

Build giant starship fleets and fight monumental naval battles with Trillion Credit Squadrons. This adventure contains complete instructions for the creation of naval forces within restricted budgets, with situations for several players or just one.

Contents include Billion Credit Squadron, Trillion Credit Squadron, Tournament rules, and special campaign rules and maps.

Use of this adventure requires Traveller Book 5, High Guard.

Adventure 5 Trillion Credit Squadron

TRAVELLER

*Science-Fiction AdventureTM
in the Far Future*

Game Designers' Workshop

Adventure 5
Trillion Credit Squadron

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in the Far Future

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Trillion Credit Squadron
TRAVELLER, Adventure 5

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This booklet is an adventure for **Traveller**, GDW's science-fiction
role playing game set in the far future.

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Introduction

Trillion Credit Squadron is a different sort of adventure for **Traveller**. Like others, its purpose is to provide situations and opportunities for **Traveller** players and for **Traveller** referees to interact and enjoy themselves. The difference, however, is that the focus of the role-playing for this specific adventure is not at the personal level; individual characters mean very little in this adventure. Instead each player becomes the navy department of a world or of an empire and is charged with the design of interstellar battle squadrons for the defense of star systems or for the pursuit of political goals. Once the squadron has been designed and constructed, the player becomes the squadron commander and is responsible for its actions in space combat.

Time Frame: *Trillion Credit Squadron* may take place at any time consistent with an on-going **Traveller** campaign. The Island Clusters campaign presented in this adventure takes place around the Imperial date 1106: the 1106th year since the founding of the Imperium.

The basic Trillion Credit and Billion Credit Squadrons may be played without regard to outside time, and can be dated from the year zero or the year one.

THE CENTRAL CONCEPT

The basic concept for this adventure is one of properly designing fighting starship squadrons which meet fixed standards or parameters. The most obvious of these is carried in the name: the budget allowed for the ships in the squadron is one trillion credits (Cr1,000,000,000,000). Additional parameters (as explained in the rules) govern the size of the squadron, the maximum technological level available, the number of pilots available, the minimum performance required for each ship's drives, and other considerations.

Squadrons constructed using these rules are similar in general character. Any two squadrons built to the same parameters begin on an exactly equal footing; they are technically equal in cost and potential equipment choices. In combat, the players are presented with an opportunity to actually demonstrate that their design skills or combat expertise are superior.

Finally, there is a simple basis for comparison of squadrons between players. No longer can one player claim that "my squadron is the best around" without having to prove it against another constructed to the same parameters.

REQUIRED MATERIALS

Trillion Credit Squadron calls for the following materials:

High Guard, Traveller Book 5. Insure that your copy is the 1980 edition; it bears a 1980 copyright date and supersedes the 1979 edition. *High Guard* contains the ship design and construction rules required for this adventure, and contains the space combat rules which govern combat resolution.

Starship Design Worksheet, IN Form 10 and Form 10A. These worksheets, provided in this booklet, may be photocopied in sufficient quantity to allow supporting documentation for the starships being designed. If desired, differently

organized worksheets can be typed up and photocopied if the players feel they will be more useful.

Calculators or Adding Machines. The many mathematical calculations called for in the course of design make calculators useful in the design process. A printing calculator or adding machine is especially helpful. Of course, a home computer can be programmed to handle much of the tedium of the design process, and is the ideal solution for players who are capable of programming.

Dice. The combat resolution process calls for random numbers generated by ordinary six-sided dice. Several such dice should be available; ideally, at least two per player involved.

OPTIONS

This adventure provides several options for the referee and players. Each addresses a different aspect of the general concept and provides a different field of endeavor.

Billion Credit Squadron. This option utilizes a relatively low budget to provide a learning or introductory experience. Parameters which call for the number of pilots available, the performance of the jump and maneuver drives, the maximum technological level, and other miscellaneous concepts may be specified by the referee or by the players. Players will be able to afford to generate only smaller ships in the 1000 ton and under range.

Trillion Credit Squadron. This option utilizes the higher budget level to provide the standard situation. Parameters which call for the numbers of pilots available, the minimum required performance of the jump and maneuver drives, and the maximum technological level of the ships may be specified. Players will be able to afford to generate many large ships; necessarily. Trillion Credit Squadron calls for more time than does Billion Credit Squadron.

Tournament Trillion Credit Squadron. This option, similar to the standard Trillion Credit Squadron, establishes strict parameters for the squadron based on calendar year. Trillion Credit Squadrons designed for a specific year are eligible for entry in tournaments at adventure game conventions during that year. While GDW will sponsor such tournaments at selected major conventions, it is expected that local referees will sponsor similar such tournaments at additional conventions. The standard parameters for each year are given in this booklet.

Campaign Rules. This section provides rules for running a multi-player naval campaign. Additional considerations not significant in previous situations come into play, including battle damage repairs, overhead costs, communications difficulties, and other requirements of running an entire campaign rather than one battle.

Islands Cluster Campaign. A complete sample campaign situation, including two subsector maps, world data, background data, and other information is provided in this adventure. Once each side has selected a major system as its home world, the campaign can begin under the guidance of the referee. Each side pits its star squadrons against those of the others in an effort to gain control of the Island Clusters. The campaign has as much basic information as possible already thought out and defined in order to allow the referee to begin the campaign immediately.

Other Campaigns. The referee can use the campaign rules in connection with any other subsector or situation, including a portion of his own campaign universe.

The concept of campaigns more wide-ranging than the Islands Clusters campaign allows the referee an immense variety of options.

COORDINATION WITH BASIC TRAVELLER

Any of the various squadron concepts in this adventure can be mated with the more traditional role-playing activities of **Traveller**. Properly done, squadron construction competitions between the players in a **Traveller** group can continue over a period of time while ordinary adventures for individuals are administered at common sessions. Much of the work on a squadron is best performed alone by each player in any case.

The following are a few suggestions for combining squadron activity with basic **Traveller**.

Espionage: Once all of the players have turned in their preliminary plans for their Trillion Credit Squadrons, the referee may ask that each assign a unique and secret code name to each set of plans. The players could then find that they are hired by a patron to find and steal one specific set of such plans.

The referee would be responsible for creating and administering the situation for the players. The players would be responsible for the activity of finding and copying the particular set of plans required. If successful, all of the players would have access to the Trillion Credit Squadron statistics for one of their potential adversaries. Those statistics could be a help in planning battle strategies, or they may prompt a player to change preliminary plans.

Of course, the plans being disclosed are only preliminary, and thus not authoritative. The player who made the plans will know they are his by the unique code-name he assigned them; the other players will only know that their plans are not the object of the search. Thus, all members of the group will not be working for the same goals, as one player may actually be trying to obstruct the mission.

Finally, the referee may decide to make fictitious plans the object of the search; the players will end up each suspecting all of the others, while in reality all are truly cooperating.

Battle Assignments: Players may be allowed to utilize their personal characters in strategic positions within their squadrons. Pilots may be allowed to serve on important ships, admirals to serve with the command ship, navigators to be employed on major vessels, marines to be assigned to ship's troops.

The referee may be required to make strategic adjustments or limitations in order that such personal characters do not unbalance the competition. Of course, the referee would also be required to administer saving throws for the individual characters if the ships they are assigned to become casualties during combat.

Planetfall Liberty: If all characters are assigned to the same squadron, they may become involved in any number of adventures as the fleet visits various worlds on the way to the battle. Such possibilities include patron encounters while on planetfall liberty, espionage attempts, detached task forces from the squadron undertaking patrol or reconnaissance missions, and simple exploration situations.

Designing a Squadron

The major factor affecting the design of any squadron is money, as specified in the available budget. The unit of exchange for budgets is the credit. One credit is the basic piece of money, and can be compared to the dollar, the mark, the yen, or the pound. For convenience, one million credits (Cr1,000,000) is called a mega-credit and abbreviated MCr.

Budgets represent the maximum amount of money available to be spent for the squadron. The budget cannot be exceeded in any case. In keeping with bureaucratic style, it is traditional to spend as much of the budget as possible.

The budget for Billion Credit Squadron is one billion credits: Cr1,000,000,000 (or MCr1,000).

The budget for Trillion Credit Squadron and for Trillion Credit Squadron Tournaments is one trillion credits: Cr1,000,000,000,000 (or MCr1,000,000).

