

Table of Contents

Prehistoric Alien Space Carriers	1044
Death of a Thousand Stings	1044
Fighters	1046
➤ Punk-it Rocket	1047
➤ On the Flight Deck	1047
➤ Next Generation Fighters	1048
Carriers	1049
➤ How Big is Your Flight Stick?	1050
➤ Carrier Operations	1050
➤ Space Debris	1051
➤ Carrier Direct Fire	1051
Valarie and the Fleet of a Thousand Worlds	1052
Endnotes	1052

See Appendix CEX – Combat Example
See Appendix CST – Combat Shifts & Situations Tables
See Appendix EPAT1 – The Existential Patents
See Appendix EPAT2 – Existential Patents Quick Summary

[Men screaming over wireless]

Garner: [on the phone with engineering] *Oh, then the spinner's fine? It's gotta be a sensor. Just pull it. No, no, listen to me. Listen to me. Just pull it, pull it!*

[Another large explosion.]

Hoshi: *Nuclear detonation. We have structural damage along the topside heat exchanger. We can't take much more of this.*

Apollo: *How long before those drives are back up?*

Garner: *I don't know. They don't seem to understand. I need to go down there. You have the con.*

Apollo: *Yes, sir. I have the con. [looking around, moment of hesitation] Make for the nearest base ship. And roll us over to keep our top side out of their line of fire. Hoshi, contact Starbuck in case – tell them I've assumed command. And to concentrate on protecting our top side.*

Hoshi: *Aye, sir.*

Starbuck: *Wilco, Pegasus. We got your back.*

Thorton: *Base ship dead ahead, we're closing rapidly! We can't keep taking hits like this, Major.*

Apollo: *Helm. Steady as you go. Have the bow battery stand by for a salvo fire. Target their center axis.*

Helm: *Yes, sir.*

Apollo: *See if we can't cut down the odds. We need those FTLs fixed soon. Or we're dead.*

Thorton: *Twenty-two hundred. Main battery has a firing solution.*

Apollo: *And fire.*

[The Pegasus fires at one of the Basestars, inflicting major damage.]

Thorton: *Base ship's turning away. He's – he's frakkin' running, Major! But the other two aren't. They're coming hard. Helm – left, full.*

Hoshi: *Starbuck reports Vipers are skosh ammo, Major. We're down to throwing rocks at the bastards. We gotta haul ass outta here now, sir! Sir!*

Apollo: *Come on, Garner.*

Hoshi: *Engineering's reporting a green board. FTL drive online and ready.*

Apollo: *Okay, commence jump prep. Bring our birds home.*

[The Vipers are landing on Pegasus.]

Starbuck: *Pegasus, Starbuck. Nobody behind me but toasters. Now get us outta here!*

– Battlestar Galactica, “The Captain’s Hand” (2006)

Prehistoric Alien Space Carriers: Don't tell me that you have never seen the prehistoric cave painting found in Tanzania, discovered in 2003 (it may not have been there previously), that clearly shows the Battlestar Galactica – originally mistaken for a predatory lizard – under the moon goddess? Erik von Däniken had nothing to do with it!

Death of a Thousand Stings: In the late 1960s, Star Trek introduced television to Harry Mudd and a new frontier. In the late 1970s, Star Wars (1977) innovated space adventure on the big screen. Part of the innovative cinematic experience of Star Wars were the combats between fleets of warships, and in particular, the thrilling one or two-man space-fighter scenes.

Following on the success of Star Wars, the original Battlestar Galactica (1978) series introduced science-fiction audiences to ‘space aircraft carrier’-type operations. In both the old and the new

series, the destruction of the Battlestar Pegasus showed that the Battlestars did have some punch from their forward-facing guns (new series) or forward nuclear missiles (old series) at close range, but both series still center tactically on the operations of the Battlestar as an ‘aircraft carrier in space’ with hot-shot pilots (and beautiful girlfriends) as main characters, of course. The mid-1990s (post Star Trek dominance) revived fighters and carriers in space, for example, the series *Space: Above and Beyond* (1995-1996) and *Babylon 5* (1994-1998).¹

