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"My decision to enter Hitler's party was no less frivolous. Why, for example, was I willing to abide by the almost hypnotic impression Hitler's speech had made upon me? Why did I not undertake a thorough, systematic investigation of, say, the value or worthlessness of the ideologies of all the parties? Why did I not read the various party programs, or at least Hitler's Mein Kampf and Rosenberg's Myth of the Twentieth Century? As an intellectual I might have been expected to collect documentation with the same thoroughness and to examine various points of view with the same lack of bias that I had learned to apply to my preliminary architectural studies.... As a result, I remained uncritical..." – Albert Speer, <u>Inside the Third Reich</u> (1970), p. 22

<u>Minister of Armaments</u>: [Interview] "I interviewed Albert Speer and indeed he knew that he had been penciled in to become minister of war in the new government had Hitler been assassinated and all of that had been carried off successfully." – Professor James V. Koch (Old Dominion University, Norfolk, VA), Operation Valkyrie: The Plot to Kill Hitler (documentary, 2008).

- ✓ Albert Speer survived the purge after the July 20 Plot failed (and escaped the last surreal days of the *Führerbunker* – he appears in the movie Downfall (2004)),[1] it could be that he was not an active member of the conspiracy and learned of his proposed role afterward, or that he was considered too valuable to Germany such that his political position insulated him. There is no indication of whether he would have agreed or not, but if Hitler were dead, what else would he likely do? It is also an indication that he was not considered a true or truly dangerous Nazi Party member by the resistance and that he was considered more loyal to Germany than to Hitler or National Socialism ideology. Or they thought him controllable, malleable, as he was to Hitler.

Reports of those who met Hitler in person indicate that he was not particularly impressive one-on-one or face-to-face (generally, many of his top officials, such as Himmler and Eichmann, have been described as banal, pedantic and bookish, both physically and mentally unimpressive on the surface). I suspect this is true of most famous people, and it is the thing they fear the most (like pictures without makeup and hairdressing). I recall hearing a famous comedian who complained that because he was a famous comedian, people expected him to be funny all the time – which obviously is an artificial condition for any human not resident in a mental hospital. Consider the common theory that comedians are actually angry people, who turn to comedy, and then when they become known as a comedian, they are supposed to be funny all the time! Which feeds an anger, bittersweet.

- ✓ However, Hitler's personal secretary, Gertraud "Traudl" Junge paints a different picture of personal interaction with him in her 2012 memoirs:

  - ▪ "I admit, I was fascinated by Adolf Hitler. He was a pleasant boss and a fatherly friend. I deliberately ignored all the warning voices inside me and enjoyed the time by his side almost until the bitter end. It wasn't what he said, but the way he said things and how he did things." – from "Hitler's Final Witness," BBC News, February 2, 2012, no authorship attributed.[2]

So, like everything else, impressions are relative, and the problem is famous people can't know beforehand – any more than the rest of us – the position or worldview from which they are being judged in personal interactions.

Laying Keel: Building a starship is an awesome undertaking, especially if it is constructed in the vacuum of orbit. Building new starships is a two-part process and requires at least two activations of the Construction Power.

✓ "But the money is not all spent, only a portion of it is destined for new equipment, and the equipment is not all built. It takes years to assemble fighter jets, ships and submarines." – Glenn Kessler, Salvador Rizzo, "Fact-checking Trump's address on the Iran missile attacks," Washington Post, January 8, 2020.

✓ To begin starship construction, the Construction Power must be activated at the colony building the ship, and which has an Orbital Shipyard, only one is required, for the purpose of Laying Keel.

✓ At the time that the Construction Power is activated for the purpose of Laying Keel, the colony must pay half of the total cost of the ship's construction (construction cost of ships is found on the Patent).

✓ "Total Cost" of a starship *would include* any enhancement technologies or additions that are required to be built with the ship; total cost *does not include* anything that can optionally be added later (e.g., Fighters, Ship Missiles, System Boats).

✓ The colony may lay as many keels as the colony can afford in one activation of the Construction Power at the colony for that purpose and there is no limit to the number of keels that can be in orbit at a colony.

Starships are very expensive, so, barring the importation of significant parts of the cost of the ship via Cargo Ships (or Trucking or Carting, see 4 Commerce, pp. 1225, 1229, *supra*), this does place a severe practical limit on the starships that can be constructed at smaller colonies.