The available budget for the Islands Cluster campaign and for other campaigns depends on the specific situation as administered by the referee.

REQUIRED EXPENDITURES

Once a budget is established, precise definitions must be made as to what costs must be paid in the design and construction process, what costs may be ignored, and what discounts are allowed.

Required Costs: The following costs must be paid.

1. All construction costs for ship components called for on the ship design checklist.
2. All construction costs for small craft components called for on the small craft design checklist.
3. All vehicles carried on, or assigned to, ships within the squadron. Big and small craft which have their own *High Guard* statistics and which are assigned to the squadron should be accounted for separately.
4. Costs for extra fuel tankage used to meet required jump parameters.
5. Architect's fees for the first ship of a specified class. Changes in a ship which do not constitute design of a new ship class do not require additional architect's fees. Changes in a design which alter its class require payment of architect's fees for the entire ship. Ship class is discussed on page 19.

Ignored Costs: The following costs are ignored, and should not be counted in the computation of costs for ships.

1. Salaries for crew members.
2. Ship operating expenses, including fuel, environment, overhaul, and life support expenses.
3. Ammunition, including reloads, expendable items, missiles, and spare parts.
4. Ship's Locker, including armory equipment for ship's troops or service crew, small arms, vacc suits, tools, and other minor items.
5. Battle damage repairs.

Other Considerations: The following additional considerations should be taken into account.

1. Class Discount. When more than one vessel (ship, big craft or small craft) is constructed using the same or similar statistics (see page 19), the second and all subsequent vessels are produced at 80% of the construction cost of the original vessel. The architect's fee need not be paid again.

2. Carried Craft. Any craft carried by larger vessels should be noted with their own statistics and costs. Care must be taken that the costs are not figured into the costs of the larger vessel and subjected to multiple class discounts.

Campaigns: The campaign concepts in this adventure call for the payment of additional costs such as overhead, damage repairs, and other items. Those requirements are administered by the referee for the campaign, and they supersede the required and ignored costs lists given here.

PARAMETERS

The limitation of any budget is not sufficient to restrict a squadron to a realistic performance standard. Some designers may feel that jump drives, or even maneuver drives, are expendable and may be omitted. Others may neglect relatively important features of a squadron in favor of greater firepower. In order to keep this situation under control, specific parameters must be stated for any squadron being designed and constructed.

These parameters include:

1. Maximum Technological Level Allowed.
2. Minimum Jump Capability Required.
3. Minimum Maneuver Capability Required.
4. Maximum Pilot Allowance.
5. Minimum Refueling Capability Required.
6. Other Special Requirements.

TECHNOLOGICAL LEVEL

The technological level of the squadron must be specified. The shipyard which constructs any ships can build up to its own technological level; this is the tech level indicated in the maximum allowable level. Ships may be built at less than the indicated tech level, but no ships may exceed it.

JUMP DRIVES

When starships exist in the context of a campaign, the importance of jump drives is obvious. The designer must take into account the probable destinations of the ships during the course of naval operations. When Billion or Trillion Credit Squadrons are designed, the situation is not especially obvious, and must instead be included in the parameters.

The parameter statement indicates the minimum jump drive performance required for the squadron. The parameter states that the squadron must be capable of a certain jump level; not every ship in the squadron must be fitted with drives to meet or exceed the required level, but fleet tenders or fighter carriers must be included which are capable of carrying those ships and craft which not fitted with the required jump drives.

MANEUVER DRIVES

As they do with jump drives, campaigns can often silently make statements about maneuver drive requirements. When Billion or Trillion Credit Squadrons are designed, the parameters should make a minimum statement.

The parameter indicates the minimum maneuver capability for each ship. All vessels must be capable of maneuver under their own power. If they were not, then they would become vulnerable to attacks and boarding after only a few range changes in space combat.

PILOT ALLOWANCE

A cursory look at the character generation procedures in *High Guard* indicates that the most elite of the possible naval career choices is the flight branch. Pilots are the most select group in the navy, and the hardest to produce. As a result, the total number of pilots available becomes a restriction on the total number of ships (including fighters and small craft) which may be produced for service within a squadron. To state this in the extreme, a squadron restricted to having one pilot would be restricted to having one ship (in a Trillion Credit Squadron, this would be one very large and hard-hitting ship!).

A specification for minimum performance standards for squadron must indicate the number of pilots available to the unit for duty. A small number will generally preclude the unit having any large fighter complement; a large number will make such a fighter screen practical.

For low tonnage ships and starships (under 500 tons) and for small craft (under 100 tons), one pilot per ship or craft is sufficient. For ships between 500 tons and 20,000 tons, two pilots are required. For ships greater than 20,000 tons, three pilots are required.

REFUELING

Because of the differences in hull configurations and the resultant effects on gas giant skimming and ocean refueling, there are a great many options on the matter of refueling. The parameter should indicate exactly how refueling should be accomplished.

The following specific parameters are generally used:

Gas Giant Skimming Required: Fully streamlined (hull configurations 1, 2, or 6) and partially streamlined (hull configurations 3, 4, or 5) ships must be available to skim gas giants in order to provide fuel for the squadron.

Ocean Refueling Required: Fully streamlined (hull configuration 1, 2, or 6) ships must be available to penetrate world atmospheres in order to refuel from water oceans.

Orbital Refueling Allowed. Local refueling sources are available, and individual ship configurations need not consider refueling requirements.

Vessels Involved: Not all ships in a squadron are necessarily required to meet refueling requirements. The following terms modify and elaborate on the requirements for refueling:

Squadron: No specific requirements must be met by any single ship, but the designer must demonstrate that ships with a total fuel tankage equal to at least 10% of the total fuel tankage of the squadron (including vessels carried on others) are capable of meeting the required refueling parameter.

All Ships: Each ship (100 tons and greater) must be capable of the specified refueling parameter. This may be accomplished by vessels carried on the ship itself, whose total fuel tankage is at least 10% of the total fuel tankage of the ship plus its carried vessels.

All Starships. As above, but only each starship (100 tons and over; equipped with jump drives) must be capable of the specified refueling parameter.

All Craft: All vessels (regardless of size and of tonnage) must be capable of the specified refueling parameter. Fuel shuttles may not be employed.

SPECIAL CONSIDERATIONS

Parameters may be written by the referee to cover other considerations of special importance.

Planetoids: Planetoids may be prohibited due to lack of availability, or they may be required (entirely, in a certain proportion, for all jump-drive equipped ships, or for all ships above a certain tonnage) due to other circumstances, such as lack of hull-building facilities.

System Defense Squadrons: Specifications may require that no jump drives be installed in any ships to reflect a system defense orientation.

Transports: The use of large jump-drive equipped ships to carry the actual fighting ships of a squadron may be required in a certain proportion, or they may be prohibited. For example, if a world must conserve jump drive components which are in short supply, transports may be called for. Similarly, a system defense squadron hastily converted to attack status may be forced to use transports for the majority of its jump capability.

Rules and Rulings

Starship design and construction, and subsequent space combat, are governed by the rules in **Traveller** Book 5, *High Guard*. The following rules clarifications are presented to more carefully state some of the concepts of that book.

ARMOR

The added value of armor for a ship may not exceed the ship's technological level. In the case of planetoid hulls, an automatic hull armor factor is already present (3 for planetoids; 6 for buffered planetoids). The armor restriction only applies to armor added to the hull.

As a result, at any specified technological level, planetoid armor may exceed its technological level by 3 and buffered planetoids may exceed their technological level by 6.

For example, a buffered planetoid already has an armor factor of 6. If that ship were to be constructed at tech level 15, then it could add up to 15 points of armor to its hull. The resulting planetoid ship could conceivably have an armor factor of 21 (6+15).

AGILITY

Agility is a measure of the amount of energy available to the ship's maneuver drives, even when other operations are in progress. As such, agility is an extremely important aspect of any combat ship. Agility serves as a defensive DM on the throw to hit for all weapons. Agility also assists (or hinders) in pursuit actions.

Ship Defense: The target ship's agility is a die modifier on the throw to hit for all weapons tables in space combat. It is subtracted from the throw, and thus reduces the probability of a hit. The agility modifier applies to hits by all weapons types. It was accidentally left off the list of modifiers on page 45 of *High Guard*.