- ✓ “A long time ago in a galaxy far, far away, George Lucas added Space Fighters to the standard arsenal of SF warfare tropes. For Hollywood it was love at first flight, partly for the cool special effects.... At SFConsim-1 the consensus has been trying to stuff the things back in the toy box for the last eight years ... but no one listens to us. Lucas did not invent space fighters, of course. I don’t specifically recall any in the SF I read growing up, but I vividly remember one in an animated series I used to watch in grade school. ... Space fighters didn’t really catch on till Lucas, though – the clearest evidence being that Trek had nothing of the sort.” – Rick, “Space Fighters, Not.” *Rocketpunk Manifesto* (blog), August 26, 2007.
 - “Credit to *Babylon 5*: not only did its Starfuries have less overt similarity to atmospheric jet fighters, they sometimes even maneuvered like spacecraft instead of airplanes – an all but unique Hollywood tribute to Sir Isaac Newton.” *Id.*

The Buck Rogers television series shortly followed BSG. Struggling game companies of the late 1970s through the 1980s sought to cash in on the popular terminology introduced by the huge success of 1970s science-fiction movies. For example, when Avalon Hill republished the *Stellar Conquest* boardgame in the early ‘80s,² they renamed Metagaming’s dreadnought to “Death Star” (with the appropriate silhouette) I remember another 1970s space-opra board game where the carrier-ship silhouettes looked suspiciously like the *Galactica*. Similarly, the designers and manufacturers of the *Traveller Role Playing Game* felt need to add “carriers” and “fighters” to the game, and also introduced (in *Fighting Ships*) the Death Star-like *Tigress Class Dreadnought*.

I played both of these games in the 1980s. *Stellar Conquest*, is the very distant ancestor of this game, which started in December 1992 as a set of “optional advanced rules for *Stellar Conquest*” and *evolved* into *Gestalt Genesis-Day Million*.³ I also had great respect for the background materials developed for *Traveller*; the *History of the Imperium Working Group* did a great job,⁴ and it is too bad that *MegaTraveller* failed.⁵ The concept was great, but it was too late.

- ✓ The inspiration for a set of ‘optional advanced rules for *Stellar Conquest*’ probably came from Max’s *Advanced Rules for Axis & Allies* board game, of which I had a photocopy (in the prehistoric days, there were many photocopies floating around). The AH version of *Stellar Conquest*, in addition to *Death Stars* also had a warship called a *Fighter*, but it was a medium capital ship, not like the fighters on the *Big Screen* or television. Max’s *Advanced rules* were mostly incorporated into later editions of *Axis & Allies*, but *GGDM* will never be incorporated into *Stellar Conquest*!

But there was one major flaw in the introduction of carriers and fighters into *Traveller RPG* – despite all of the meticulously worked out background and doctrinal materials – *Traveller doctrine* never really described what exactly carriers and fighters were supposed to be doing in a fleet combat. They were clearly added as an afterthought, to pull in the *Battlestar Galactica* and *Star Wars* fans.⁶

- ✓ Star Wars and the original Battlestar Galactica series have connections, lawsuits were filed claiming that BSG stole ideas from Star Wars and that Star Wars stole ideas from Buck Rogers. Isaac Asimov said that BSG was Star Wars over again. He was referring, of course, to the original Battlestar Galactica television series. Even so, I disagree, but I can see why he said that. Of course, there is no comparison to the development of the stories since then. Information from Wikipedia article, “Battlestar Galactica (1978 TV series),” captured July 8, 2018.

By 1994, the game had begun evolving in the direction of a larger design, not confined to an expansion of Stellar Conquest. I began thinking of introducing an alternate combat system, something vastly different from the CRT-based combat resolution (the game still had a CRT at the time, before going flat d10 like the Red Storm Rising board game). One morning in the spring of 1994 when I was walking to college, I started thinking about BSG, Traveller and adding Carriers and Fighters to the “Advanced Stellar Conquest” design, and I realized that Traveller was rather vague on fighters and carrier starships. When considering adding Carriers and Fighters to the evolving game design, I first had to decide exactly what they were supposed to be doing in the game and in combat. In many game designs, I have seen things, ideas, units, cards, that were thrown into the game because they sounded good, but are never or rarely ever used, because they serve no purpose, have no special niche, or there are better options. I refused to repeat the perceived errors, and the result was the following *tactical treatise* on space Carriers and Fighters.