✓ It may not seem particularly realistic that a world with an Orbital Shipyard can lay as many keels and have as many ships as desired under construction at one time. However, it works within the vague time periods of a Regular Turn and abilities expressed in GGDM. Further, the Regular Turn limitations of the local GDP and resources from Cargo Ships naturally controls shipbuilding activity. And there is always a risk of enemy attack.

➤ Shipbuilding: Incomplete ships and unfinished Orbital Cities are part of the colony that is building them. They have no effect on the colony or the game, they cannot do anything or be used for anything, they are *just there* until they are completed,[3] at which time new ships move into system space and are placed on the system's star on the Public Space. To complete or add to the building of any keel, the Construction Power must be activated at the colony for the purpose of Shipbuilding. Any number of keels or unfinished Orbital Cities can be advanced per activation. When resources have been paid equaling the total cost of the project (not counting enhancement technologies), it is completed. Any number of Construction Power activations may be required to complete the ship or Orbital City, however, economy of action suggests that the building be completed as quickly and efficiently as possible.

3 Construction – Laying Keel

- ✓ Of grave concern is the decline in the number of U.S. shipyards and overall annual shipbuilding capacity:

    - ▪ "In the 64 years since Eisenhower became President, the number of U.S. shipyards capable of building deep-draft, self-propelled, oceangoing naval and/or merchant ships of at least 400 feet in length has declined from 30 to 6 and the number of large ships they built each year has declined from 60 to 7. (The number of big yards is now technically 9 but 3 of those 9 are not active in the market.)" – from Ship Building History (http://www.ship-buildinghistory.com/statistics/decline.htm, Updated January 21, 2016).

    The ability of the U.S. Navy to replace losses in a war and introduce new generations of ships is much less than what it was; this is a very complex issue of economics, private industry and public policy, technology, defense spending ... and politics.

- ➢ Strategic Shipyarding: One important measure of naval power is the speed at which new ships can be built, crewed and supplied. Shipyards, located at well-developed colonies, are at the core of naval hegemony in GGDM. As a historical example, analysis of the Seven Years War ("World War Zero") has shown that the British were building ships faster and building more ships per year than the French; this, coupled with French losses in naval battles – the French lost almost every naval battle – crippled the French navy badly and, along with loss of French overseas possessions, insured British naval hegemony. The French were forced to ally with the Spanish to protect their northern coastlines and shipping (ultimately, they were disastrously defeated at Trafalgar in 1805). There is an argument that British ships were inferior to French ships in the 18th Century (see article, "18th Century Shipbuilding," globalsecurity.org), but the Brits had more ships and a superior naval tradition to compensate.

    - ✓ No matter how many ships a position has, it still has the same number of Power Activations. Grouping ships into fleets for movement helps (see Ad Astra, 1 Movement, p. 839, *infra*), but there is certainly a point of decreasing utility in producing more ships. There is an emphasis then on being able to do more with the ships a position has during each Power Activation, than building new ships, i.e. bigger, faster, badder.

    - ✓ An important control in many space-opera strategy games is the requirement of shipyards to build ships, and the significant cost of shipyards requiring careful choices on their placement. The cost is frequently justified in terms of needing to lift materials from the surface by brute-force launch, but that is only true of the first shipyard, after which materials can be brought by other ships. Both controls are used in GGDM, but it is important to be cognizant of the reasons. The Concierge may alter Existential Patent building costs before the game without any realistic basis, for example, making Shipyards more or less expensive or changing the build speed of the game.

"In the 57th century, travel between the stars has long been an accepted fact of life. Starships with powerful jump drives form the basis of interstellar commerce and the warships that protect that commerce. But jump drives are bulky and take up volume that could be filled with defensive systems or offensive weaponry. A specialized vessel, optimized for large fleet actions, gained popularity during the Second Imperium and came to completely dominate the fleets of the Third Imperium.

These vessels had no jump drives, had nothing in fact not directly related to producing the most effective line-of-battle combatant possible. They were carried across the interstellar distances by huge jump tenders, vessels with little or no combat ability of their own, which would release their deadly cargo before the battle began and then withdraw to a safe distance. These warships became the very symbol of large fleet actions. Because they were carried from star to star, they were called battle riders."