Agility in Pursuit: In pursuit situations, those ships breaking off do so at the speed of their least agile ship. Similarly, pursuers follow at the speed of their least agile ship. Thus, given all the other characteristics and capabilities of ships in combat pursuit situations, agility determines their basic ability to flee or pursue.

Emergency Agility: Because of the importance of agility, it is possible for a ship to elect not to use energy-consuming weapons in a combat round and instead divert energy to its maneuver drives. In such a case, an emergency agility rating equal to the ship's maneuver drive or power plant number, whichever is lower, may be used.

THE FROZEN WATCH

Supplementary crew members may be carried in low berths; this frozen watch is then available to replace crew casualties incurred in combat.

Pilot Requirements: The frozen watch must contain at least half the total number of pilots required for the ship.

Multiple Frozen Watches: More than one frozen watch may be assigned to a ship. Each frozen watch must meet the requirement that it contain at least 50% of

the ship's required crew, and it must carry at least 50% of the ship's required pilots.

Sufficient low berths must be installed to carry all frozen watch personnel.

Transfers To Other Ships: Frozen watch personnel may be transferred to other ships, but only between battles. A battle must end before frozen watch personnel can be transferred to other ships in order to crew them.

FUEL TANKAGE

All craft must be fitted with fuel tanks during the design and construction process. The size of those tanks is determined by the fuel formulae for jump drives and power plants. For jump fuel, 10% of the total hull tonnage must be committed per jump number the drive is capable of. For power plant fuel, 1% of the total hull tonnage must be committed per power plant number (this is equal to one ton per energy point produced by the power plant). Enough fuel for the power plant must be carried in normal fuel tanks; jump fuel and additional fuel may be carried in one of the additional tankage types outlined below. In addition, small craft must have at least one ton of normal interior fuel tankage.

Any craft may have more fuel tankage allocated within the ship, should the designer consider it necessary or desirable. Such additional tankage may be used to increase the ship's range (in number of jumps possible) or endurance (in weeks of maneuver allowed before refueling).

Other Types of Fuel Tankage: There are four varieties of fuel tankage which are not integral to a ship, each with its advantages and disadvantages. These are collapsible tanks, demountable tanks, exterior demountable tanks, and drop tanks. These may be added to any ship at any time, and may be added to any ship for Trillion Credit Squadron provided the cost is paid. Insure that the proper notation is made on the ship statistics if such additional tankage is installed.

Collapsible tanks hold fuel in the cargo hold to allow refueling when there is no other source of fuel available. Demountable tanks hold fuel to increase the total available tankage of the ship. Exterior demountable tanks and drop tanks simultaneously increase fuel capacity and ship tonnage; drop tanks, however, may be detached just prior to jump to reduce ship tonnage in order to achieve greater performance.

Collapsible Tanks: Large fuel bladders can be used to hold additional fuel; the collapsible tanks are filled with fuel and take up space in the ship's main cargo hold. It must have a hold equal to, or greater than, the tonnage required for the collapsible tanks, and the tanks displace tonnage in the cargo hold when in use.

When not in use, collapsible tanks collapse and are stored in the cargo hold; they take up 1% of their filled tonnage.

Fuel from collapsible tanks must be pumped into the normal fuel tanks before it can be used; thus a jump made using collapsible tanks may not use more fuel than the capacity of the normal interior fuel tanks. Pumping fuel before a jump takes about three hours.

The typical use for collapsible tanks is to allow a short-jump ship to cross a gap in two or more jumps. For example, to cross between two worlds located four parsecs apart, jump-4 drives are needed. With collapsible tanks, a ship with jump-2 could negotiate the distance in two sequential jumps, the first to deep space half way across, where the collapsible tanks provide the fuel for the second jump.

Collapsible tanks may not be used to enable a ship to satisfy minimum jump parameters in Trillion Credit Squadron. They may be installed at any class A or B starport in one week and cost Cr500 per ton.

Demountable Tanks: Sturdy fuel tanks can be installed on a ship to supplement its normal fuel capacity. These tanks take up space in the ship's cargo hold; they occupy that space regardless of whether the tanks are full or empty. Demountable tanks may be installed in any tonnage, but may not exceed the cargo capacity of the ship.

Demountable tanks operate in the same manner as normal fuel tanks, and their fuel is available for use by the drives immediately.

Demountable tanks may be fabricated at any class A or B starport, at a cost of Cr1,000 per ton, in 10 weeks. Once installed, demountable tanks may be demounted by the ship's crew in about two weeks, or at a class A, B, C, or D starport by professionals in about one week (at a cost of Cr10 per ton). Remounting costs are similar. It should be noted that demountable tanks (once demounted) must be stored and safeguarded. Costs for such run Cr10 per day per ton of tanks stored.

Exterior Demountable Tanks: Exterior demountable tanks may be installed on a ship which does not have sufficient interior cargo capacity (or if that capacity is to be conserved). All costs and times are the same as those for interior demountable tanks, with the addition of a charge for exterior tank supports of Cr500 per ton. Any ship carrying exterior tanks is considered unstreamlined regardless of its configuration. A ship's tonnage is increased by the size of the tanks, with consequent effects on its jump, maneuver drive, and power plant numbers.

Drop Tanks: The disposable tank rule (Book 5, page 27) allows the construction of tanks which can be dropped from the ship. The reduced ship tonnage, combined with the higher resulting capacity of the ship's drives, can result in an increased jump number or maneuver drive number. Power plant number may increase, but its energy point output remains the same.

When a ship is produced with drop tanks, the total tonnage of the ship without drop tanks determines the number of weapons allowed.

Drop tanks may be built onto a ship when it is originally produced at a cost of Cr10,000; they may be added to an existing ship at a cost of Cr1000 per ton. In both cases the tanks themselves must also be purchased at Cr1000 per ton. Building time is 10 weeks; installation time is only a few minutes.

Drop tanks do not affect the streamlining of the ship carrying them.

Both drop tanks and exterior demountable tanks are very vulnerable to battle damage. Whenever a battle damage die-roll, if unmodified by ship armor, would produce a fuel hit, all exterior or drop tanks are destroyed. For example, suppose a ship equipped with drop tanks and level 8 armor is hit by a factor 5 fusion gun. After defenses are penetrated, damage is rolled; the unmodified die roll is 4. The modified roll for ship damage is 18 (+8 for the armor, +6 for a weapon code of 9 or less). The modified roll for the drop tanks is 10 (ignoring the armor), resulting in Fuel-1; the drop tanks are destroyed.

PERCENTAGE-BASED FUEL PURIFICATION PLANTS

The fuel purification plant table in Book 5 (page 36) shows the tonnages for various plants at different tech levels. The percentage-based table on the next page shows those plants as a percentage of the fuel tankage of a ship, and includes the

minimum tonnage required and the cost per ton of purification plant installed.

The table is intended to assist in the design process, and simply restates the table in Book 5 in different terms.

SPARE SYSTEMS

Spare jump drives, maneuver drives, power plants, computers, and screens may be installed in a ship to take over in the event that the main unit is disabled.

These are backup devices only and may not be in operation at the same time as the main device. The higher-output device is the mainstay and operates under normal conditions; the backup device does not consume fuel or energy points while it is not in use. When the main device takes battle damage that reduces it below the level of the backup, the backup takes over. If the backup is then damaged, the main unit returns to action. Whichever unit has the highest current factor is the one in operation; when damage is received, it is applied to the unit in operation.

For example, a ship may have a computer model/6 for its main computer and a model/4 as a backup. If the ship receives three computer hits, reducing the main computer to model/3, the backup takes over. If the ship takes a further two computer hits, reducing the backup to model/2, the main computer returns to operation to replace it.

Under no circumstances may a backup and main device be operating at the same time; two level 6 power plants cannot be used as a level 12 power plant.

STATEROOMS

Dual occupancy staterooms are computed at MCr0.25 and 2 tons per person. It is not necessary to purchase an entire stateroom just to accomodate an odd number of crewmembers; a half-stateroom or large triple-occupancy stateroom can be built.

STATISTICAL COMBAT RESOLUTION

In many cases during battle, a large number of identical small craft or batteries will be firing at a single target or at many identical,small craft targets. At these times, much die-rolling may be saved by resolving hits, penetration, and damage by use of statistical probabilities. Instead of rolling dice, players may use the statistical combat table on the next page, which gives the expected results of a large number of identical die-rolls.

