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“Our scientific power has outrun our spiritual power. We have guided missiles and misguided men.” – Martin Luther King, Jr.

Torpedoes at Trafalgar: Ship Missiles are an Enhancement Technology that may be added to warships and Orbital or System Defense Bases (but not Ground Bases) after obtaining the Ship Missile Existential Patent. Ship Missiles are a one-shot, expendable Enhancement, which may be replaced by manufacturing and transferring missiles from a colony using activations of the Construction Power for Colony Enhancement (to build) and Ship Supply (to transfer). Log Ships may also carry replacement missiles which can be resupplied in combat (see Combat Resupply, 4 Movement, p. 868, *supra*). Ship Missiles do not gain from Era progression, like Fighters, new generations of missiles will be required for the 2nd and 3rd Eras via new Patents.

Ship Missiles are measured in RPs, like Fighter Complements. Unlike Fighter Complements, a unit may fire less than its full Ship Missile attack in any Combat Round, until all are expended. A normal warship can carry Ship Missiles with an RP value equal to half of its basic construction cost (not total cost, see Laying Keel, 3 Construction, p. 675, *supra*) and Carriers can carry Ship Missiles equal to one third of their basic construction cost. System Bases have extra capacity, they may carry 30 RPs of Ship Missiles (equal to 2/3 of their basic construction cost).

- ✓ A 1st Era Log Ship can carry enough Ship Missiles to reload a 1st Era Warship.
 - ✓ As discussed in ABBA Arrival, 2 Information, p. 1340, *infra*, Ship Missiles will not automatically be detected by anyone seeing the ship, but may be detected if the other position engages in Surveillance at that location. Knowledge of the presence of Ship Missiles, even if not used in the Combat, may significantly affect the choices made.
 - ✓ Imagine if the Franco-Spanish fleet at Trafalgar had a few deck-mounted torpedo tubes of the WWI air-powered variety or WWII JFK PT Boat electric powered kind?
- **Fighters vs. Ship Missiles:** Fighters are reusable, but require special warships called Carriers (or a Colony) where they are based. Ship Missiles can be put on *any warship or base*, but are *one shot*. The combination of Ship Missiles and Fighters can be a deadly, expensive, tactic.
- ✓ Like gunpowder weapons, Ship Missiles may be the ‘great equalizer’; a side that is either inferior in technology or numbers may seek to temporarily equalize the situation with heavy use of Ship Missiles. This is a very expensive patch, and may harm the position developmentally in the long term. But can a position risk not having Ship Missiles in the arsenal? Can ships pass up the extra attack?

Ship Missiles are like shooting RPs at the enemy. Literally. Are they worth it? Do you fire all of your Ship Missiles in the first Combat Round? Because if their ship or base is destroyed, the unfired Ship Missiles are lost, wasted. Or do you spend all of those RPs on warships, bases, and technology instead? A fleet that fired all of its Missiles in the first combat (a Ship Combat) has lost significant ability, and may be at a disadvantage in the second combat. Do you target the enemy ships that you think are holding back Ship Missiles for a follow on Colony Combat or second Ship Combat? Dare you gamble with the fate of worlds?

- **First Fire:** A ship or Orbital or System Defense Base armed with Ship Missiles may fire some or all of its missiles at one or more targets in any Combat Round in addition to its regu-

lar attack or action (except Combat Resupply). Thus, a unit that is Combat Screening another unit or retreating, may fire Ship Missiles. Ship Missiles, however, do not execute their attack until the *end* of the Combat Round, *before retreats*. The unit firing the Ship Missiles does not need to survive the Combat Round for the missiles to attack (i.e. ‘fire and forget’).

There probably is no – or a very thin – realistic basis for resolving Ship Missile attacks at the end of the Combat Round; it’s mainly just a game tick to allow Engaged results to carry over. Participants who want to design Ship Missiles that attack with or before Fighters in the Combat Round should be cognizant that they are giving up the carryover ability.