– Traveller: The New Era Battle Rider (1994) game box, back

System Boats: Any vessel larger than a Fighter (and not an Orbital Platform) but <u>without a Star-drive</u> and capable of independent operation in a starsystem, is called a System Boat. Like Starships, System Boats occupy system space and necessarily have the ability to instantly move to any place in the system as Interplanetary Movement. System Boats have no Operational Flight (OFL) or Operational Supply Limitations (OSL); that is, they cannot exist without a supporting colony or Log Ship (see Ship Systems, 3 Movement, p. 854 *et seq.*, *infra*). While there are no Existential Patents for System Boats, there are various specialized niches that could be filled by System Boats which might be more economical (lacking Stardrives) than Starships:

✓ For example, system boats could be built for system defense, carry fighters or to move interplanetary cargo (but not significant populations). It is also possible to develop sophisticated systems involving combinations of starships and system ⛴s for Commerce and Combat Power activations, for example, the Traveller RPG Tender Ships and Battle Riders (*ut supra*). Tenders may or may not also carry Fighters (see Fighters, 1 Carriers & Fighters, p. 1046, *infra*), but they are not primarily Carriers.

Positions are free to develop Patents required to construct System Boats. For the purposes of the Construction Power, System Boats should be significantly cheaper than their Starship counterparts, and it may also be possible, depending on the details of the Patent, to build System Boats in one Regular Turn using either the Lay Keel or Shipbuilding purposes of the Construction Power.

➢ <u>Maiden Voyage</u>: Newly constructed ships *and system boats* automatically receive a crew (as part of the process) and are ready to accept orders on the next Regular Turn. Newly constructed ships and system boats begin with the active Constructural Elements of their origin world, which may change over time (see New Ships and Lost Worlds, 3 Constructural Elements, p. 204, *supra*). Origin and Native Population Types of crews are not tracked in-game.

"But it was not until the years following the 1898 Spanish-American War – during which the inability to resupply coal at sea led to one of four battleships missing a major action – that the Navy began to develop systematic at-sea replenishment. The most successful idea used equipment exclusively located on colliers to transfer bags of coal, though it quickly became obsolete with the Navy's shift to oil-burning engines. These early efforts nevertheless provided important foundations for subsequent systems."

– Commander John A. Lukacs IV, USN, "A Century of Replenishment at Sea," CNO Naval History Essay Contest 2017, pub. August 8, 2018 on www.history.navy.mil

Pre-Modern Naval History: The implications of this cannot be understated. Replenishment of ships at sea is a 20th Century innovation; all naval history and strategy before then must be viewed in that light. Science-fiction literature, to the extent that it addresses the issue, has been ambivalent on the issue of ship supply, but GGDM is very particular on this (in a tendentious-pedant way), see 3 Movement generally, *infra*.

Further, most people do not realize that until the mid-18th Century, just before the American Revolution, mariners had no reliable means of determining longitude – pendulum clocks don't keep time on a rocking boat at sea (I've been on three U.S. Navy ships at sea). The mini-series Longitude (2000) adapted from the 1995 book tells the story of John Harrison and his son in their struggles to win the Longitude Prize for his invention of the maritime chronometer (ances-tor of the wrist watch). The movie, I recall, shows a couple of disastrous scenes, one ship suffer-ing from scurvy that is lost and needs to find land to obtain fresh water, in another a fleet of ships wrecked up on rocks at the Isles of Scilly in 1707 because of a navigational error. Four Royal Navy ships were sunk, 1,500 to 2,000 died, a fifth was damaged, but refloated.

 ✓ Longitude minseries (2000) is discussed again 2 Eras, EN 2, p. 776, *infra*.

 ✓ The Longitude Act is discussed again in History Patented, 1 Patents, p. 726, *infra*.

Transfer and Resupply: Newly constructed ships (including Temporal Ships, see 2 Temporal Technology, p. 817, *infra*) are automatically supplied with crew, food, fuel, spare parts, medi-cine, whatever is required to allow the ship to employ its maximum Operational Flight Limita-tions (OFL) and Operational Supply Limitations (OSL) (see, 3 Movement, pp. 855-856, *supra*). Newly constructed ships also automatically benefit from all applicable Continuous Operational Technologies at the time of completion. But, new ships are not automatically supplied with En-hancement Technologies, such as Ship Missiles, Fighters, whether expendable or not.

 ✓ Newly constructed Logistical Ships (hereafter "Log Ships") are not automatically loaded with extra *Supplies* (see Logistical Support Ships, 3 Movement, p. 860, *infra*).