[Starbuck inside the organic interior of the dead Cylon Raider crashed on a rocky moon with a poisonous atmosphere]

“First on the list: seal you up...”

[Seals the bullet hole stuffing her bag into it. With the Raider sealed and pressurized, now she can breathe without the tube]

“...and figure out what controls what.”

[Sniffing]

“One of us needs a bath... ugh. All right... now you’re gonna teach me how to fly. ... Every flying machine has four basic controls: power, pitch, yaw and roll. Where are yours?”

[Touches something and the Raider fires]

“Safety tip number one: don’t touch that.”

– Battlestar Galactica, “You Can’t Go Home Again” (2005) (emphasis added)

Fighters: Fighters are the classic very small, agile, fast, and maneuverable combat spacecraft used for attack, raid, bombing, and reconnaissance. In human terms, they usually have one or two crew members – pilot and/or pilot and co-pilot.^{7[Definitions]}

- ✓ “So ... what exactly is a space fighter, and what does SFConsim-1 have against them? If *Star Wars*, *Battlestar Galactica*, and *Babylon 5* are anything to go by, a space fighter is exactly what you would imagine: the spacegoing equivalent of a DeHavilland DH-4 or an F-16. It is a small spacecraft, about the size – and, oddly, roughly the shape – of a present-day fighter jet. It has a single pilot or at most a two-man crew, strapped into a cockpit with minimal habitability, clearly intended for short

missions of only a day or so at most. We see them whooshing and gyrating across the screen, zapping away at each other. Now and then they also destroy the odd stray Death Star, which with typical bad-guy carelessness is designed to obliterate whole planets but cannot defend itself effectively against killer gnats.” – Rick, “Space Fighters, Not.” Rocketpunk Manifesto (blog), August 26, 2007.

All Fighters in GGDGM are assumed to be space *and* atmospheric capable, no distinction is made on this point. Fighters have limited life support and little armor, their best protection is small size, agility, acceleration, and speed (like a common housefly). It must be assumed that Fighters possess significant operational range in-system, for combat and patrol purposes, but lack interstellar flight capability. It must also be assumed that Fighters possess sufficiently powerful weapons to destroy other Fighters, and to pose a threat to the starships when attacking in mass.

- **Punk-it Rocket:** In science-fiction settings where the primary means of interstellar transportation was via ‘gates’ or ‘jump gates’ into hyperspace, Fighters have frequently had the ability to travel between stars by activating gates to assist them or allow them access to hyperspace.

Unnoticed by most, the movie Independence Day (1996) introduced a new, intriguing operational variation on the mothership and alien space-fighters theme. The alien fighters in Independence Day depended on a field projected by the mothership for their propulsion. This changes the operational factors in a couple of interesting ways: Presumably, the fighters would never run out of fuel (and do not need to carry the extra reaction mass) but are restricted to the local range of the field from the mothership. Such Fighters may be cheaper and may pack more punch per ton than fuel-thrust-driven fighters. But the range limitation of the field is the big concern and was their undoing in the movie; the mothership has to get close to the enemy in order to project the fighters (and the atmosphere apparently limited the range of the field), thus exposing the mothership, and the fighters are limited explicitly to the range (and strength) of the field projected by the mothership.

- ✓ “Speed in space is all relative to begin with; the more useful measure for a spaceship is delta v, ‘change in velocity’ – especially, how much you can change your velocity before you run out of gas. For any given propulsion technology, the way to get more delta v isn’t a more powerful engine but a bigger fuel tank. What a powerful engine does give you is higher acceleration – so you can achieve any given delta v more quickly. ‘Bigger fuel tank’ and ‘more powerful engine’ are also relative – to the size of the ship, more specifically its mass, since that’s what you’ve got to push around. They are also contradictory in a sense – a big propellant supply means more the engine has to push around, so it is hard to get both sprightly maneuver performance (high acceleration) and extended maneuver capability (ample delta v) in the same ship.” – Rick, “Space Fighters, Not.” Rocketpunk Manifesto (blog), August 26, 2007.
- **On the Flight Deck:** Fighters may be constructed at any Friendly, Converted, or Naturalized Colony by activation of the Construction Power for the purpose of Colony Enhancement, after obtaining the 1st Era Fighters Existential Patent. Construction of Fighters includes training pilots and ground crews, along with support and maintenance equipment.