- ✓ There are many ways to slice the pie; in the Traveller RPG board game Imperium (1977) ships have missiles, beam weapons and defensive screens. Missiles are the only weapon that can attack in long-range combat, where they are most effective, their effectiveness is (counterintuitively?) halved in short-range combat. However, as the first combat round is automatically at long range, a ship will always get to fire missiles at least once; in short-range combat, a ship destroyed by beam weapons, which resolve first, cannot fire its missiles before being removed (cf. in GGDM, Ship Missiles fire first). Further, to offset the Vilani superiority in ship missiles, the Earth player can build cheap missile ships¹ which, combined with the game’s tactical option of “high intensity missile fire” that expends all missiles in one shot for a double-strength attack, is a devastating first-round offset tactic against heavy Vilani ships.²
- Fire-and-Forget: Ship Missile attacks are resolved like Fighter attacks, including Effectiveness Rolls, except that Close-in Defense fires first, *unless* the target has already been Engaged earlier in the current Combat Round by Fighters or prior Ship Missiles.
 - ✓ Ship Missile attacks from each source against one target are *resolved separately*, as if they were a Fighter *sortie* (e.g., the 1979 movie Meteor), in the order listed in the Combat Orders; it will take missiles from two enemy units to instantly destroy an unengaged target. Ship Missile sorties may not make concentrated or combined attacks.
 - ✓ Missile RPs destroyed by Close-in Defense fire are removed *prior* to resolving the Ship Missile attack, but any remaining missiles will attack the target.
 - ✓ Successful attack results from Ship Missiles are cumulative with other successful Fighter/Ship Missile attacks; a previously engaged target can be destroyed.
 - ✓ A Ship Missile attack may Engage the target or destroy a previously-Engaged target, and, unlike Fighters, Engaged results from Ship Missile attacks *carry over to the next Combat Round to the end of the Fighter attacks resolution* (i.e. not to the end of the Combat Round, not to the next Ship Missiles resolution or retreat attempts).
 - ✓ As Ship Missiles destroy themselves in the attack, there is no Close-in Defense fire after the attack; units that were Engaged before the attack will not get any Close-in Defense Fire against Ship Missiles.
 - ✓ *Ship Missiles may never use Enlightenment!* (duh!) But that’s negotiable, of course.
 - ✓ *Ship Missiles may never be used against Ship Missiles or Fighters.* But that can be fixed, of course. It is possible to develop variant Ship Missile technologies.
- Already Engaged, Don’t Ask: The owner of the unit engaged by Ship Missiles at the end of the Combat Round will know on the beginning of the next Combat Round that the unit begins Engaged already. This likely will affect what that unit does in the next Combat Round,

as first, its chances to hit are reduced by being Engaged, and second, any successful attack by Fighters in the Combat Round will destroy the unit that began Engaged. Combat Screening the unit may not be an option, but then again, neither might charging after a Carrier or other unit that it likely to be screened an option, unless there is no choice.

- ✓ Because Ship Missiles attack at the end of the Combat Round, there are two situations in which they should be used: 1) if the firer thinks that the enemy ships will likely survive the round and try to retreat, and the firer doesn't want them to get away, and 2) if the firer thinks the combat will last more than one round or will continue into the next round. Ship Missiles are less effective if the Combat ends in one round or ends on the round they are fired, with all units of a side destroyed. Judgment calls. Risks.
- Flying Telephone Poles: Ship Missiles may not be fired at Fighter Complements. But Fighter Complements assigned to Combat Screen the target, may, at the option of their owner, be preassigned to intercept incoming missiles during the round. This intercept is resolved at the end of the round, instead; Fighters not preassigned to intercept Ship Missiles may not attempt to do so. Fighters will automatically intercept missiles, and will damage missiles as if they were in a Dog Fight. The missiles will do no return damage to the Fighters. However, unlike a Dog Fight, *any missiles not destroyed by the Fighter interceptors will go on to attack the target* at the end of the Combat Round.
 - ✓ For example, a 1st Era Fighter Complement with a 20 RP sortie is assigned to Combat Screen a ship against Ship Missiles. A sortie of 20 RPs of 1st Era Ship Missiles targets the screened ship. The Fighters will automatically intercept the incoming missiles (i.e. automatically hit), and will receive two damage rolls against the incoming missiles, and will probably destroy about half of the missiles on an average result. The missiles will do no damage to the Fighters in return, but the remaining missiles will continue on to attack their target (as a Fighter attack).

Since Ship Missiles are fired by **ships** (and other units) *after* all Fighter actions are resolved in the Combat Round, the Fighters assigned to Combat Screen a target against Ship Missiles may not simply switch to normal Combat Screening if no missiles are fired at their protection target. A game of rat and dragon is at hand!³

- Missile Ships: It is possible to build ships whose main and superior function is to launch massive missile volleys. It is possible to build a tactical system around heavy use of Ship Missiles; such ships would need to fire all in the first round and would be viciously targeted by the enemy. Gunnery is obsolete, most of the modern naval dirty work is done by missiles.
 - ✓ The most impressive missile ship was the Abh Flagship during the Battle of the Aptic Gate episode of Banner of the Stars. The Abh Flagship looked like a long vessel with curved sides, but near the end of the battle, the curves opened up into long arms (like a flower) and when fully extended, began rapid firing tens of thousands of missiles from the front of the arms, flooding through the Sord (planar gateway) to hit the exhausted enemy fleet. This is industrial warfare, like the Katyusha rocket launcher.
 - ✓ It appears that the last hurrah for big naval guns was the (mostly inaccurate) firing of the USS New Jersey's 16-inch salvos off the coast of Beirut, December 1983 in defense of U.S. Marine positions. In a combined WWII game of Hunt for Red October and Red Storm Rising, NATO engaged the Soviet Baltic fleet in the Straits of Denmark trying to prevent their breakout into the North Sea. A retired U.S. Navy gaming

friend (a torpedo man) described the battle as a “knife fight in a phone booth” due to the power of modern warships’ missiles and the constricted combat area.