 ✓ Newly constructed Cargo Ships *are not automatically loaded* with RPs. That requires an Activation of the Commerce Power at a sovereign colony on *any Regular Turn af-ter* the Cargo Ship is constructed (see Uploading, 2 Commerce, p. 1199, *infra*) if the ship began the Regular Turn in the system with the colony.

 ✓ Populations *are not automatically loaded onto or appear on* newly constructed Col-ony Ships. That requires a separate activation of the Expansion Power on *any Regu-lar Turn after* completion of the Colony Ship to Load Population to Colony Ships when it begins at a sovereign colony (see Sardine Tins, 3 Expansion, p. 911, *infra*).

 ➢ Free Resupply: Any ship arriving at any Supporting Colony (see Supporting Colony, 1 Movement, p. 840, and Operational Flight Limitation, 3 Movement, p. 855, *infra*) automati-cally has its Operational Fight Limitation (OFL) and Operational Supply Limitation (OSL) reset by receiving supplies from the colony. No Power Activation is required and there is no RP cost for this basic type of resupply; it just occurs automatically in the course of opera-tions. Additionally, ships arriving at a Supporting Colony automatically receive the benefits of all new, applicable Continuous Operational Technologies (COT) developed in their ab-sence (see Continuous Operational Technologies, 2 Patents, p. 740, *infra*). The cost of these upgrades is assumed in the development cost of the new technologies, which was paid from the Treasury. Because no Power Activation is required, *free resupply and upgrades are*

never effected by inactive Constructural Elements on either the ship or colony; however a colony currently involved in a Colony Combat cannot act as a Supporting Colony.

- ✓ The exception to this rule are Temporal Ships (aka 'T-Ships') who must always automatically make a surreptitious entry attempt on arrival and who must reveal themselves to receive any resupply or updates. See Dark Tea, 2 Temporal Technology, p. 821, and Surreptitious Entry, 3 Temporal Technology, p. 828, *infra*.

In reality, RPs should be subtracted from the colony's next Taxation for the cost of resupplying the ships but the free resupply is a concession to ease of play, playability and to the fact that this is a space-opera setting.

- ➢ Costly Resupply: For all other types of resupply from the colony, including providing *Supplies* to Log Ships, or providing or transferring Ship Missiles or Fighters and other expendable Enhancement Technologies to any Warship or Log Ship (or boats), or to 'upgrade' ships with new <u>permanent</u> Enhancements resulting from Enhancement Technology Patents, requires an activation of the Construction Power for the purpose of <u>Ship Supply</u>. One activation of the Construction Power at a colony for the purpose of Ship Supply allows an 'unlimited' number of provisioning and transfers (*ut supra*) to any number of friendly ships (or boats) which *begin* the Regular Turn in the colony's system, limited only by the colony's local Gross Domestic Product (GDP) (see 1 Construction, p. 662, *supra*).

"Log Ship" is short for Logistical Support Ship and capacity is measured in RPs, see 3 Movement, p. 860, *infra*. There is no provision for transfers to or from non-sovereign colonies, however, see No Tribble At All, 2 Commerce, p. 1204, *infra*.

- ✓ *Supplies* are measured in RP cost and a Log Ship's capacity is measured in RPs of Supplies and Enhancements it can carry (see Take Your Protein Pills, 3 Movement, p. 860, *infra*). A 1st Era Log Ship has a capacity of 20 RPs, which may be improved by subsequent Continuous Operational Technology (COT) and Enhancement (EP) Patents (see 2 Patents, p. 740, *infra*).

- ✓ *Supplies* transferred to Log Ships and any *permanent* Enhancement Technology, are assumed to be 'constructed' at the time of the transfer and thus, require the immediate expenditure of RPs by the colony (subtracted from the Treasury), up to and against the GDP limits of the colony during any activation of the Construction Power.

- ✓ As a game artifact, *Supplies* only exist on Logistical Ships. They 'store' RPs, do not 'age-out,' but are also non-redeemable to RPs, and as a very general matter, are probably not transferrable or usable to aliens...but that is negotiable in space-opera setting.

- ✓ Like other activations of the Construction Power, activation for the purpose of <u>Ship Supply</u> may share a Scene with other Construction and Commerce Power Activations at the same colony in the same Regular Turn, for the purposes of Scrapping or Loading and Unloading Cargo Ships, as applicable.