The firing player may choose to resolve combat statistically whenever he is firing at least ten identical shots. Identical shots are those fired by identical weapons under identical conditions (most importantly, all firing computers must be the same) at the same or identical targets. For example, if a ship fired 20 factor 4 laser batteries, four each at five identical fighters, statistical resolution could be used.

For resolution, no dice are rolled. Instead, once the modified die roll needed to hit has been determined (and it must be the same for all shots), the following formula is used to determine the number of hits.

Percentage-based Fuel Purification			
TL	% of Fuel	Minimum	Cost/ton
8	0.50	10	4000
9	0.45	9	4222
10	0.40	8	4500
11	0.35	7	4857
12	0.30	6	5333
13	0.25	5	6000
14	0.20	4	7000
15	0.15	3	10000

Percentage of fuel required is shown as a fraction of 1%. Cost is in Cr.

Hits = H x N/36

In the formula, *H* is the expected number of hits in 36 shots, as listed for each *to hit* die roll on the statistical combat table; *N* is the number of shots. For example, in the example above, suppose the number needed to hit is 6+. The statistical combat table shows that the expected number of hits is 26 in 36 shots, so the actual number of hits is 26 x 20/36, or 14.4; fractions may be rounded off to the nearest whole number. Hits in statistical combat should be evenly and randomly distributed among targets.

The statistical procedure may also be used for defensive fire and penetration die rolls; the procedure is identical.

Statistical resolution may also be used for damage resolution if there are very many identical damage rolls (i.e., rolls on the same table with the same modifiers). The *damage* column of the table gives the number of times a given number will be rolled in 36 rolls. To resolve damage, first determine the number of times each number from 2 to 12 will be rolled, using the formula above, and then add all applicable damage DMs to each number. For instance, in the example above 14 hits were scored; an unmodified damage die roll of 9 can be expected to occur 4 x 14/36 or 1.56 times. If the total damage DM is 10, this is the number of times a damage result of 19 occurs.

The probabilities of similar results, such as weapon-1 or fuel-1, may be added together before rounding off. For instance, in the previous example, with a total damage DM of +10, fuel-1 results will occur on the surface explosions table on an unmodified die roll of 3, 6, or 9. The total probability of these results is 11 in 36, for a total of 11 x 14/36 or 4.26 fuel hits.

SUBORDINATE CRAFT

Whenever a ship carries other ships, big craft, or small craft as part of its complement of vessels and vehicles, provision must be made for hangars and launch facilities for them.

Required Fittings: Small craft (under 100 tons) require no additional fittings when carried on any ship massing 1000 tons or less, or on any ship with configuration 7 (dispersed structure). They require tonnage equal to 130% of their mass on ships over 1000 tons. Big craft (100 tons and over, including very large ships 10,000 tons and higher) require tonnage equal to 110% of their mass; they require tonnage equal to 100% of their mass when carried on ships with hull configuration 7 (dispersed structure).

Vehicle Launch Facilities: Launch facilities must be provided for all ships and craft carried. Such facilities are automatic with dispersed structures (configuration 7) and all craft may be launched in one turn. Ordinary launch facilities allow one craft to be launched per turn. Launch tubes allow 40 craft to be launched per turn. Recovery is at the same rates.

**Statistical
Combat Table**

<i>Die Roll</i>	<i>To Hit</i>	<i>Dam- age</i>
2+	36	1
3+	35	2
4+	33	3
5+	30	4
6+	26	5
7+	21	6
8+	15	5
9+	10	4
10+	6	3
11+	3	2
12+	1	1

Squadron Concepts

When a squadron is being designed, the overall plan must take into account more than the qualities of the individual ships. It must deal with the way in which each of those ships interacts with the others for the best possible organization.

The following are some suggestions intended to fire the imagination.

Fleet Tenders: For any given ship tonnage, a ship which is not burdened with jump drives and jump fuel can be better armed and armored than a ship which must carry those jump drives. The concept of fleet tenders takes advantage of this fact. A fleet tender is a large jump-drive equipped ship which carries several big craft, each of which is well-armed, well-armored, and usually fitted with high acceleration maneuver drives.

Fleet tenders are generally produced with dispersed structure hulls (configuration 7) in order to allow simultaneous launch of all craft carried immediately as the ship arrives in a system. Since the tender cannot skim gas giants for refueling, the ships it carries must contain sufficient fuel tankage to refuel the tender in a reasonable time; often they must be streamlined to allow them to gather fuel from oceans if there is no gas giant in the system they move to.

Example: One jump-4 configuration-7 fleet tender massing 200,000 tons. Approximately 100,000 tons of the ship is free to carry fighting ships; this tonnage is allocated to hold ten 10,000-ton battleships built around a primary meson gun, 6-G maneuver drives, and the best computers available.

Fleet Carriers: The presence of a great many small craft such as fighters may be used as a screen to protect a larger ship in battles. Thus, a ship may be a fighter carrier which helps transport many small craft to the scene of battle.

Example: One 100,000 ton fighter carrier capable of jump-4 and 6-G maneuver has approximately 20,000 tons available for small craft. Assuming a fighter size of 20 tons, the ship could carry up to 80 ten-ship squadrons.

Planetoid Ships: The inexpensive nature of planetoid ships would appear to be the first attraction of this particular type of vessel. Planetoids, however, provide other benefits, including relatively inexpensive, although bulky, armor protection (especially for buffered planetoids).

Paperwork

When budget plays such an important part in the construction of a squadron, as it does in Billion Credit Squadron and Trillion Credit Squadron, then it is essential that the money amounts spent be thoroughly documented. For this purpose, a ship design worksheet should be prepared for each ship or small craft involved.

The worksheet is a very simple list which allows the notation of the tonnage used and the cost paid for each component of a starship. As the designer addresses each component of the ship, the tonnage and cost in MCr is entered on the worksheet. Once the entire sheet is filled in, the designer must go over the data and check that the total ship tonnage is not exceeded. Cost is then totalled, architect fees are added, and any volume discounts for subsequent ships in a class are taken.

Once the worksheet has been filled out and the cost determined, the information on the sheet is used to create the universal ship profile and the subordinate data for use in combat.

Procedure: Special forms have been produced for use in documenting ship design. Imperial Navy Form 10 is intended for use in the design of large ships; IN Form 10A is intended for use with small craft. Each is laid out using the same sequence as the design checklist for that type of vessel. The designer need merely follow the checklist and fill in the appropriate items.

Each form is intended for photocopying locally; on the page facing the form is the design checklist for ready reference.

For some, it may prove more convenient or productive to simply reproduce the form on a typewriter. Such a format would provide more room for the various items of information.

Sequence: Of course, the design worksheet need not be filled out in the sequence given on the design checklist. At times, the designer may wish to address some other parts of the ship design before others.

Design components for ships can be classified as tonnage-based or percentage-based items. For example, weapons are tonnage-based items, as are screens and small craft. Drives and fuel tankage are percentage-based items.

Percentage-based items may be specified first. Once the designer has decided on the performance parameters for the ship, the required percentage for the ship for the drives and fuel can be determined. For example, parameters of jump-1, maneuver-1, and power plant-1 may be specified, and minimal fuel tankage allocated. The various tables (assuming tech level 15) then indicate that 17% of the ship must be committed to these functions. Regardless of tonnage, the indicated percentage must be allocated in any ship in order to achieve the desired performance. All tonnage-based items may then be decided upon. Then the necessary hull size can be determined: divide the total of tonnage-based items by 100% minus the percentage of percentage-based items. For example, suppose a ship design required 60% of its tonnage in percentage-based items and the designer has 4500 tons forth of tonnage-based items. Dividing 4500 by 40% gives 11,250 tons for the ship's hull size.

In some cases, percentage-based items may be subject to minimums. For ex-

ample, a bridge requires 2% of the ship's total tonnage, but it is subject to a minimum of 20 tons for a ship or big craft and 4 tons for a small craft.

Percentage Based Components

Drives (Jump, Maneuver, Power)
Fuel Tankage
Purification Plants
Hull Armor

Tonnage Based Components

Computer
Weaponry
Screens
Vehicles and Small Craft
Launch Facilities
Crew, Troops, Frozen Watch

Percentage-based purification plants are covered in the special additional rules in this booklet.