Fighters are an Enhancement Technology, therefore, they cannot exist by themselves as a ‘game unit’; Fighters must always either be part of a colony’s defenses or on a Carrier, where they can operate, or stored onboard a Logistical Ship where they can be transported and

transferred to a colony or Carrier, but cannot operate. A position is not required to have Carriers to own Fighters, and vice versa. Fighter Complements on colonies *may initiate and join combats* in their system, *making their colony equal to an armed system boat in that sense*.

A newly constructed Fighter RP is ‘ready to fight.’ Within GGDM, Fighters are assumed never to be without pilots and ground crew, as they must either be attached to a colony or Carrier starship.

- ✓ However, this is not always historically true; for example, the Japanese in WWII transferred fighter squadrons, without bringing their ground crews, in an attempt to obtain surprise local superiority. Ground crews in GGDM are assumed to have all of the training, technical knowledge, supplies and specialized equipment of modern air forces, however, as detailed by John W. Whitman in the article “Japan’s Fatally Flawed Air Forces in WWII” (Aviation History, September 2006, now available at <http://www.historynet.com/japans-fatally-flawed-air-forces-in-world-war-ii-2.htm>), Japanese ground crews were ill-prepared, ill-equipped, mistreated, exhausted, and in low morale, and not properly supported by construction assets.

All Fighters of an Era attached to a unit or colony location form a *single* Complement, a single location can have multiple Era complements. A Fighter Complement is a unit in combat, even though it is a colony or ship enhancement, see Colony Defense Bases, 2 Combat, p. 954, *supra*. Fighters are combat units capable of initiating combat (unlike Defense Bases).

- Next Generation Fighters: Existing Fighters cannot be ‘upgraded’ upon passing to the next Era; 1st Era Fighters will always be 1st Era Fighters. Positions are free to design and produce variations and different types of Fighters via Patents, and to add Enhancements if possible, and Fighters can benefit from some Continuous Operational Technologies as well. However, to obtain the benefit of the 2nd and 3rd Eras, each position will need to develop a new, next generation Patent for 2nd and 3rd Era Fighters each.

It’s the nature of the thing. Could you upgrade an existing WWI biplane fighter to a WWII fighter? Could a WWII prop-driven fighter be upgraded to a 1950s-60s jet fighter?⁸

- ✓ The venerable F-14 Tomcat operated in the U.S. military forces from 1974 until the Navy retired it in 2006. Because of the length of service, it was upgraded several times with newer technologies. The F-14 was a Fourth Generation Fighter (as were the later F-15, F-16, and F-18) and was one of the top air superiority fighters in the world. Fifth Generation Fighters include the F-22 and F-35 and the newest stealth fighters of the U.S., Russia, and China. The F-35, criticized for cost overruns and technical development difficulties, was finally accepted for service in 2015-2016 by the U.S. Air Force and Marine Corps, and the navy version, the F-35C still has not been delivered. The F-35’s stealth technology may already be ‘old’ but planners have projected its service to 2070.

“Several German warships remained to be destroyed according to treaty terms, and official tests were held off the Virginia coast in July, 1921. It was of course the duty of navy officers to be skeptical until [Gen. ‘Billy’] Mitchell proved his case, but their attitude betrayed an unwarranted hostility as the airmen sank a submarine and cruiser with comparative ease. There remained the sturdy battleship Ostfriesland, and in twenty-one minutes Mitchell’s planes wrote a new chapter in tactical history by

sending it to the bottom with six one-ton bombs. Without a direct hit having been made, the underwater explosions of the 'near misses' ripped great holes through the four steel skins of the hull. As the shuddering wreck went down, the observers felt that they were watching the end of an era. ...

The first landing on the deck of a ship occurred in 1917, and just before the Armistice the British launched the converted liner Argus as the world's first aircraft carrier. Naval men of 1921 were still dubious as to the new type of warship, however, until they had more evidence as to the effects of bombs. The tests provoked by Mitchell thus had their influence on sea tactics, though he met resentment from officers later described by Admiral Sims as 'hidebound, unfitted and uneducated.' The retired naval commander, a lifelong champion of tactical progress, declared himself for carriers and a strong air arm; and in 1925 the converted battle cruisers Saratoga and Lexington were launched with a capacity of from seventy to eighty planes.