- ✓ A ship may receive from multiple colonies located in the same system, in the same turn, as long as the Construction Power is properly activated on each of the colonies that are transferring to the ships.

➢ <u>Transfers</u>: Preexisting Fighters and Ship Missiles and other *expendable* Enhancements may be transferred between eligible ships *or* between colonies and orbital defenses at a colony automatically, *with no Power Activation required*, at the *beginning of the turn* if the receiving units *begin the Regular Turn* in the same system. Enhancements may be transferred directly from bases to ships and vice-versa.

  ✓ Ships executing a Short Movement arrive at the destination at the end of the same Regular Turn as they departed and thus are in the system at the beginning of the next Regular Turn. See Space Hop, 2 Movement, p. 850, *infra*.

  ✓ Ships completing a Long Movement arrive before the first Power Activation of the Regular Turn and thus do not begin the Regular Turn in the system. This bit of timing can be crucial. See, Long Jump, 2 Movement, p. 851, *infra*.

  ✓ Because the transfer occurs at the beginning of the Regular Turn, items that are transferred cannot be built during the same turn they are transferred, they must preexist the transfer turn. Planning is key..."timey-wimey stuff." (Dr. Who, "Blink" (2007)).

Transfer of Fighters, Ship Missiles and other ***expendable*** Enhancements from a colony to any eligible ship requires that the Fighters, Ship Missiles or <u>expendable</u> Enhancements be located on the colony <u>before</u> the beginning of the current turn (they may be constructed by a previous activation of the Construction Power for the purpose of Colony Enhancement). That is, unlike loading *Supplies* to Log Ships or upgrading current ships with permanent Enhancements, Fighters, Ship Missiles and generally expendable Enhancements are not assumed to have been "constructed" on the turn they are transferred; they must already exist on the colony.

  ✓ All provisions and transfers using an activation of the Construction Power for the purpose of Ship Supply are subject to two checks related to inactive Constructural Elements. First, the target colony must be checked to see if it obeys the Power Activation. If it does, it will attempt to execute the Ship Supply as ordered, and thereafter, each target ship must be checked individually to see whether it obeys the Power Activation and accepts the transfers and provisioning. If the colony fails to obey the Power Activation, nothing will be transferred, ship checks are irrelevant.

  ✓ Transfers to, from and between ships and colonies at a planet with a non-sovereign **alien colony** (i.e. a Balkanized planet) also require *apostasy* checks, see Alieney Apostasy, 3 Disruption, p. 283, *supra*.

➢ <u>Bye, Bye Birdie</u>: RPs and most other transferable items may not be transferred between colonies in the same system without some appropriate means of transporting them, however, Fighters are easily capable of making the transfer between any two colonies owned by the same position located in the same system, without the need for assistance from a ship. The transfer may be made instantaneously if neither colony is currently besieged (see Besieged Colonies, 3 The Sidereal Stage, p. 124, *supra*) and the receiving colony is capable of accepting the incoming Fighters.

Generally, the game rules do not anticipate the ability or desire to transfer existing installations, such as Industry and Defense Bases; the rules only address the transfer of RPs (which are used to build installations and enhancements at the destination – which could indirectly be construed to mean that at least significant pre-manufactured, modular parts were transferred) and enhancements to and from colonies and ships. It is not considered impossible to

load or tow an Orbital Defense Base, or anything else, but positions will need to develop both the need and the capabilities to do so within the course of the game.

✓ Massive oil drilling platforms have been towed many times over great distances from where they were constructed to oil fields. I saw a megastructures show once about such an endeavor, a massive oil rig being towed by perhaps 9 tug boats. On a related note, the *USS Cole* was lifted out of the water and transported on the deck of the semi-submersible heavy lift ship *MV Blue Marlin*; there are many photos of the *MV Blue Marlin* transporting huge radar systems and other U.S. Navy ships. In 1988, the *MV Mighty Servant 2* (which had to be modified) was used to transport the mine-damaged *USS Samuel B. Roberts* from Dubai to Newport, Rhode Island, a voyage of 101 days costing $1.3 million.

Logistical Ships (or Boats) can be used to transfer enhancements between colonies in the same system, but not Fighters (*ut supra*), RPs or *Supplies*. For transfer of RPs between colonies in the same system, see Carting, 4 Commerce, p. 1229, *infra*.