Requirements: Each class of ship or small craft should have supporting documentation on its design. This documentation may be in any of several forms.

1. Identical Ships of Class. Ships which are in all ways identical may be supported by the same ship design worksheet. All but the first ship of class are eligible for volume discounts.

2. Class Variations. A basic ship of class may be designed and supported by a design worksheet. Each actual ship is then supported by that worksheet and by a specific supplemental worksheet that identifies changes in the design of other ships in the class. In order to be considered part of the same class, subsequent ships may differ from the first ship in only a few limited ways. There may be no changes in power plant, maneuver drive, jump drive, armor, or hull configuration. There may be no change in number or size of bays, although their contents may be altered. The size of the spinal mount and the number and sizes of launch facilities may not be increased, although they may be decreased. Any other ship components may be changed as desired. All differences from the design of the first ship of the class must be noted on the specific supporting worksheets.

3. Individual Ships: Each ship may have its own worksheet even though many are identical.

High Guard Ship Statistics: In order to make the information about the abilities and characteristics of each ship readily accessible, both to the referee and to the players, it is recommended that the *High Guard* (second edition) format, as described on pages 50 to 52 of Book 5, be used exclusively.

Sample ship designs and filled-out worksheets follow on the next four pages.

BATTLECRUISER REGAL

The battlecruiser *Regal* is the first ship of its class and built at tech level 14. Its hull masses 75,000 tons and uses the needle configuration (75,000 tons; MCr9.000).

The ship is jump-4 (3,750 tons; MCr15,000), maneuver-6 (12,750 tons; MCr6,375), and power plant-6 (9,000 tons, MCr27,000). Fuel tankage is 30,000 tons for the jump drive and 4,500 for the power plant: a total of 34,500 tons. There are fuel scoops (no tonnage cost; MCr75) and a fuel purification plant (69 tons; MCr0.483).

The ship has a bridge (1500 tons; MCr7.5). The computer installed is a Model/8fib (22 tons; MCr140; 9 energy points).

The hull is plated with factor 1 armor (1500 tons; MCr600;).

The ship's main armament is a type S spinal mount meson gun (8000 tons; MCr2000; 1200 energy points). Ten 100-ton bays hold factor-9 particle accelerators (1000 tons; MCr350; 600 energy points). Five 100-ton bays hold factor-5 repulsors (500 tons; MCr50; 50 energy points). Five 50-ton bays hold factor-9 fusion guns (250 tons; MCr40; 100 energy points). One hundred triple laser turrets (100 tons; MCr300; 300 energy points) are organized in ten batteries of factor-9. One hundred triple sand turrets (100 tons; MCr75) are organized in ten batteries of factor-9. One hundred triple missile turrets (100 tons; MCr300) are organized in ten batteries of factor-9.

The ship carries a factor-6 nuclear damper (12 tons; MCr38; 60 energy points) and a factor-6 meson screen (24 tons; MCr50; 900 energy points).

There are no ship's vehicles.

The crew consists of 610 persons: captain and 36 command section, chief engineer and 254 engineers, chief gunner and 167 gunners, head of service crew and 149 service crew. There are 100 marines aboard as ship's troops. Five single staterooms are allocated for section heads (20 tons; MCr2.5). Double occupancy staterooms for crew (1210 tons; MCr302.5) are provided. Five hundred and fifty low berths are provided in order to support a frozen watch (275 tons; MCr13.75). The troops occupy fifty double occupancy staterooms (200 tons; MCr25).

The ship has no cargo space.

Total energy points used by the ship is 3669. The remaining 831 are sufficient to provide agility 1 (750 points are required).

Architect's fees for the ship amount to MCr616.267. Total cost for the ship is MCr62243.

BC-8079 <i>Regal</i>	BC-Q1466H3-196608-999S9-0	MCr62,243	75,000 tons
batteries bearing	8	484818	Crew=610.
batteries	A	5A5A1A	TL=14.

Passengers=0. Low=550 (one frozen watch). Marines=500. Cargo=372. Fuel=34500. EP=4500. Agility=1. No ship's vehicles.

SHIP DESIGN WORKSHEET

Ship Name

BATTLECRUISER REGAL

		Tons	MCr		
Tonnage		75000	9000	Configuration -1	
Jump Drive -4		3750	15000	Tech Level -14	
Maneuver Drive -6		12750	6375	Energy Points	
Power Plant -6		9000	27000	4500	
Jump Fuel		30000	—		
Power Plant Fuel		4500	—		
Fuel Scoops		—	75		
Purification Plant		69	.483		
Bridge		1500	7.5		
Computer MODEL 8FIB		22	140.	9	
Armor		1500	600.		
Spinal Mount S		8000	2000.	1200	
Bays	Repulsors -5	500	50.	500	5x #5
	Energy Wpns -9	250	40.	100	5x #9
	Particle -9	1000	350.	600	10x #9
	Meson Gun				
	Missile				
Turrets	Sand -9	100	75.	—	10x #6
	Laser -9	100	300.	300	10x #9
	Energy				
	Particle				
	Missile -9	100	300.	—	10x #9
Screens	Meson Screen -6	24	50.	900	
	Dampers -6	12	38.	60	
	Force Field				
Small Craft					
Crew— Officers 5		20	2.5		
Ratings 605		1210	302.5		
Low Berths 550		275	13.75		
Troops 100		200	25.		
Cargo		—			
Total		75000		Agility =1 (750)	
Architect					
Discounts					
Total					

PROVINCIAL FIGHTER GNAT

The provincial fighter *Gnat* is the first craft in its class and built at tech level 14. Its hull masses 8.5 tons and uses the close structure configuration (8.5 tons; MCr0.51).

The fighter has no jump drives. It has maneuver-4 (1.44 tons; MCr0.72), and power plant-12 (2.04 tons; MCr6.12). Fuel tankage is 1.02 tons. The craft has no fuel scoops or purification plant. The power plant produces 1.02 energy points.

The craft has no bridge. It does carry a Model/2 computer (2 tons; MCr9).

The fighter mounts three weapons (1 ton): one sandcaster for one factor-3 battery (MCr0.25; no energy points), one laser for one factor 2 battery (MCr1; 1 energy point), and one missile rack for one factor-2 battery (MCr0.75; no energy points).

The crew of two is carried in small craft acceleration couches (1 ton; MCr0.05). There is no provision for cargo or passengers.

The craft produces a total of 1.02 energy points, of which 1.00 is required for the laser. There are insufficient EP remaining for agility purposes, and the fighter has agility 0.

Architect's fees for the ship amount to MCr0.184. The total cost of the ship is MCr18.584.

FP-123 <i>Gnat</i>	FP-0406C21-030000-20002-0	MCr18.584	8.5 tons
one battery each			Crew=2. TL=14.
Passengers=0. Low=0. Cargo=0. Troops=0. Fuel=1.02. EP=1.02. Agility=0.			

SMALL CRAFT DESIGN WORKSHEET			Ship Name
	Tons	MCr	
Tonnage	8.50	.51	Configuration -4
			Tech Level -14
Maneuver Drive	1.44	.72	Energy Points
Power Plant	2.04	6.12	1.02
Power Plant Fuel	1.02	-	
Bridge	-		
Computer	2.00	9.00	
Weaponry	Sand -1	1.00	.25 ONE#3
	Laser -1	-	1.00 1 ONE#2
	Energy		
	Particle		
	Missile -1	-	.75 ONE#2
Crew- Officers -2	1.00	.05	
Ratings			
Low Berths			
Troops			
Cargo			
Total	8.50	18.40	Agility =0
Architect		.184	
Discounts		-	
Total		18.584	

STARSHIP DESIGN CHECKLIST

1. Determine ship name and ship type.
2. Determine tech level of building shipyard.
3. Determine tonnage and hull configuration.
4. Select jump drives, maneuver drives, and power plant.
5. Determine fuel tankage. Consider fuel scoops and purification plant.
6. Compute energy points available.
7. Allocate bridge and select computer.
8. Select hull armor.
9. Select major weaponry.
 - A. Particle accelerator.
 - B. Meson gun.
10. Select bay weaponry.
 - A. Repulsors.
 - B. Energy weapons.
 - C. Particle accelerators.
 - D. Meson guns.
 - E. Missiles.
11. Select turret weaponry.
 - A. Sandcasters.
 - B. Lasers.
 - C. Energy weapons.
 - D. Particle accelerators.
 - E. Missiles.
12. Select screens.
 - A. Meson screens.
 - B. Nuclear dampers.
 - C. Force fields.
13. Select fighters and ship's vehicles. Note number carried.
14. Determine ship's crew and allocate quarters.
 - A. Consider ship's troops.
 - B. Consider frozen watch.
15. Note cargo, passengers, and other areas.
16. Total all energy points committed to weaponry and other items, and use the remaining EP's to compute the ship's agility rating.
17. Insure that tonnage does not exceed the hull tonnage.
18. Total the cost of components and determine architect's fees.
19. Determine volume discounts, if any.
20. Determine the total cost for the ship.
21. Utilize the information from the ship design worksheet to produce *High Guard* ship statistics for the vessel.