No doubt Mitchell's methods of publicizing the issue were flamboyant and often in-subordinate, but genius is customarily pardoned by history after its ideas are adopted. In 1925 President Coolidge ordered the flier court-martialed, though editorial comment had it that the army and navy were actually on trial. Mitchell listed a hundred recommendations he had made for the betterment of military aviation, all of which had been ignored. He testified as to the strained relations between army and navy officers of Pearl Harbor, warning that the vital Pacific base could be surprised."

– Lynn Montross, War Through the Ages (3rd Ed., 1960), pp. 763-764 ⁹

Carriers: A Carrier is a highly specialized type of warship (see definition of warship in GGDM, Warships, 1 Combat, p. 941, *supra*) designed to transport and support the operation of large numbers of Fighters: The Fighters become the main weapon of the Carrier; a Carrier without Fighters is a very poor warship indeed.

- ✓ First Era Carriers may be built *to a maximum size of 100 RPs* at any eligible colony with an Orbital Shipyard after obtaining the 1st Era Carrier Existential Patent.
- ✓ The development of Carriers and Warships is parallel, upon passing to the 2nd Era, positions will need to develop a 2nd Era Carrier PIT Patent just as they would or might develop the 2nd Era Warship PIT Patent.
- ✓ A position is not required to have the 1st Era Warship Existential Patent to obtain the 1st Era Carrier Existential Patent; a position is not required to have any Warship Patent before having any Carrier Patent. But you still need a stardrive and ship systems.

In our civilization, the Carrier developed from the regular warship; however, in other civilizations, the Carrier may have come first, and there the 1st Era Warship is a highly specialized design evolved from the Carrier that has abandoned Fighter support in exchange for heavy weapons and armor. In space-opera lore, 'carriers' have been called motherships, Basestars and Battlestars (in Battlestar Galactica) or not been given any particular designation at all.

First Era Warships cannot carry Fighter Complements, however, it is possible perhaps, that an Enhancement Patent could be made to allow Warships to carry Fighter Complements, or that at some point, Carriers and Warship designs might merge for some positions, or cross over, but Fighter Complements will always be an afterthought on an Era Warship and will not be supported or operate as well as they would on a true Carrier.

- ✓ Babylon 5 is a setting where every warship seems to have a fighter complement leading the charge into battle. There were no true carrier type ships in Babylon 5, but they still managed to have swarms of fighters. The space fighter deployment innovation of Babylon 5 was the drop rack; however, fighter recovery was never shown.
- How Big is Your Flight Stick?: Fighters do not exist separately (have no OSL), Fighter Complements are measured in RPs, for example, a colony or Carrier might have 30 RPs worth of Fighters. A colony may have a maximum of 1 Fighter RP for each population. The size and capacity of Carriers is also measured in RPs. Thus, when the Construction Power is activated for the purpose of Laying Keel for a Carrier, the Actions *must specify the size of the Carrier in RPs*, half of which will be due ‘up front.’ In the 1st Era, a Carrier may carry a Fighter Complement whose value is half the size/value of the Carrier; for example, a 60 RP Carrier could carry 30 RPs of Fighters (later Eras may improve this ratio). The Fighter Complement of the Carrier is *not* included in the construction cost of the Carrier, they must be constructed separately and transferred to the Carrier (see 3 Construction, p. 675, *supra*).
 - ✓ Fighter Complements are not ‘units’ in GGDM, they are enhancements, the GGDM units are ships (and System Boats), colonies and in many senses, Ground Units and sometimes Technological Devices. This, there is never a check to see if Fighter Complements obey a Power Activation, instead, Fighter Complements are part of their Carrier or Colony and checks are made as to either the Carrier or Colony. Similarly, whether Fighter Complements can benefit from Enlightenment in Combat is based on the status of the Epistemological Constructural Element of their Carrier or Colony (see Skool Tyme, 2 Constructural Elements, p. 190, *supra*). Fighter Complements are never considered to have their own Constructural Elements.
- Carrier Operations: Upon arrival in a starsystem, the Carrier’s Fighters are ready to launch if necessary, thus there is no delay in deploying the Fighters into combat if the Carrier initiates combat or is attacked. Getting the Fighters back onto the Carrier and out of combat though – while being chased and shot at – is more problematical.
 - ✓ Put another way, calling an elevator to escape while in the middle of a gun battle in a hallway is difficult. Routine things become difficult in combat. Combat routines must be simplified. See top feature quote, 4 Movement, p. 868, *supra*.