“Despite Operation Praying Mantis coming to a close less than 24 hours after beginning, one tragic event that followed it would forever mar the naval success. Following the operation, US guided missile cruiser the USS Vincennes was deployed to the Gulf to protect the USS Roberts until it could be towed into a friendly port for repairs. On July 3 of that year, the Vincennes detected an Iranian fighter jet flying toward it. The captain ordered it shot down. The identification, however, was mistaken. The USS Vincennes instead shot down Iran Air Flight 665, which was carrying 290 civilians on board, killing them all.”

– Michael Omer-man, “This Week in History: Iran, US battle on the seas,” The Jerusalem Post, April 15, 2012

Air-Missile Battle: A reading of the various engagements between the U.S. Navy and the Iranian Navy in the Persian Gulf in 1987-1988, especially the major air-naval engagement during Operation Praying Mantis, shows that the major deficiency of Iranian naval ships was a lack of missile and air defense and subpar radar. The Iranian frigate *Sahand* was sunk by six or seven near simultaneous hits from Harpoon and Skipper missiles and the *Joshan* took four near simultaneous hits from Standard missiles, in neither case were any of the missiles blocked. The overkill suggests the U.S. Navy was not aware of the lack of missile defenses on Iranian naval ships.

Iranian attempts at asymmetric response were largely ineffective in the big picture (e.g., dispatching speed boats to attack a supply ship, oil tanker and an oil rig) and their minelaying activities beforehand only triggered the entire situation by damaging a US navy ship.

- ✓ A distinction must be made between the Navy of the Islamic Republic of Iran Army, which operates more or less as a regular navy (despite the name) and Navy of the Islamic Revolutionary Guard Corps, which consists of fast attack boats, and specializes in asymmetrical operations at sea, such as hit and run, raiding.

This is not to discount the vast material and technological superiority of their U.S. opponents (missiles launched by the Iranians at U.S. Navy Ships were ineffective, for example, the *Joshan* fired a Harpoon that was lured away by chaff rockets and coastal-based Silkworm missiles missed as well), but the Iranian additional attempts at conventional engagement by regular Iranian naval ships was uncoordinated, haphazard and without reconnaissance or proper air support, contributing to their biggest losses: one frigate damaged heavily and another sunk.⁴

“In a predawn raid against Tharaa-bu starport today, forces of Duinor’s Ilelish Federation inflicted serious material damage and heavy casualties. Unlike previous deep-penetration strikes against Lucan’s Imperium, Dulinor’s raiding force on this occasion is said to have consisted exclusively of escorts and support craft (under 1000 tons). While some ground units were landing in support of the assault, unofficial reports suggest that these were forward observer/target designator teams. This hypothesis is supported by the extraordinary first-round accuracy of the orbital bombardment munitions.”

Official spokespersons for Lucan’s Imperium claim that the majority of strikes were purposely targeted on populated areas, but independent observers suggest that most civilian losses were the result of collateral or spill-over damage. Lucan’s spokespersons also state that this bloodthirsty massacre offers proof positive that Dulinor has no concern for the safety or welfare of civilians, and that he is unremitting in his efforts to reclaim the Irridium Throne.... Drawing comparisons with the hit-and-run tactics that characterized the ruinous yet inconclusive Fourth Frontier War, this senior analyst expressed concern that with conquest now beyond logistical possibility, faction leaders might be resorting to tactics stressing the widespread destruction of enemy resources and transportation nexuses.”

– Traveller News Service (Traveller RPG), Imperium Date 306-1122

Black War: The raid on Tharaa-bu starport in the Traveller Third Imperium civil war marked the beginning of the Black War, the point *where no one could win, but everyone could lose and could make sure that everyone else lost too*. The Virus finished the job, everyone lost. Raid and Strike Combat (*ut infra*) is the preferred method in those types of wars when few large units are left on either side to do battle conventionally.

[Interview] **Chris Wren:** *He [Winston Churchill] asked [Air Marshal] Park how many squadrons we have in reserve. The answer was none. Everything was committed to the afternoon raid.*

Narrator Struan Roger: *Park, later described as a man who could have lost the war in an afternoon, has sent every available squadron into action.*

– Chris Wren, Curator RAF Operations Room, Uxbridge, 13 Hours That Saved Britain (documentary, 2011)

World in Flames: Raid and Strike combats are Fighter attacks, *from a Carrier or colony*, against civilian ground and orbital population and facilities without the need for Orbital Bombardment. *Only Fighters* may execute Raid or Strike Combat. Raid or Strike Combats, including against Conquered or Converted Colonies, requires a separate activation of the Combat Power to initiate combat and the units performing the Raid or Strike cannot be involved in another ongoing Combat, even against the target colony. All Raids or Strikes last one Combat Round and are thus completed at the end of the first Combat Round, freeing the attackers from commitment. Raid and Strike are very similar actions and thus are grouped here. The attacker must specify in their Combat Orders whether the attack is a Raid or Strike.