SHIP DESIGN WORKSHEET

Ship Name

		Tons	MCR	
Tonnage				Configuration
Jump Drive				Tech Level
Maneuver Drive				Energy Points
Power Plant				
Jump Fuel				
Power Plant Fuel				
Fuel Scoops				
Purification Plant				
Bridge				
Computer				
Armor				
Spinal Mount				
Bays	Repulsors			
	Energy Wpns			
	Particle			
	Meson Gun			
	Missile			
Turrets	Sand			
	Laser			
	Energy			
	Particle			
	Missile			
Screens	Meson Screen			
	Dampers			
	Force Field			
Small Craft				
Crew- Officers				
Ratings				
Low Berths				
Troops				
Cargo				
Total				Agility
Architect				
Discounts				
Total				

SMALL CRAFT DESIGN CHECKLIST

1. Determine craft name and craft type.
2. Determine tech level of building shipyard.
3. Determine tonnage and hull configuration.
4. Select maneuver drives and power plant.
5. Determine fuel tankage. Consider fuel scoops and purification plant.
6. Compute energy points available.
7. Allocate bridge and select computer, if any.
8. Select hull armor.
9. Select weaponry.
 - A. Sandcasters.
 - B. Lasers.
 - C. Energy weapons.
 - D. Particle accelerators.
 - E. Missiles.
10. Select screens.
 - A. Meson screens.
 - B. Nuclear dampers.
 - C. Force fields.
11. Select fighters and craft's vehicles. Note number carried.
12. Determine craft's crew and allocate quarters.
 - A. Pilot's and passengers' couches.
 - B. Staterooms and low berths.
13. Note cargo, passengers, and other areas.
14. Total all energy points committed to weaponry and other items, and use the remaining EP's to compute the craft's agility rating.
15. Insure that tonnage does not exceed the hull tonnage.
16. Total the cost of components and determine architect's fees.
17. Determine volume discounts, if any.
18. Determine the total cost for the craft.
19. Utilize the information from the craft design worksheet to produce *High Guard* ship statistics for the vessel.

SMALL CRAFT DESIGN WORKSHEET			Ship Name
	Tons	MCr	
Tonnage			Configuration
			Tech Level
Maneuver Drive			Energy Points
Power Plant			
Power Plant Fuel			
Bridge			
Computer			
Weaponry	Sand		
	Laser		
	Energy		
	Particle		
	Missile		
Crew— Officers			
Ratings			
Low Berths			
Troops			
Cargo			
Total			Agility
Architect			
Discounts			
Total			

Billion Credit Squadron

The Billion Credit Squadron concept is intended to provide an introductory situation for players and referees interested in designing and building starships and then conducting battles between the results. The requirements of a Trillion Credit Squadron can be forbidding; Billion Credit Squadron is identical to Trillion Credit Squadron with the exception that the total budget is smaller.

Beware, however, because the two different squadrons are vastly discrepant in scope. A billion credits is scarcely capable of funding a single *Kinunir* class battle cruiser; a trillion credits can buy more than seven hundred of them.

The billion credit premise is best used in the design and construction of a small squadron of 100-ton to 300-ton ships.

PARAMETERS

The following are suggestions for parameters for Billion Credit Squadrons.

1. Tech level 7. Jump-0. 1-G. 20 pilots. Orbital refueling allowed.
 2. Tech level 7. Jump-0. 2-G. 10 pilots. Squadron, gas giant skimming required.
 3. Tech level 8. Jump-0. 1-G. 30 pilots. Squadron, ocean refueling required.
 4. Tech level 8. Jump-0. 3-G. 25 pilots. All craft, gas giant skimming required.
 5. Tech level 9. Jump-1. 6-G. 10 pilots. All craft, gas giant skimming required.
 6. Tech level 9. Jump-1. 1-G. 20 pilots. All craft, ocean refueling required.
 7. Tech level 10. Jump-1. 2-G. 30 pilots. All ships, gas giant skimming required.
 8. Tech level 11. Jump-2. 4-G. 10 pilots. All ships, ocean refueling required.
 9. Tech level 11. Jump-2. 2-G. 10 pilots. Squadron, ocean refueling required.
 10. Tech level 12. Jump-2. 5-G. 50 pilots. Squadron, gas giant skimming required.
 11. Tech level 13. Jump-2. 4-G. 30 pilots. Squadron, ocean refueling required.
- All starships in this squadron must have planetoid or buffered planetoid hulls.
12. Tech level 13. Jump-3. 1-G. 10 pilots. Orbital refueling allowed.
 13. Tech level 13. Jump-2. 3-G. 10 pilots. All craft, gas giant skimming required.
 14. Tech level 13. Jump-0. 6-G. 40 pilots. All craft, ocean refueling required.
- This squadron is a system defense squadron.
15. Tech level 14. Jump-5. 6-G. 20 pilots. Squadron, ocean refueling required.
 16. Tech level 14. Jump-1. 4-G. 50 pilots. All starships, gas giant skimming required.
 17. Tech level 15. Jump-2. 2-G. 40 pilots. All craft, ocean refueling required.
 18. Tech level 15. Jump-6. 6-G. 10 pilots. Squadron, ocean refueling required.

Trillion Credit Squadron

The Trillion Credit Squadron concept allows the design of a force equivalent in general capabilities to an Imperial battle squadron, with several ships in the 30,000 ton range or larger, and a full complement of supporting vessels. Of course, many other types of force may be built with the money, to suit an individual player's theories of naval warfare. On the average, a trillion credits will construct about a million aggregate tons of naval vessels; obviously, this will vary considerably with the sizes, armaments, and other fittings of the ships built.

PARAMETERS

The following are suggestions for parameters for Trillion Credit Squadrons.

1. Tech level 7. Jump-0. 1-G. 400 pilots. Orbital refueling allowed.
2. Tech level 8. Jump-0. 1-G. 100 pilots. All craft, gas giant skimming required.
3. Tech level 9. Jump-1. 1-G. 200 pilots. Squadron, ocean refueling required.
4. Tech level 10. Jump-1. 2-G. 300 pilots. All craft, gas giant skimming required.
5. Tech level 11. Jump-0. 6-G. 600 pilots. All craft, ocean refueling required.

This is a system defense squadron.

6. Tech level 11. Jump-2. 1-G. 300 pilots. All ships, gas giant skimming required.
7. Tech level 12. Jump-0. 1-G. 200 pilots. Orbital refueling allowed.
8. Tech level 12. Jump-3. 1-G. 100 pilots. All ships, gas giant skimming required.
9. Tech level 13. Jump-0. 6-G. 300 pilots. All craft, ocean refueling required.
10. Tech level 13. Jump-1. 1-G. 100 pilots. All ships, gas giant skimming required.
11. Tech level 13. Jump-4. 4-G. 200 pilots. All craft, gas giant skimming required.
12. Tech level 14. Jump-3. 3-G. 300 pilots. Squadron, gas giant skimming required.
13. Tech level 14. Jump-0. 1-G. 400 pilots. All craft, ocean refueling required.
14. Tech level 15. Jump-1. 1-G. 200 pilots. Orbital refueling allowed.
15. Tech level 15. Jump-4. 4-G. 300 pilots. All craft, gas giant skimming required.
16. Tech level 15. Jump-2. 6-G. 100 pilots. Orbital refueling allowed. All ships in this squadron must have buffered planetoid hulls.
17. Tech level 15. Jump-4. 1-G. 400 pilots. Squadron, ocean refueling required. There may be only one ship in the squadron with jump drive, and the rest of the squadron must be carried inside it.
18. Tech level 15. Jump-4. 6-G. 200 pilots. Squadron, ocean refueling required. Each ship in the squadron over 500 tons must be capable of the jump parameter.
19. Tech level 15. Jump-6. 6-G. 200 pilots. All ships, gas giant skimming required.
20. Tech level 15. Jump-6. 1-G. 100 pilots. Squadron, ocean refueling required.

