avars were Christianized earlier, but their lands and populations were divided and shifted between princes into dissolution of their identity) to become the ancestors of modern nations. The Mongols arrived in the 13th Century near the tail end, and to great European relief, they abruptly abandoned European invasion and retreated from Hungary in 1242 A.D.

The last premodern major arrival in Europe were the Romi (known also as ‘Gypsies’), a dark-skinned people speaking an unknown language, wanderers in covered wagons moving in large groups, who arrived and migrated through central and western Europe between the mid-14th Century and the 16th Century. This group had left northwestern India (confirmed by genetics and linguistic analysis) around 500 A.D. (at the end of the Western Roman Empire) but arrived in Europe much later than other mass migrations; they arrived into a settled (relatively speaking) Europe a century after the Mongol terror subsided. The disparate poor treatment of Romi populations in Europe is well-documented history.

- ✓ “‘In the Judeo-Christian tradition, the history of salvation is essentially a history of migration,’ said the pontiff.” – Washington Post, January 9, 2018, from a speech given by the Pope in Regis Hall on January 8, 2018.
 - Apparently, there might be a view of history that the Great Migration was a process of ‘barbarians’ coming to be Christianized in Europe. That is, of course, literally what happened, by about 900 A.D. or just after, but were they saved? Really? Teleological thinking?
 - See also Core of Christianity, 1 Kairotic Moments, p. 1423, *infra*.

“Whether we like it or not, bacteria are going to be our partners as we venture out into space. It’s imperative, therefore, that we learn as much about these microorganisms as possible in the event an astronaut develops a life-threatening infection, or to prevent problematic ‘biofilm’ formation inside the ISS and other spacecraft (such as a ship en-route to Mars). As previous studies have shown, bacteria behave differently in space, in some cases acquiring mutations that make them better at reproduction and more resilient to the effects of antibiotics”

– George Dvorsky, “Alarming Study Indicates Why Certain Bacteria Are More Resistant to Drugs in Space,” Gizmodo, September 13, 2017

“If we’re going to look for life on Mars, it would be really kind of lame to bring Earth life and find that instead.”

– Catharine “Cassie” Conley, 7th NASA Planetary Protection Officer, NY Times Interview, 2015 ⁹

The Human Diaspora: The human population on our Homeworld has exploded from approximately half a billion people at the end of the Middle Ages to seven billion people five hundred years later, despite devastating wars, famines, social unrest, and plagues (and bad habits). But

the amount of land area on Earth remains the same (for now, until the polar ice melts), with a significant portion of the available land being undesirable, uninhabitable, or in need of development to sustain significant populations, or at least, less desirable than other places. This drives both real estate prices and conflict: More population on the same amount or less land.

- ✓ Merriam-Webster online dictionary at *diaspora*: **2a**: people settled far from their ancestral homelands, **c**: the movement, migration, or scattering of a people away from an established or ancestral homeland. Diaspora is thus both a process (*Id.* **2:c**) and a condition/identity (*Id.* **2:a**), a merger spectrum of acquired meaning.

Global warming will shrink the amount of available land, displacing populations who lived on lost coastal lands – which coincidentally, happens to be where the world’s largest cities are located. At what point will significant numbers of people be willing to sell out and give up everything for a ticket “Through the Never” (Metallica, 1991) to elsewhere? Once the galaxy opens up with the invention of interstellar travel (by whatever means) real estate will be potentially unlimited, but some places will still be more desirable than others.

- ✓ The world population is estimated to have reached 1 billion in 1804, and 2 billion in 1927, and 7 billion in October 2011. Information from Wikipedia article, “World Population,” June 18, 2018. The world population of about 3.5 billion has doubled in the half century since I was born. Soylent Green anyone?

The logistical challenge and social disruption of massive population removal from the Home-world or colony should not be underestimated.