- ✓ Raid Combat targets *civilian population and civilian facilities* on/under the surface.
 - “Raid,” as used in GGDM, is in the 20th Century sense of an air raid, not a raid of pillage, e.g., Looting, see 3 Commerce, p. 1210, *infra*.
- ✓ Strike Combat targets *civilian orbital platforms* at the colony.

Thus civilian targeting distinguishes Raid/Strike Combat from normal Fighter attacks on Defense Bases in Colony Combat. Those are not treated as Raid/Strike Combats.

- ✓ Colony-based Fighter Complements can raid/strike colonies sharing a Balkanized planet or possibly carry out interplanetary raid/strike. The effectiveness of the latter is dependent on technology and assumptions; whether the fighters have to spend

months or a year flying to the target or whether in-system speed is such that the trip can be made in a few hours (like WWII) or even minutes (it takes light 3 minutes to reach Mars from Earth, whereas radio lag is 6 to 24 minutes).

As in Orbital Bombardment, the Native Population Type of the colony targeted by the Raid or Strike is irrelevant; however, there may be other consequences regarding legitimacy. See *The Bomb*, 2 Combat, p. 962, *supra*. Also, on a Balkanized planet surface, Raids may hit (accidentally, I am sure) other colonies, *Id.* p. 963. Doesn't make the victims feel better, though.

- ✓ Units involved in a combat cannot do anything else until one side is either completely destroyed or retreated (ending the combat), or the unit has successfully retreated from combat. Thus, attacking units in a Raid or Strike Combat cannot be involved in another combat even if there is an ongoing Ship or Colony Combat. The defenders however, of existential necessity, may and must defend against the Raid or Strike even if currently engaged in a Colony or Ground Combat at the target colony.
- ✓ Range is a killer; enormous, heavily armed Zeppelin airships were able to bomb England with near impunity with the assistance of gravity from January 1915 to early 1916 because Zeppelins flew higher than biplane fighters and just at the edge of ground anti-aircraft fire range. LZ-37 was shot down over England in June 1915 and from then on, Zeppelin raids became more costly for the Germans due to improving biplane interceptors and incendiary ammunition until discontinued in October 1916. Improved defenses forced the next strategic evolution. In May 1917, after a six month lull, the Germans took the next step, bombing England with enormous biplane bombers (Gothas, then R-Planes) in combination with resumption of Zeppelin raids.
- Collateral Issues: Civilian installations can include Technological Devices, Colleges, Institutes, and Corporate or MegaCorporate Headquarters hosted on the colony surface, as well as, the usual Industry. Industry and Technological Devices might be destroyed. However, because of what is represented by Colleges, Institutes and Corporate/MegaCorporate Headquarters in GGDM, these should never be allowed to be destroyed by anything that doesn't also eliminate the entire host colony, probably hits on those installations should result in a one Regular Turn suspension of the associated College, Institute, or Corporation.

It is perhaps artificial or unrealistic to allow Ground Units and Ground Bases at the colony to escape damage from Raids. This is up to the judgment of the Concierge and participants. Some installation hits could be converted to RPs damage to Ground Units or Ground Bases and some population losses could be converted into either population loss or RP loss in Ground Units, if the colony is not currently engaged in a *Ground Combat*.

- ✓ The primary purpose of the Raid/Strike rules in GGDM was to provide a mechanical outline for strategic, total warfare non-Orbital Bombardment attacks on civilian targets, as distinguished from tactical Fighter attacks against units during Colony or Ground Combat or destructive Black-ops (see 2 Special Operations, p. 1297, *infra*).
- Do-Little: Upon initiation of the Raid/Strike Combat, the owner of the target colony will be informed. There is very little for the defender to do, no Combat Orders to issue (Combat Screening is automatic, next page, *ut infra*) so the only decision to be made and timely communicated to the Concierge is whether or not the Defender is using Enlightenment in de-

fense. No Power activation is required to use Enlightenment *in defense*. Enlightenment cannot cause the enemy to reroll successes (see Army of Light, 2 Colleges, p. 479, *supra*) but can contribute to reducing incoming Fighters, mitigating damages, or causing greater damage to the attackers. The defender will not be informed if the attack is a Raid or Strike.