Tournaments

Trillion Credit Squadron, in addition to being an adventure for **Traveller**, is a setting for a **Traveller** tournament at adventure gaming conventions. You should check convention announcements and programs for details of which specific conventions will have Trillion Credit Squadron tournaments.

Commentary on winning squadrons every year (and possibly the squadron statistics themselves) will be published each year in the *Journal of the Travellers' Aid Society*.

ANNUAL SPECIFICATIONS

The concept of a Trillion Credit Squadron Tournament calls for a squadron to be designed by the competitor prior to the convention; at the convention, the squadron is pitted against other squadrons designed to identical parameters. Elimination rounds determine an overall winner for the tournament. Obviously, the winner's victory is based on a combination of design expertise and naval combat skill.

Battle will be to the death: whichever player has the last ship capable of firing will be declared the winner of the round. The same fleet (returned to its undamaged condition) will be used by a player in each round.

The actual specifications for a Trillion Credit Squadron Tournament change each year in order to provide variety and a continuing challenge to the competitors. The basic rules remain the same, but some changes in maximum tech level allowed and other factors are imposed.

1981 Tournaments: The maximum tech level allowed for all ships is 12. The total pilot allowance for the squadron is 200. The squadron must be capable of jump-3; each ship and small craft must be capable of 1-G acceleration. The squadron must be capable of gas giant refueling.

1982 Tournaments: The maximum tech level for all ships is 13. The total pilot allowance for the squadron is 250. The squadron must be capable of jump-4; each ship in the squadron must be capable of 2-G acceleration. The squadron must be capable of gas giant refueling.

One code-4 black globe generator is available for installation on one ship within the squadron. It need not be used, but its cost is not charged against the total budget if used, and it may not be exchanged for credit if not used.

1983 Tournaments: The maximum tech level for all ships is 14. The total pilot allowance for the squadron is 150. The squadron must be capable of jump-4; each ship in the squadron must be capable of 3-G acceleration. The squadron must be capable of gas giant refueling.

Campaign Rules

Trillion Credit Squadron can also be played as a campaign game involving the navies of several planets in one or two subsectors. The campaign may be set in the referee's ongoing universe (perhaps affecting the lives of player-characters) or it may take place in an area specifically generated for the event.

Two sides are the obvious minimum for a campaign; the upper limit depends on the number of players and the referee's ability to handle the work. Each side should have one player as commander-in-chief and several more as admirals.

In the context of a campaign, many of the rules and ship capabilities of *High Guard* assume greater importance than in a single battle, and design parameters will flow from the game situation rather than being imposed from above. The budget limit is not an arbitrary sum, but comes from taxes levied on the players' empires. With the necessity for maintaining a fleet through a campaign of many battles, breaking off action becomes an important element of battle strategy, and players must allocate a good percentage of their resources for maintenance and repair. And of course, jump drives and refueling capability become important.

In a campaign, victory goes not to the player with the best fleet-building or tactical battle skills (although these are important) but to the player who can best strategically maneuver his forces, concentrating them for local numerical superiority, outguessing or outwitting his opponent.

REVENUE

The navy gets its budget from the planetary government, which in turn gets it from the pockets of citizens. Funds are received each year on January 1st, the amount depending on government type, population, and state of interstellar tension. Some governments are more militaristic than others, and all governments spend more if war seems imminent than in peacetime. The budget is determined by the

B = Cr500 x GM x P formula at left. *B* is the budget in credits; *Cr500* is the amount of naval tax paid by the average citizen; *GM* is the government percentage modifier; and *P* is the population of the planet. The government percentage modifier may be found on the table below. Each government type has its own modifier for peace and war conditions. These are extremes: the referee must decide on intermediate rates for each government as the situation heats up or cools down. The players have no control over tax rates; they are dependent on popular acquiescence or public opinion, as determined by the referee. All governments start the campaign at peace.

Government Percentage Modifiers

Type	0	1	2	3	4	5	8	9	A	B	C	D
Peace	.50	.80	1.00	.90	.85	.95	1.10	1.15	1.20	1.10	1.20	.75
War	1.50	1.40	1.50	1.20	1.45	1.40	1.20	1.20	1.50	1.20	1.50	1.50

Government type 6 (captive government) pays the same rate as its parent state, or the referee might decide they are being oppressed and set their rate somewhat high-

er; 1.50 is the absolute limit. Balkanized worlds (7) have different rates for the different governments.

All taxes are received in local credits, each worth one credit on its world of origin (when constructing or repairing ships there), but somewhat less in interstellar exchange. The only times this matters are when one world transfers money to another, such as foreign aid, loans, or taxes paid by a subject world to its owner. In such cases, consult the relative value table. Multiply the sum transferred by the credit value for the world giving the money and divide it by the value for the world receiving it. For example, if a tech level C, A starport world gave MCr20 to a tech level 8, 8 starport world, the world would receive $\text{MCr}20 \times .85/.60$ or MCr24 in local credits. If an there is an asterisk on the table for a world, there is too little trade going on for its currency to have a set value in interstellar exchange. The referee may allow periodic tax assessments to be made; their value should be variable and low.

Relative Value Table						
Tech Level	Starport			Type		
	A	B	C	D	E	X
F	1.00	.95	.90	—	—	—
E	.95	.90	.85	.80	.75	—
D	.90	.85	.80	.75	.70	—
C	.85	.80	.75	.70	.65	—
B	.80	.75	.70	.65	.60	—
A	.75	.70	.65	.60	.55	.45
9	.70	.65	.60	.55	.50	.40
8	.65	.60	.55	.50	.45	.35
7	.60	.55	.50	.45	.40	.30
6	—	.50	.45	.40	.35	.20
5	—	.45	.40	.35	.30	.10
4	—	—	.30	.25	.20	*
3	—	—	.20	.10	.05	*
2	—	—	—	.05	*	*
1	—	—	—	.01	*	*
0	—	—	—	—	—	*

INITIAL FLEETS

Players may initially build a fleet costing up to ten times one year's naval budget. 20% of this budget must be spent on ships built at one tech level lower than the world's current maximum, although this price may include the cost of refitting them to upgrade them to the current tech level (see the refitting rule below). Before building a fleet it is advisable to read the maintenance rule; it is possible to build a bigger fleet than can be maintained in peacetime.

There are no limits other than tech level and budget, although starships may be built only at A starports, non-starships only at A or B starports, and planetoid ships only in systems where planetoids are available. Pilots are effectively unlimited, given populations and revenues such as they are in any campaign game.

TIME SEQUENCE

For convenience, and to save the referee's sanity, time in the campaign is divided into weeks, and the events of each week are divided into six segments. In campaign terms, events either take one or more complete weeks or no time at all. The order of events within a week is given below and should be strictly adhered to.

- 1. **Jumps:** All ships which jumped at any time in the last week are placed in their systems of destination.
- 2. **Communication and Intelligence:** Players receive information from the referee regarding the system they have entered and the composition of enemy forces there.

Players in the same system may talk to each other and may continue direct communication until one of them jumps out of the system. Ships with sufficient fuel may jump before combat if they wish.

3. Battles: All battles are fought to a conclusion. Refueling from gas giants may take place during battle. Ships may escape from battle by jump or maneuver.

4. Changes of Control: Fleets which have driven off enemy forces (or which were uncontested) may take control of enemy planets. Enemy worlds will surrender to a fleet; any ship may take over a gas giant.

5. Refueling: The player who controls a source of fuel may refuel his ships there.

6. Final Operations: Ships which undertook operations lasting a week or more (such as refueling or repair) are ready for other operations. Ships which were in the process of being constructed, refitted, or other shipyard work are ready. Final orders for movement, reorganization, and other operations are given. Ships which have not already done so may jump.