- ✓ “Reading between the lines, the abrupt about-face can be attributed to the stakeholders of contractors and government policymakers, who weren’t pleased with Wörner’s public fretting. *This speaks to space exploration’s tendency to become industrial policy, more about jobs than science*, which is a key reason why 1970s space visions of lunar bases and enormous space stations aren’t a reality.” – Tim Fernholz, “China and Europe Love SpaceX’s New Heavy Falcon Rocket. Does NASA?” Quartz, February 19, 2018 (emphasis added).¹⁰

Imagine the logistical and social challenges of removing just half the world’s current population – 3.5 billion persons – from the Earth into system space or a colony on Mars or to an interstellar colony location? How about even a million people?

- ✓ “But then there’s the Mars part. The 2033 target is nice, precise and buzzy, but for practical purposes it’s meaningless. Start with the things we need to build – in some cases invent – before we get to Mars. After the SLS and Orion are complete, we still need (deep breath): a habitat module for the outward-bound and return trips, radiation shielding, a landing module, a habitat for the surface, a pressurized rover, a greenhouse facility and a way to manufacture fuel, power and water onsite – infrastructure, in other words, when we can barely get the damn stuff built on Earth. Even SpaceX’s Elon Musk, whose pledge to have humans on Mars by 2024, beats Congress in the fever-dream category, was not impressed. ‘Perhaps there will be some future bill that makes a difference for Mars, but this is not it,’ he responded to a follower in an extended Twitter exchange about S.442.” – Jeffrey Kluger, “Magical Thinking Won’t Get You to Mars. (Washington Please Note),” Time.com, March 23, 2017.

- ✓ “If you want to go to the Moon, you design a system to put humans on the Moon. If you want to go to a different world, you design a system to put human beings on that world. If you want to go to deep space, you figure out what you need to go to deep space – and you go.... If you want to accomplish something great, you don’t look at the technology you’ve already developed and ask, ‘what can we do with it?’ Instead, you must look at the goal you want to achieve and ask, ‘what will it take to accomplish this?’ You also have to provide funding for it, and plan it on a realistically short timescale. If the goal is to go to Mars, we’ve already done extensive research into how much it would cost and what type of technological development it would require. To do it safely and responsibly, it would take a sustained investment totaling somewhere in the ballpark of \$50-\$150 billion, spread out over the course of approximately 10 years. The plan would involve landing a slew of equipment on the Martian surface, along with robots and rovers designed to self-assemble stations and habitats, and then a crew of human beings, who would stay for anywhere from 6 to 18 months before returning home. The largest and heaviest things ever landed on the Martian surface are far lighter than what a crewed mission would require, and the only way you ensure the safety of the crew on such an endeavor is through practice.” – Ethan Siegel, “Sorry America, We’re Not Going Back to the Moon,” *Forbes*, December 19, 2017.

Consider that it required centuries for European migration to North America to reach just a million.¹¹ The long line of ‘space-ark’ stories featured in science-fiction magazines (and popular as cover art), novels and movies (such as the classic *When Worlds Collide* (1951)) make it abundantly clear that only a select score, hundreds or thousands (the chosen ones) would be able to evacuate the planet. Such stories usually then go on to showcase the breakdown of law and order and reason on Earth in the face of animal survival instincts and desperation.

The real Diaspora begins when life on Earth is so unbearable for much of the population that the risk of space and colonization on other planets is preferable. That is, for those who can leave and if we can figure out how to leave. The remainder will be left behind. Global Triage?

- ✓ “Philip French’s review in *The Observer* suggested the premise was ‘intriguing B-feature apocalypse, determinism versus free will stuff’ and that the ending has something for everyone: ‘A chosen few will apparently be swept away by angels to a better place. If you’re a Christian fundamentalist who believes that Armageddon is nigh, you’ll have a family hug and wake up to be greeted by St Peter at the Pearly Gates. On the other hand, Darwinists will be gratified to see Gaia and her stellar opposite numbers sock it to an unconcerned mankind.’” – from Wikipedia article, “*Knowing (film)*,” captured September 15, 2019.
- **Frontiers:** Any colonized planet whose current population is significantly below the Maximum Habitability has a *frontier area* on the surface and corresponding urbanized, settled areas, probably the first landing areas and areas that had the easiest available resources. This concept can be useful in many parts of the game, such as Special Operations, local cultural milieu of planets, Interventions, and storytelling elements of the game.
 - ✓ “As the Planetary Protection Officer for NASA, I am responsible for ensuring that the United States complies with Article IX of The Outer Space Treaty. Article IX speci-