Carriers may retreat with or without their Fighter Complement. If a Carrier chooses to retreat while the Fighters are still attacking or Combat Screening another ship, the Fighters are left behind. However, if the Fighters are Combat Screening their Carrier on the Combat Round that it successfully retreats, the Fighters land on the Carrier and retreat with the Carrier.

- ✓ This same rule may not apply to Tender starships retreating with System Boats (whether armed or not) but it depends on what is envisioned and what is involved in securing System Boats to the Tender for interstellar FTL jump. Securing System Boats may require a Combat Round and then the Tender may retreat the next Combat Round. Or the Tender might just retreat and leave the armed System Boats behind, especially if there is a supporting colony in the system. It’s a grey area at the judgment of the Concierge and participants.

In Traveller RPG, the reliance on Tenders and Battle Riders was a problem in the Fourth Frontier War because the enemy would go right after the Tender ships, who

took high losses when attempting to retreat (Traveller Wiki, “Fourth Frontier War”), stranding their Battle Riders.

- “Despite the lack of real territorial gains (or losses) for either side, the war prompted two changes to Imperial naval doctrine, one tactical, the other strategic. The tactical change was a shift from Battle Riders to jump-capable battleships. The early weeks of the war had shown a serious design weakness of the Battle Rider. When faced with superior numbers, the Riders were unable to withdraw and jump out-system due to the time required to secure them in their Fleet tenders. Thus, Rider BatRons suffered disproportionate losses in the early stages of the war.” – Traveller Wiki, “Fourth Frontier War,” captured July 3, 2018.

Traveller Tenders had platforms, like helopads, for the Battle Riders to land and secure to for transport; however, it is equally possible that Tenders might have huge bays for landing System Boats, like television warships have bays for landing Fighters. This is a place where Doctrinal Templates (see Combat Formations, 4 Colleges, p. 503, *supra*) might be useful to close the gap.

- Space Debris: If a Carrier is destroyed in Combat, its Fighter Complement is not automatically destroyed as the Fighters were already deployed, or could escape. Fighters without a Carrier, for any reason, may continue to fight one more Combat Round. Some or all of the orphaned Fighter Complement may be transferred to another Carrier or Colony if they have the capacity to receive them. Any Carrier-based Fighter Complement or any part of a Carrier-based Fighter Complement that cannot be transferred after one Combat Round, are lost.
 - ✓ In the 2010 movie *Nydenion*, a shuttle hid in the debris of a destroyed carrier and ambushed a squadron of pursuing interceptors. There were even floating human bodies.
- Carrier Direct Fire: Carriers do have the ability – albeit poor – to fire directly at other ships, colony Defense Bases or civilian targets. A Carrier that is firing directly cannot be Combat Screened on the round that it is firing (and thus is vulnerable to return fire), and the target receives two Defensive Shifts (that is, the Carrier’s chance to hit is reduced by 20%). Carriers cannot be attacked by Defense Bases in a Colony Combat unless they direct fire in the same Combat Round; they may be targeted by the defenders, however, just in case they do. Carriers may always be attacked by Fighters and Ship Missiles in a Colony Combat.
 - ✓ “The prevailing narrative of naval warfare in World War II concerns how the carrier decisively unseated the battleship as the dominant naval weapon system. Yes, battleships mounted over a dozen guns that could pot huge shells at other vessels from over a dozen miles away. But a carrier could deploy over a hundred airplanes that could strike targets hundreds of miles away with torpedoes and bombs. Just as importantly, in an era where radar technology was in its infancy, airplanes were the most effective tool for scouting out vast swathes of the ocean to locate enemy fleets. These advantages meant that battleships and battlecruisers were repeatedly sunk by carrier-based aircraft, from Pearl Harbor to Taranto to the Battle of the Philippines Sea. In return, battleships almost never succeeded in closing into gun-range of carriers.” – Sebastien Roblin, “An ‘Old’ Battleship Actually Sank an Aircraft Carrier in 1940,” *The National Interest*, December 23, 2018 [re: sinking of the HMS *Glorious*].