- ✓ Timing is key within the Regular Turn Cycle. The Defender should not be allowed to delay responding regarding Enlightenment commitment so that they can take their next Regular Turn before the Raid/Strike is resolved, but should have 24 hours to respond if possible depending on the timing of the attack whereas the attacker should also carefully consider the timing of the Raid /Strike combat initiation. Attackers may want to attack either before or immediately after the target's Regular Turn, and may use Combat Alert, see DefCon 1, 1 Combat, p. 946, *supra*, to Initiate Combat.
- Hammerheads Rising: Any colony that is the target of a Raid/Strike Combat will automatically be Combat Screened by the Fighter Complement based on the colony, unless the Fighter Complement is currently issued other Combat Orders. If the Fighter Complement was assigned to Combat Screen anything in orbit at the Colony, it will automatically Combat Screen the colony instead. However, if the colony-based Fighter Complement is participating in a Ship Combat or attacking targets in a Colony or Ground Combat, it will not automatically Combat Screen the base colony. If friendly Carriers with Fighter Complements are currently in the system and are not involved in Combat, Fighter Complements from the ships may be assigned to Screen the colony, even if it has its own Fighter Complement.
 - ✓ The potential strategic threat of a Raid/Strike by units not involved in an ongoing Ship or Colony Combat may prevent colony-based Fighter Complements from joining or initiating Ship Combat in friendly systems.
- Areal Knights: Colony-based Fighter Complements may Intercept and Dogfight (see 3 Carriers & Fighters, pp. 1069-1070, 1072, *infra*) incoming attackers before Close-in Defense Fire. The Dogfight is resolved as normal, except that any surviving attackers will continue the Raid/Strike attack after the Dog Fight, penetrating to the colony to deliver their deadly cargo.
 - ✓ Although participants might envision WWII bombers escorted by fighters over Germany or Japan, it is more likely that the Raid or Strike is being carried out by the space-going equivalent of 'jet bombers' (the first U.S. Jet Bomber was the B-47) or regular space fighters with nuclear missiles. Positions can develop Patents to build specialized Fighter Complements for the purpose of Raid/Strike Combats. Raid/Strike is a situation more likely to involve nuclear warheads (or worse).⁵
- Under Your Desk: After all Interceptions and Dogfights are resolved, each Orbital Defense Base has a 40% chance of firing at the attacking Fighters, and if able to fire, may execute *one* Close-in Defense Fire. This is different from normal Close-in Defense fire – one attempt is not made for every 10 RPs of attacking fighters, instead, each firing Orbital Defense Base gets one attempt regardless of how many Fighters are attacking. Era shifts apply. On a success, 1d10 RPs of attacking Fighters are removed *before* they can execute the Raid or Strike.
 - ✓ Example, a target colony has ten 1st Era Orbital Defense Bases. On average, 4 of the Orbital Bases will be able to fire once each at the attacking 1st Era Fighters in a Raid or Strike. Each will destroy 1 to 10 RPs of attacking Fighters before they execute their Raid or Strike mission. On average about 20 RPs of Fighters will be destroyed.

- ✓ If a Raid originates from the surface of the same planet, as on a Balkanized world, the Concierge may determine that Orbital Bases are unable to fire at the attackers.

System Defense Bases are considered too far out to affect Fighters executing a Raid/Strike; System Defense Bases are mainly intended to defend against enemy warships and Fighters (an areal phenomena) can go around them. Ground Bases are too close to the target to be effective, though they do play a role in this process later.

- ✓ Envision this: A group of attacking Fighters in a Raid Combat approach the north polar region from the dark side of the planet, cross the north pole and proceed down the northern hemisphere on the daylight side where they launch their missiles. Many of the Orbital Defense Bases in the northern hemisphere might be able to fire at them, but those in the southern hemisphere down to the south-polar region probably cannot fire at the attackers. Even those located around the equatorial region would not have much of a shot. As Orbital Defense Bases are a *cordon defense*, this is to be expected, see Defending the Nothingness discussion, 2 Combat, p. 956, *supra*.
 - ✓ “The term cordon is used to denote every defensive plan which is intended directly to cover a whole district of country by a line of posts in connection with each other.... It is evident at a glance that such a long defensive line as that must be, which is to cover an extensive district of country directly, can only have a very small degree of defensive stamina.... The object of a cordon can therefore only be to resist a weak blow, whether that the weakness proceeds from a feeble will or the smallness of the force employed.... This defensive measure is chiefly designed as an impediment to raids, and other such minor expeditions directed against single cantonments, and for this purpose it may be quite sufficient if favored by the country.... The assembling and advance of the enemy’s army itself can never take place so unobserved that the defender gets his first information of it through his outposts; when such is the case he is much to be pitied.” – Carl von Clausewitz, On War (1832).
- Fire Fall: After Orbital Defense Base Close-in Defense, the attackers proceed to their target.
- ✓ If the attack is a Strike, the attacking Fighters must have had assigned in the Combat Orders specific civilian orbital platforms (i.e. Orbital Cities, Orbital Shipyards or Keels) as their target and the Fighter Attacks are resolved normally against those targets. After the Fighter attacks are completed, the Fighters return to their origin (or to a safe landing place) and the Strike Combat is over (automatic retreat). Era Shifts are applied using the current Era of the Colony Defenses and *civilian target shifts* also apply (see Colony Defense Era Upgrade, 2 Combat, p. 954, and Combat Shifts and Civilian Targets, 3 Combat, both p. 978, *supra*).
 - Engaged results matter little in Strike Combats, therefore, it is probable that the Fighters will use Concentrated Attacks against civilian orbital targets to achieve destruction of the targets. Failure to destroy the targets could be a result of any combination of losses from enemy fire and fighters, area denial around the target, Era shifts, or poor effectiveness.
 - ✓ If the attack is a Raid, each 5 RP of Fighters remaining destroys 1-3 population or 1-3 *civilian* installations on the target colony. The chance of destroying either population or installations is even, a roll is made to see what is hit (50% chance of either) and