fies that planetary exploration should be carried out in a manner so as to avoid contamination of the bodies we are exploring throughout the solar system, and also to avoid any adverse effects to Earth if materials are brought back from outer space.” – Catharine “Cassie” Conley, 7th NASA Planetary Protection Officer.

- History in the Balance: Following the success of the American Revolution, the European powers – Spain, Britain, and to some extent, France, were very concerned about the Westward expansion potential of the new United States. The British made an alliance with Native American tribes to block expansion along the Ohio River and Great Lakes (e.g., the Northwest Indian War, 1785-1795), Spain and Britain both engaged in espionage (e.g., Burr Conspiracy, 1805). The Civil War provided a golden opportunity to split the new nation in two. They were right to be concerned as within 100 years the expanding wave of population, pushed by immigrants from Europe, had smashed through every barrier – natural, legal, moral, human, humane and moved vast distances – to settle all territories coast to coast.
- ✓ If England held the 13 Colonies, they are the world’s first superpower, if they lost the 13 Colonies, the new United States will eventually eclipse the European powers.
 - ✓ “The Union victory and Lincoln’s [Emancipation Proclamation] played a considerable role in dissuading the governments of France and Britain from recognizing the Confederacy; some suspected they were planning to do so in the aftermath of another Union defeat. When the issue of emancipation was linked to the progress of the war, neither government had the political will to oppose the United States, since it linked support of the Confederacy to support for slavery. Both countries had already abolished slavery, and the public would not have tolerated the government militarily supporting a sovereignty upholding the ideals of slavery.” – from Wikipedia article, “Battle of Antietam,” captured November 11, 2019.
 - ✓ Most 4X space games are built on this historical model and lacking a ‘coast’ or much discernible terrain in space, they substitute rifts, black holes, asteroids, dust clouds, and nebulae and game board edges for terrain; GGDM participants will find themselves in a similar situation except that there are no limits, no end line.

“That coarseness and strength combined with acuteness and inquisitiveness; that practical, inventive turn of mind, quick to find expedients; that masterful grasp of material things, lacking in the artistic but powerful to effect great ends; that restless, nervous energy; that dominant individualism, working for good and evil, and withal that buoyancy and exuberance which comes with freedom – these are the traits of the frontier.”

– Frederick Jackson Turner, [The Significance of the Frontier in American History](#) (1893)

Endnotes.

¹ Commentary & Citation: There are no surviving contemporary portraits of Christopher Columbus, all pictures were created after his death by people who could not have or likely never met him. There is even a dispute about the location of his remains, which have been moved half a dozen times, kicked around half the globe like a geopolitical football. So, who knows, maybe he was a time-traveler from the future of humanity changing their history? Imagine what future are they trying to change? In light of what happened later, the charges of most brutal tyranny (to which even their supporters had to admit in Bobadilla’s report witness testimonials, discovered in 2006) against the brothers Columbus seem particularly unjust; others later were not held even close to the same standard.

² Commentary: CET, Habitability Class and Maximum Habitability, Landing, Colony Transports, and star colors are remainders from the original Stellar Conquest (1976) board game.

³ Commentary: The ‘Cradles of Civilization,’ that we all learned in school were the early urban power centers, and their quest for resources and control led to expansion of civilization beyond the cradle.

⁴ Commentary: I have, since my teenage years, had a sublime fascination with tracing the great migrations of humanity across the globe. There is something sublime about the distances, time intervals and numbers, across what is now called ‘flyover country,’ that arrive eventually at the modern polities, languages and cultures.