"The storm looked worse than just a blow, maybe a city killer even, the way the clouds swirled and scattered lightning across the wrecks offshore […]

His father claimed that the storms were worse every year, but Nailer had never seen anything like the monster bearing down on them."

– Paolo Bacigalupi, Ship Breaker (2010) [4]

Ship Breaking: "Scrapping"[5] is the process by which something is taken apart at a colony in such a way that whatever is still usable, given the current technology, is recycled. If it is desired that something be instantly destroyed, then it should either be taken into combat or a News Event used to accomplish the instant destruction (no one is likely to complain about using a News Event to instantly destroy your own stuff). Scrapping permanently removes the item, unit, installation or ship from the game; something Scrapped cannot be reconstituted.

Scrapping in GGDM is thus not the same as mothballing. There is no provision in GGDM for mothballing ships and installations (mothballing is not the same as temporal stasis) and has no use. There is no Qualor II Surplus Depot Z15 in GGDM and no need to send Counselor Troi:

✓ "He probably figures that we don't get to see a lot of handsome women out this way, and someone like you might get a little more cooperation out of me. [pause] He's probably right." – Klim Dokachin (quartermaster of the junkyard), speaking to Counselor Troi, ST:TNG "Unification" (1991).

▪ Troi negotiating with the Quartermaster is the only bit I recall 30 years later.

Three of the *Iowa Class* battleships of WWII were mothballed in 1955 and 1958 as they became tactically obsolete and vulnerable to ship-to-ship missiles, their costs were reduced to maintenance so that resources could be diverted elsewhere. The *USS New Jersey* remained in operation during the Vietnam War and was decommissioned in 1969; in the 1980s, all four of the Iowa-class battleships were refitted and reactivated into service as the argument swung to their potential as massive ship gun and missile platforms with improved defense systems. The *USS New*

Jersey was deployed to the coast of Lebanon in 1983 and fired salvos of 16-inch naval shells inland from November 1983 to February 1984 with questionable accuracy. The battleships were featured in Tom Clancy's <u>Red Storm Rising</u> (1983). All were deactivated in the 1990s.

➢ <u>Junkyard Blues</u>: Anything that can be brought to a Friendly, Converted, or Naturalized Colony, or that is located on any Colony (that is, belongs to the colony) can be scrapped, with the exception that any ship (i.e. Colony Ship) or Orbital City with population still on it cannot be scrapped. There is no limit to the amount of 'stuff' that can be Scrapped at a colony in a turn (based on the same argument offered earlier regarding unloading Cargo Ships).

Note, however, that Scrapping is a separate activation of the Construction Power that may be accomplished concurrently with (and separately from) another activation of the Construction Power for another purpose, and concurrently with activation of the Commerce Power for the purposes of Loading or Unloading Cargo Ships at the same colony in the same Regular Turn.

     ✓ Note that the 'scrapping' process occurs automatically for Colony Ships when they are Landed to establish a new colony. No RPs are received for this particular type of 'scrapping' activity, but a new colony is established. Be happy with that result! See, Pandorum, 4 Expansion, p. 923, *infra*.

There are limits to the amount of installations and units that may be on or at a colony, but GGDM places no limits on the number of ships a position may have in system space or in total (see Strategic Shipyarding, *ut supra*), nor does GGDM address specifically the subject of obsolete ships.[6] Further, while GGDM does include maintenance cost, there is no specific per unit maintenance cost in GGDM. Or perhaps it is made up in other places, see e.g., The Roads Must Roll, 4 Order, p. 567, *supra*. Thus, the scrapping rules may seem a bit superfluous, of limited use, but are included for completeness and for whenever the situation may arise – for example, if the positions sign a universal peace treaty that requires the immediate destruction of all warships!☺

➢ <u>Recycling Containers</u>: The amount of resources (RPs) received from Scrapping anything is generally between 25% and 50% of the cost of building the item. The amount received is solely at the discretion of the Concierge, however, in most cases the Concierge may simply resort to a die roll to determine the amount received back from Scrapping. For that purpose, even though all of the Power Activation costs for the Construction Power are the same, Scrapping would have to be resolved first. To be consistent with the other Construction Power rules, all RPs received from Scrapping must be either used for other Construction Activations at the same colony on the same turn, or loaded onto Cargo Ships at the same colony in the same turn. RPs received from Scrapping will not be added directly to the Treasury. Because of this, the Concierge and players may need to predetermine RPs received from Scrapping before the Power Activation to avoid guessing, confusion or waste of RPs.