- then to see how much is destroyed. If installations are hit, the destroyed civilian installations are determined randomly, unless the attacker has developed some ability to target specific installations (e.g., Special Operations Reconnaissance or Black ops, technologies, doctrines like the Tharaa-bu starport raid feature quote, p. 1084, *ut supra*). Without developing special ability to do so *and* advanced intelligence on the target (and/or someone on the ground to paint the target with a laser, e.g., Battle: Los Angeles (2011)), the attacker may not specify which installations are being attacked.
- When there is a 50% chance of either hitting population or industry, there is no ‘failed roll’ condition that will trigger an Enlightenment reroll if any is available. If positions, however, develop technology or doctrinal abilities that will allow greater percentages favoring targeting either one, then Enlightenment rerolls might be possible. On the second roll option, if Enlightenment is available, any result of less than 3 would trigger a reroll (see Harsh Mistress, 2 Colleges, p. 478, *supra*).
- Giv’n Them Some Flak: But hang on just a frakk’n millicenton! It ain’t over ‘til we kick your tails – till the fat lady wails! After the damage from the Raid has been determined, there is a 25% chance that each Ground Base at the colony will be able to fire Close-in Defense at the attackers in the same way as the Orbital Bases did previously (p. 1087, *ut supra*). Era shifts apply based on the current Defense Era of the colony. For every 5 RPs of attacking Fighters destroyed in this way, there is also a 50% chance of negating one of the Raider’s hits (chosen randomly). This does not apply to Strike combats.
- ✓ Consider your average WWII strategic bombing movie scene. By the time the ground flak opened fire on the bombers and fighters, they were already over their targets or nearly there, and dropping their bombs. Thus, most of the ground flak wasn’t necessarily about preventing damage (if you want to do that, you need interceptors), but about inflicting damage on the attackers while they were massed over the target (e.g., the Schweinfurt-Regensburg Mission, August 17, 1943, and the Second Raid on Schweinfurt, October 14, 1943 (“Black Thursday”) both of which suffered heavy, near catastrophic combined losses from Luftwaffe fighters and anti-aircraft fire).
 - There is a tactical peculiarity here: Colonies that lack Fighters or Orbital Defense Bases, but use Enlightenment, have a better chance of those rerolls being applied to the Ground Base flak after the Raid.
 - ✓ What goes up does mostly come down also... dozens of civilians in England in WWI were injured or killed by falling shrapnel and bits from intense anti-aircraft fire.
- Collateral Damage: There is room for interpretation here; the numbers above are just baseline numbers so that the game can proceed smoothly. If the colony is newly established, or the population is low compared to the Maximum Habitability of the planet (e.g., grapevine colony) it is more likely that the population is concentrated in one or two urban centers and the ground defenses are all at the target of the Raid. If the planet is Unpleasant, Hostile or Uninhabitable to the Native Population Type of the target colony, it is also likely that the population and defenses will be concentrated in environmentally-controlled areas. The percentages can thus be slid up and down the scale depending on judgments, the Concierge may use Interventions. This relates to the Frontiers discussion, 1 Expansion, p. 887, *supra*.

- ✓ A debate of Interstellar War II is whether the Nippon fleet commander should have sent a third wave of raiders at the United Stars of Andromeda colony at Pearl Harbor.

It is possible to eliminate a surface colony by Raid damage and population and installations on Orbital Cities destroyed by a Strike are lost. For each *surface* population or installation lost due to Raids, there is a 50% chance of the planet losing one Maximum Habitability and a loss of one Habitability Class for every 20 population reduction in Maximum Habitability (like Orbital Bombardment, In This Dust That Was a City, 2 Combat, p. 961, *supra*). As these are not combat rolls, Enlightenment committed to defending against a Raid cannot be used to reroll. Losses from Raids/Strikes are a Disruption Event (see Mars Bombing Run, 2 Disruption, p. 274, *supra*) at the target colony, and may cause loss of government legitimacy.