⁵ Commentary: This is similar to a scene in a movie I watched about the Warsaw Resistance during WWII; civilians were being smuggled out of Warsaw wading knee deep through the sewers at night. A baby started crying. If they were discovered by the Germans, they would all be killed. The baby needed to be silenced immediately.

⁶ Commentary: Dupuy & Dupuy seem to be suggesting that the arrival of the Goth and Alan refugees (up to 1,000,000 with 200,000 warriors, *Id.*) at the Danube was a great positive opportunity for the Roman Empire; I have read in other places that Pannonia, Dalmatia, and Moesia had been largely depopulated in the previous 50 years by raids, revolts, civil wars, famines, and plague and that the intent was for the Goths to settle into the depopulated areas. This is not an unreasonable idea and probably Valens’ intent, but clearly, the Romans were so far gone in corruption, incompetence, and exploitation that they blew it and turned a potential boon into a disaster at Adrianople.

- ✓ This is similar to an argument I heard in my youth about how the Nazi racial policies cost Germany up to half a million potential recruits for their armies, in addition to all of the efforts expended (and credibility lost) over their racial policies and wasteful exploitation, and of course, the intellectual flight to the West.

⁷ Commentary: Noting that the Goths, Franks, Alans, Scythian (e.g., Sarmatians) and Teutonic (e.g., Quadi) tribes had all crossed the Rhine and Danube in the first decades of the fourth century A.D. several times raiding and attempting to migrate into the Roman Empire, only to be repulsed and driven back. So there was some history there between the Romans and the refugee tribes. The final mass crossing of the frozen Rhine in December 406 by tens of thousands of tribal warriors and families is considered a second major mark of the end of the Roman Empire after the defeat at Adrianople in 378 A.D. Within a century of Adrianople, the Western Roman Empire was but a shade.

⁸ Commentary: Adrianople holds a truly special place in Western history, there are at least eight or nine different Battles or Sieges of Adrianople, each marking the rise or decline of an empire. The Bulgarians, Latins and Byzantines passed it back and forth, then the Ottomans took it from the Byzantines, the Russians took it from the Ottomans, and the Bulgarians took it from the Ottomans in 1913. Perhaps most important is the ambush and disastrous defeat of the nascent Latin Empire (established by the Fourth Crusade after the 1204 A.D. Sack of Constantinople) at Adrianople in April 1205 by the Second Bulgarian Empire and Cumans in which Emperor Baldwin I was captured. The Latin Empire collapsed after a half century of wobbly rule and crisis, the Byzantine Empire was restored.

⁹ Citation & Commentary: “Actually, however, you can sound the all clear: The planetary protection job is real, though its purpose is only partly to save Earthlings from the ravages of alien life forms (and by life forms we mean microbes, not green guys). A bigger part of the job is to protect aliens from us – the real bad guys.... If an earthly organism got loose in an otherwise pristine place, two problematic things could happen: The contamination would make it impossible to know for sure if any organism you detected was native to the planet or a stowaway. Worse, if alien life did exist, Earth bugs could contaminate its environment and perhaps even prove to be lethal. In-bound contamination – the space-to-Earth variety – has, of course, always been what worries us more. When astronauts from the first three Apollo moon landings returned to Earth, they were kept in quarantine for three weeks to ensure that they had not picked up any lunar bugs. That was unlikely given that the moon is an airless, waterless, and thus likely sterile place. But in fact there was a bit of a scare.” – Jeffrey Kluger, “Why NASA Is Right to Hire a ‘Planetary Protection Officer,’” Time.com, August 2, 2017.

- ✓ Now, think of it, if the EU had installed a Native American Protection Officer in 1500 A.D., the entire course of history would be so much different.☺

¹⁰ Citation: See also FalconX discussion in Predecessor Technologies, 3 Patents, p. 751, *supra*.

¹¹ Citation: “1907 was Ellis Island’s busiest year. 1,004,756 immigrants were processed there in that year.” – Soft Schools.com, “Ellis Island Facts.”