> *"The most remote location on Earth has many names: It's called Point Nemo (Latin for 'no one') and the Oceanic Pole of Inaccessibility. Most precisely, its exact coordinates are 48 degrees 52.6 minutes south latitude and 123 degrees 23.6 minutes west longitude. The spot is about 1,450 nautical miles from any spot of land – and the perfect place to dump dead or dying spacecraft, which is why its home to what NASA calls its 'spacecraft cemetery..'.. To 'bury' something in the cemetery, space agencies have to time a crash over that spot. Smaller satellites don't generally end up at Point Nemo....*

The problem is larger objects, like Tiangong-1: the first Chinese space station, which launched in September 2011 and weighs about 8.5 tons.... Between 1971 and mid-2016, space agencies all over the world dumped at least 260 spacecraft into the region, according to Popular Science. That tally has risen significantly since the year 2015, when the total was just 161, per Gizmodo. Buried under more than two miles of water is the Soviet-era MIR space station, more than 140 Russian resupply vehicles, several of the European Space Agency's cargo ships (like the Jules Verne ATV), and even a SpaceX rocket, according to Smithsonian.com....

These dead spacecraft aren't neatly tucked together, though. [Bill] Ailor said a large object like Tiangong-1 can break apart into an oval-shaped footprint of debris that extends 1,000 miles long and dozens of miles wide. Meanwhile, the land-free zone around Point Nemo stretches more than 6.6 million square miles.... While not all spacecraft wind up in the cemetery, the chances are extremely slim that anyone would get hit by debris regardless of where the spacecraft break up on Earth, Ailor said.... A bigger risk is leaving dead spacecraft in orbit."

– Dave Mosher, "A spacecraft graveyard exists in the middle of the ocean – here's what's down there," Business Insider, October 22, 2017 [7]

Endnotes.

[1] Commentary: In a chillingly deranged scene in the movie, Hitler has one last meeting with Speer in the *Führerbunker* where he comments while looking at the famous planning model of the city that it will be easier to rebuild Berlin after Germany wins the war because it has been mainly destroyed by bombing and fighting.

[2] Citation: http://news.bbc.co.uk/2/hi/europe/1800287.stm.

[3] Commentary: Contrary to popular myth, the Death Star under construction at Endor was not functional! Any portrayal of the hapless Death Star firing at Rebel Star Cruisers is just part of the Rebel propaganda film The Return of the Jedi. The cowardly Rebels really destroyed a defenseless ship, murdered thousands of loyal imperial servants.

[4] Commentary: I once read a case at Admiralty Law before the Federal Court in New Orleans. Defendant company operated a fleet of coastal transport ships; one ship captain ignored initial NWS storm warnings and waited too long to make for shelter on land. The ship arrived in New Orleans just before the storm and tied up at the dock, it didn't have time to go farther up the river. Other ships had heeded the warning and moved up river to (Kingsport?) Mississippi. The storm arrived in New Orleans and the surge tore the ship loose from the dock; the ship was found a half mile inland on the roof of a house.

[5] Commentary: Scrapping of Western electronic waste has become a major third world industry, with millions of television sets and old CRT monitors and other electronics, being shipped overseas every year to be scrapped for precious metals by poorly-paid, unprotected children and adult workers who are exposed to hazardous wastes. The precipitous drop in flat screen costs and the forced change to digital television will only make this problem worse, or alternatively, fill our landfills with unprocessed electronic junk (most places have since banned electronic junk from landfills, so now it gets tossed into empty lots or left on the curb where garbage collectors will not pick it up; this has become an urban problem). Please properly recycle your electronic waste using reputable disposal services.

[6] Commentary & Clarification: Long ago and far away (1989 in Camp Pendleton, California), my friends and I used to play an early computer game called Colonial Conquest (the subject of a Kickstarter in 2017) on Atari 1040 ST. The game had a spy function where players could pay to look at other player's territories to see how many troops were there before attacking. The program also provided AI opponents. However, the AI would do strange things, e.g., you might see 4 million troops on an AI-owned island that could not hold 100,000 troops! GGDM attempts to prevent this at least on planet surfaces, but system space is effectively infinite in the game.

[7] Citation & Commentary: In about 10,000 years, some archeologist will find Point Nemo after the oceans have dried up; a large part of our paleo-archeological information comes from burials and waste dumps.

3 Construction – Laying Keel