- ✓ There are a multitude of variables to consider, and thus, the Concierge must be able to adjust the percentages, inserting *human judgment* into this process. The baseline assumption is that the attackers are using the most suitably destructive weapons in their possession; this assumption is also made for Orbital Bombardment Combat and Ground Combat. Positions can develop technologies/doctrines to change the percentages and outcomes; the neutron bomb was designed exactly for this purpose in the early 1960s and soon design programs were in progress to fit it onto a Lance Missile and a 155mm nuclear artillery shell. Also note the vulnerability of CET surface colonies to Raids; a factor used in Babylon 5 television series when Earth Forces bombed the colonies on Mars triggering the Earth Civil War in “Severed Dreams” (1996).
 - Human judgment by the Concierge in GGDM – critical to so many aspects of the game (e.g., see Special Operations generally, *infra*) can be analogized to the home plate umpire in baseball. Sometimes the strike zone is wider than other times; sometimes umpires make mistakes. People get mad about balls and strikes calls. Sometimes people have argued that umpires favor established veteran pitchers. Some have advocated having a computer system call the balls and strikes. A review process was installed to challenge other sorts of plays, mainly outs on the bases and homerun reviews, but balls and strikes are not subject to challenge or review in the game. Others, mainly the old-line baseball people, want the human element to remain in baseball and argue that it evens out over time.
- Vengeance Weapons: Ship Missiles may be fired at colonies in lieu of or in addition to Fighters in Raid and Strike Combats. As noted on p. 1082, *ut supra*, Fighters assigned to Combat Screen automatically intercept Ship Missiles *if* they have been preassigned to that task. If the Raid or Strike is being carried out solely with Ship Missiles, the Combat Screen will automatically be designated against Ship Missiles, but if both Fighters and Missiles target the colony, the defender will need to designate whether each sortie of the Combat Screen is being directed to Fighters or Ship Missiles. Other than that, all other rules (*ut supra*) for Raid or Strike Combat remain the same with regards to Ship Missiles (except that none of the missiles are coming back, thus they don’t execute a ‘retreat’).
 - ✓ Cycling back to the beginning of this discussion, participants may ask why Raids and Strikes cannot be initiated by units engaged in Ship Combat in system space or Colony Combat at the target colony? Especially if Ship Missiles are being launched? Or like troops landing for Ground Combat one Combat Round after they join a Colony

Combat? I flip-flopped and waffled on this point (but did not wassail) several times (in the contemporary North American meaning of President Bill Clinton who-did-not-inhale fame⁶) and decided to take the conservative route of keeping the combats separate and requiring a Combat Power initiation. Highly trained forces may develop the ability to conduct integrated combats in GGDM, but that is an in-game development.

[A B-47 completes a high-altitude training atomic bombing run,
a group of men are gathered in a shed, on a rainy night]

Civilian: *You mean this city has been wiped out theoretically in a storm by a bomber we didn't even see or hear?*

Air Force Officer: *Sure, with radar, weather's no problem. We've been bombing cities every day and every night all over the U.S., only people never know it.*

– Strategic Air Command (1955)⁷

The First Cold War Calculation: The problem with arguments about dropping the bombs on Hiroshima and Nagasaki is that doing so didn't win the war for the Allies, so no one can argue that we needed to do it to win. No, the Allies had already won the war, Germany had surrendered, Italy had surrendered, the Japanese military had been defeated conventionally at great cost to both sides and there was no existential threat to the United States or to anyone but Japan. It was only a matter of time for Japan, and the question was how much time and at what cost to both sides, and to the civilian population. It was about enforcing the Potsdam Declaration issued eleven days earlier. The decision to drop the bombs was the first *Cold War* calculation.

- ✓ There is an argument that the success of the Japanese defenders on Okinawa led U.S. planners to rethink an invasion of mainland Japan. In a legal case, this would be called 'blaming the victim' but military history is not a fair exercise, neither is war. Historical fairness should not be confused with intellectual honesty: how can you be intellectually honest about history (or anything) if you have predetermined to be fair?

Stratofortress: There is probably no greater symbol of the Cold War than the Killer Bs – the B-52 (1955), Bear (1956, Soviet Tupolev Tu-95), Backfire (1969, Soviet Tupolev Tu-22M), and later, the B-1 (1986), all global-range, strategic jet bombers capable of massive nuclear destruction. All remain in service in significant numbers, despite being superseded by later aircraft with new capabilities; existing units of these aircraft have been upgraded several times.