- ✓ Carriers in GGDM are a notch less potent than their Earthly millennial counterparts, which leaves room for development of technologies and tactics – for example, if the participants choose to allow fighters to eventually be equipped with FTL drive (especially of an instantaneous kind), the Carriers might launch (and retrieve) their fighter attacks from adjacent systems (without moving), while normal warships jump into the target system beside the fighters for a traditional naval slugfest. However, those fighters would not benefit from the sensor and command support of the Carrier and would need to depend on other ships (this is possibly why BSG has the Raptors).

Valarie and the Fleet of a Thousand Worlds: It takes time and effort to build a fleet, parts will come from many places. Carriers and Fighters provide a flexible system for building and operating warfleets. While the Carrier may be expensive, any world can build Fighters. On the flip side, however, is the cost in Power Activations, Acts and Scenes to operate the feeder system that supports large Carrier forces and that Carriers are rather expensive in supply requirements.

- ✓ It might be interesting and worthwhile from a storytelling point of view to track where each ship is built during the game. This can be done by giving the ship numbers or including the origin world in the ship name. This would add to the ship's data the Native Population Type of the crew, if needed. Carriers perhaps have the greatest chance of multi-Native crews due to Fighter RP replacements. See also Alienev Apostasy, 3 Disruption, p. 283, *supra*, which participants could consider in-game.

Moreau: *Red Fox 1, you're not going to bring us down?*

Red Fox 1: *What's the point, our carrier is gone, we got no place to land. We're not going to drag you down with us.*

– By Dawn's Early Light (1990) ¹⁰

Endnotes.

¹ Commentary: The second Buck Rogers television series aired in 1979-1981; I watched most of these as two hour afternoon movies (two episodes merged into a movie) around 1982-1983. Buck Rogers prominently featured planet based fighters and few big ships, but the fighter combat was something atrocious. But I remember Wilma!

² Commentary: I first played the AH Stellar Conquest in November 1985 at the gaming club on Ft. Sill, Oklahoma.

³ Citation & Commentary: I watched a live concert cover of Toto's "Africa" by a group called Frog Leap on YouTube. At first, I didn't even know what they were playing, then when he started the lyrics, I realized just how awful it was – everything was wrong, it had nothing to do with the music or spirit of the original. If you are going to change the song that much, there comes a point at which you should give up and write a new song, the song you wanted to write. It can be inspired by what you originally intended to cover, but it cannot claim to be a cover. So it is with many things, so it was with my "Advanced Stellar Conquest" evolution; at some point it had little resemblance to Stellar Conquest and so I consciously called it something else, my own, and it evolved from there.

⁴ Commentary: You can guess that I would have loved to have been a part of it back then. I wrote GGDM instead.

⁵ Commentary: The Rebellion Sourcebook (1988) for MegaTraveller is the best role playing supplement I've ever read and the rest of the MegaTraveller books generally deserved a much better reception. Additionally, the excellent MegaTraveller article, "When Empires Fall" by David Nilsen published in Challenge Magazine #64, September 1992 (feature quoted in 4 Movement, p. 869, *supra*), had a great influence on the early development of this game. Oh, and Michael Whalen's "Foundation's Edge" cover art was fantastic! Marc W. Miller is still trying to revive the game, but the market has moved away from hard sci-fi or space-opera role-playing. But I obviously well understand his devotion to his lifetime space-opera game project.☺

⁶ **Commentary:** The current Traveller RPG Wiki page on Fighters (2018) looks impressive, however, by their own definition, half the craft listed on the page are not fighters. The earliest cited Traveller reference to fighters listed at the bottom of the page, is a single page from Starships (1977), followed by single pages from books in 1980, 1981 and 1987. I do not think there was ever any book dedicated to fighters and carriers in Traveller.