Air warfare has advanced with stunning rapidity through several stages in just a century; comparable development of land or naval warfare required millennia. It would thus be unhelpful and incorrect for participants to envision Raid/Strike Combat in the manner they may have seen in WWII movies or in certain cheesy 1970s and 1980s sci-fi movies and game box covers, in the same way that it would be unhelpful and inappropriate to envision GGDM Ground Combat as being like 17th Century linear warfare or Ship Combat as being fought by galleys or galleons.

- ✓ See discussion of linear warfare, *Shoulder to Shoulder*, 4 Combat, p. 985, *supra*.

Rather, it is possible, and likely, that fighters engaged in Raiding may launch their missiles and bombs from the upper atmosphere, or orbit, or from even farther out, and that perhaps, the Close-in Defense Fire is actually (in part) against the incoming missiles.

- ✓ Further, see Areal Weapons discussion, 3 Carriers & Fighters, p. 1073, *supra*.

- ✓ In the first hours of a Cold War Era global nuclear war, more people will have died than in WWI and WWII combined as the world’s 500 largest cities are destroyed. It is the definition of humanity insanity, “racial seppuku” (Norman Spinrad^{8[Full Quote]}).

[At the briefing for Air Force men being given at Boeing plant in Seattle]

“These are pictures of the B-52 Stratofortress. It’s the biggest jet bomber in the world. It can reach any target in the world. It can fly over six hundred miles an hour, over eight miles high, and over six thousand miles distance without refueling. On a single mission, one of these airplanes – Just ONE – can carry greater destructive force than that of all the bombs dropped by the entire Allied air forces during the whole of World War Two.” – from Bombers B-52 (1957)

Endnotes.

¹ Commentary: ...with no beam weapons and little defense, probably crewed by convicts and political dissidents.

² Commentary: The game caps missile strength which favors small ships. GGDM does not.

³ Commentary: A TV series or movie based on Cordwainer Smith’s “A Game of Rat and Dragon” (1955) would be an interesting project in the right hands. The ultimate question to be answered is the origin and purpose of the Dragons. It would also allow the development of animal characters nearly equal to human characters in a non-fantasy setting (something like Homeward Bound (1993)) and without resorting to anthropomorphic aliens derived from Earth animals. The story is available for free on Project Gutenberg in many formats or can be read online.

⁴ Citation: Information from Wikipedia articles, especially “Operation Praying Mantis,” October 21, 2018 reinforcing my recollection of news reports at the time.

⁵ Commentary: In the original Battlestar Galactica series (1978), Cylon bombing of the colonies was done by dropping “Cobalt bombs.” Although the bombing scenes were visually underwhelming, the intended reference of “Cobalt bombs” is likely a reference to the “cobalt-thorium G” doomsday shroud discussed in Dr. Strangelove (1964) (the writers may have assumed the audience would get it). In the reimagined series, the Cylons clearly used thermo-nuclear weapons, but instead of just being a visual upgrade from the original series, it also provided an early plot point when No. 6 somehow saved Baltar from the nuclear blast (without nuking the fridge).

- ✓ The Cobalt Bomb was first proposed publically in 1950. It is also referenced in Beneath the Planet of the Apes (1970). It was always seen as the ultimate absurdity, suicide pact of nuclear weapons technology.
- ✓ The Cylon Attack on Los Angeles (Galactica 1980) was even cheesier, a few Cylon raiders strafing like a WWII fighter, and couldn’t hit anything but cardboard buildings, no bombs. If their energy weapons could cause partial collapse of buildings, why was no damage done to the streets when they tried to strafe cars (which they couldn’t hit, even sitting still), or to the people running away? Where’s the safest place to be during a Cylon attack? In your car sitting in the middle of a street on a sunny day. Anyway... moving on.

⁶ Commentary & Citation: However, with regards to GGDM as a whole, some might say I waffle in the British meaning as well; Merriam-Webster online dictionary at *waffle* (v): **2**: to talk or write foolishly: blather or at *waffle* (n): empty or pretentious words: tripe.

⁷ Commentary: I watched this movie sometime in the early 1980s on an over-the-air PBS station from Scranton, PA (but now you need a paid subscription online to watch it!). This is the only dialogue from the movie that I remembered 35 years later, *it was the most important scene of the movie to me*. I had to watch it again recently to get the exact words, the scene occurred much later in the movie than I remembered. I also recall my mother commenting about how the married couple had separate beds (there is a background view of their bedroom through an open door showing two hotel-like beds) and that June Allyson was never shown pregnant, which was typical of 1950s movies.

⁸ Citation: Discussing We Who Have Gone Before, the ancient alien race that invented the Jump Circuit FTL drive: “‘Mon cher Maddhi,’ Lorenza said indulgently, ‘they are by their own admission gone, ne, and we by our own admission are here. Racial seppuku may be an aesthetically pleasing fini, but does it not take a peculiar aesthetic indeed to take it as triumph?’” – Norman Spinrad, The Void Captain’s Tale (1982), p. 97.