⁷ **Citation:** Definition(s) of a fighter from the Traveller RPG Wiki: “Using a 10-ton hull, the fighter is capable of 6-G acceleration, carries 1 ton of fuel, and has a crew of one. Small craft are boats of interplanetary (though not interstellar) capability.”

- ✓ “The Fighter is a small, highly manoeuvrable, armed small craft, usually capable of at least 4 Gs acceleration, carrying one or two crew, and displacing around 10 tons. Fighters generally have a small fuel tank (usually less than twelve hours’ fuel), and no cargo capacity. Fighters are invariably armed; usually with the heaviest armament the small craft can bear in a non-turret mount. Generally beam weapons are preferred because they are intended to operate at close range. In some cases a missile launch rack may be installed as well.”

Tonnage in Traveller RPG is measured in cubic space taken up by a ton of hydrogen at normal density at room temperature. So tonnage in Traveller is cubic space inside the hull, not the weight of the craft.

- ✓ “Fighters are characterized as small spacecraft usually without jump capability.... It includes a computer Model/1 and can mount only one type of weapon: one laser, up to three missile racks, or up to three sandcasters. It has one ton of excess space, and typically costs MCr18. The lack of a jump drive and its accompanying fuel storage, enables designers of these ships to focus more on putting heavier weapon systems and better in-systems drives. *This characteristic makes them more of a threat on a ton per ton basis than similar ships with a jump capability.*” *Id.* (emphasis added) (captured July 7, 2018).
 - “Sandcasters,” which I have only ever seen in Traveller RPG, are a defense system that is designed, as the name suggests, to project clouds of sand and dust to protect the ship from lasers and other beam energy weapons by causing dispersal. On capital ships, they are called ‘sandcaster turrets.’ The anticipatory system is always automated, as humans cannot react fast enough. This concept is similar to chaff rockets used by U.S. Navy Ships to confuse incoming missiles (e.g., see discussion of missiles fired by Iranian navy ships at U.S. Navy ships in 1988, 4 Carriers & Fighters, p. 1082, *infra*). Generally, video space-opera prefers ‘force shields’ à la Star Trek. Sandcasters are only effective against high-energy beam weapons that were favored in late 20th Century video; they would be ineffective against rapid slug throwers like those used by the Colonial Vipers in the reimagined Battlestar Galactica series or against areal weapons such as missiles with conventional explosive, armor piercing (e.g., the Munroe effect), or nuclear warheads.

⁸ **Commentary:** In this comparison, I am talking about individual airframes. Most unit ‘upgrades’ involve completely scrapping older equipment and replacing it with newly-manufactured equipment. That’s not what I mean.

⁹ **Commentary & Citation:** Gen. “Billy” Mitchell was also, unfortunately, involved in the labor disturbance known as the Battle of Blair Mountain, in August 1921. Although U.S. Army planes *did not drop any bombs* on the miners, private aircraft did drop sulfur and leftover WWI bombs on the miners. Mitchell had publically suggested that the disturbance could be ended by army aircraft alone by dropping tear gas on the miners; other parties may have taken this suggestion and hired private aircraft to bomb the miners. Later, Mitchell trumpeted the situation in West Virginia as proof that aircraft were useful in suppressing civil disturbances.

- ✓ Information from Wikipedia article, “Billy Mitchell,” December 29, 2018, citing to Clayton D. Laurie, “The United States Army and the Return to Normalcy in Labor Dispute Interventions: The Case of the West Virginia Coal Mine Wars, 1920-1921” (1991), available for free on wvculture.org.
- ✓ The Court Martial of Billy Mitchell is a highly acclaimed 1955 movie starring Gary Cooper.

¹⁰ **Commentary:** It is amazing how tightly woven is the story of By Dawn’s Early Light (1990) and critics have praised the movie as an example of what can be done with a very good script and no big budget. Because the bomber Polar Bear One refused to follow orders and turned away, the Soviets, desperate for any sign from the Americans turned a whole squadron of their bombers away and were willing to give the U.S. President an hour to get his forces under control. There were so many little pieces to resolving the situation, what gets lost in the movie is that the little boy probably saved the world by bringing his mother to the place where the U.S. President was lying wounded. And, of course, the pilot of E-4 who turned his plane in the final minutes... I hope that the pieces of GGDM are that well written and woven together.