BUILDING SHIPS

All construction rules given in *High Guard* and *Trillion Credit Squadron* are in effect. Each planet's shipyards have a maximum capacity expressed in the number of tons of ship they may work on at a time (including repair and refitting operations: see later rules). This capacity is determined by the

C = P x GM/1000 formula given at left, where *C* is shipyard capacity in tons, *P* is planetary population, and *GM* is the current government budget percentage modifier. Plans for a new ship-class require four weeks before construction may begin (and may be made up long in advance). Time required for construction varies by ship tonnage, according to the construction time table. For tonnages other than those given on the table, the referee should round to the nearest quantity or interpolate. Construction times are given in weeks. For simplicity, a ship is not usable for any purpose until it is completed. Construction may be speeded up by a number of factors; these are expressed in terms of the extra percentage of a week's work that can be finished in one week. For example, if rate increases totalling 30% apply, then 130% of a week's work will be done that week, counting as 1.3 weeks off the construction time. The largest possible increase is 100%, or two weeks' work done in one week. There are three factors capable of speeding construction. These are:

1. If the ship is not the first ship built in its class (i.e., it satisfies the requirements to cost only 80% of its face value): +40%.

2. If double the ship's tonnage in yard capacity is assigned to it during the week (extra workers and equipment): +40%.

3. For every extra 10% of the unmodified weekly construction cost (see below) that is paid: +10%.

Construction is paid for every week. To find the unmodified weekly cost, divide the total ship cost by the construction time given on the table. After all time

**Construction Time
Table**

Tons	Weeks
50 or less	.... 24
80	.....32
100	.....40
200	.....48
400	.....64
600	.....96
800	.....112
1000	.....120
5000	.....144
10,000	.....160
20,000	.....174
50,000	.....192
100,000	.....208
200,000	.....224
500,000	.....232
1,000,000	... .240

Construction is paid for every week. To find the unmodified weekly cost, divide the total ship cost by the construction time given on the table. After all time

modifiers have been determined each week, multiply the weekly price by the work done; for example, if 1.3 weeks worth of construction have been done, pay 1.3 times the unmodified weekly cost. Speed-up payments (as in 3 above) are in addition to the weekly cost.

REFITTING SHIPS

Outmoded ships may be improved by refitting; obsolete systems are replaced by newer models. All refitting must be done at an A or B starport, and jump-drives may be refitted only at A starports. Refitting involves the complete removal of an old system and the installation of a new one; for instance, if a power plant is refitted, the entire power plant is removed and a new one put in its place. Refitting takes up shipyard capacity equal to the refitting ship's tonnage.

Changes in power plant, maneuver drive, or jump drive are major changes. They cost 1.5 times the amount the new system would cost in a new ship; the time required to install major changes is one fourth the time required to build a new ship (from the construction time table).

Changes in any other ship component are minor changes. They cost 1.1 times the cost of the system in a new ship and take one tenth the time required for new ship construction.

Refitting is subject to the same time modifiers and weekly costs as in the ship-building rule. If several ships of a class are being refitted the same way, all ships after the first receive the time benefit. Work may proceed concurrently: if several ship systems are being replaced, the refit takes only the time required for the longest one.

The degree to which a ship may be changed is limited. Power plant, M-drive, J-drive, and spinal mount weapons may not be increased in tonnage. There may be no additional launch facilities built (although they may be removed). Armor and configuration may not be changed. The number and size of weapons bays may not be changed.

REPAIRS

Ships damaged in battle must be repaired. The crew can attempt some repairs in space, but permanent repairs require a starport.

Field Repairs: Any ship system not the victim of a critical hit may be repaired after battle at no cost and in no time, provided the ship's crew factor is at full level; repairs are impossible without a full crew. All systems which suffered a partial loss (loss of factors) have half their lost factors restored, rounding fractions up. Fuel tanks are restored to full capacity (although lost fuel is not replaced). Half of all batteries which were knocked out are restored to full factor, and half are restored to half factor, rounding fractions up. Crew losses may not be repaired, although many of those lost will be only wounded and will be frozen pending delivery to naval base hospitals. Critical hits (including lost armor) may not be repaired.

Breakdown: Field repairs tend to break down. Roll 8+ once a week per repaired system for breakdown: once for each drive, screen, battery, or other system. The roll is made the first time the system is used; if it is not used roll at the end of the week. Consequences of breakdown (aside from the system not working) are up to the referee. Allowable DMs are -1 for each previous week in which the system did not break down and -2 if an entire week is spent doing nothing but repair (no

jumps, battles, refueling, etc.). The best possible total DM is -3. The referee may impose additional DMs for heavy (or careful) use of the system. If a system breaks down it must be repaired again, but there are no further penalties.

Starport Repairs: Full repair may be done at any A or B starport, but j-drive repairs require double cost and time at B starports, and no starport may repair a ship system of higher tech level than the starport's tech level. Repairs require shipyard capacity equal to the ship's tonnage. Field repairs are ignored: all original combat damage must be repaired. The cost is full price of the system for a critical hit and one fourth the price of the system for other damage. Systems which were reduced to partial factor cost one fourth the full price times the percentage lost; for instance, if a level 8 meson screen were damaged to level 7, the cost of repair would be $1/4 \times 1/8$ or $1/32$ the cost of a new meson screen. Repair of a destroyed fire control system (a critical hit) costs one tenth the cost of all ship batteries except the spinal mount. Crew or frozen watch casualties are replaced free at any naval base. The time required for repairs is one to four weeks for non-critical damage and four to eight weeks for critical hits.

Jump Failure: Ships unable to jump because of critical hits on their power plant, jump drive, computer, or bridge present a special problem. If the bridge or computer is out, another ship may be linked to it for jump; the linking ship must have a computer and bridge as least as large as that of the damaged ship, and linking takes one week. Both move at the jump rate of the slowest ship and maneuver is impossible while linked. Roll for breakdown of the link after every jump; repair takes another week. Ships whose power plants or j-drives have been destroyed must either be transported to a starport inside a tender or must be repaired in place. To repair a ship in place, first a message must be sent to a starport capable of repair; a new drive must be transported to the damaged ship; and it must be inserted, taking double the normal repair time (although not double cost).

MAINTENANCE

Maintenance of a ship costs 10% of its building cost each year, paid at the beginning of the year. The cost of a refitted ship is its original cost, minus the cost of old systems removed, plus the cost of new systems added. Ships being constructed do not require maintenance, but those being refitted or repaired do. If a player does not have enough money to maintain his entire navy, then some ships must be paid off or placed in ordinary.

Paying Off: The ship is removed from the navy list and disposed of. Such ships are usually destroyed; at any rate, they are no longer in the game.

Ordinary: Ships may be placed in ordinary; they are decommissioned and are no longer in service, but are stored away and may be returned to service at a later date. Ships in ordinary cost one tenth their normal maintenance. The recommissioning cost is one tenth the ship's cost and requires full shipyard capacity for one tenth construction time. All time modifiers found in the shipbuilding rule may be used.

COMMUNICATION

As has been mentioned many times before, one of the fundamental facts of the **Traveller** universe is that the speed of communication is no faster than the speed of travel. Players who engage in a naval campaign using the following rules will find themselves uncomfortably reminded of this fact with every move they make. The

communication rules provide a framework for limiting the transfer of information to its "actual" speed of one jump per game week, creating a genuine "fog of war" in which players must make decisions based on guesswork and information weeks out of date. The campaign can be played without the communications rules (and they do add considerably to the referee's and players' tasks) but if the rules are used the players will be guaranteed an exciting experience like no other in gaming.

Players: The central principle of the communication rules is that each fleet task force (each group of ships in a separate system) must be operated by a separate player, and that players in different systems may not communicate with each other except through the referee. Players will actually be unaware of what is going on in systems just one jump away; the lack of communication is not just simulated — it is real. This system requires a large number of players per side; the easiest way to handle it is to assign admirals at the beginning of the campaign and not to allow more independent task forces than there are admirals.

Referee's Personae: To save on players, the referee may take the part of non-player characters in command positions requiring little initiative: bases and planetary naval stations, ships returning to base with battle damage, and individual courier ships. These referee's personae should not be expected to demonstrate much cleverness or thought, just general professional competence; they will follow orders to the letter unless they obviously do not apply. Since these officers will go "by the book" players would be well advised to issue them with general orders planned for every conceivable contingency, and to make sure that other orders given to them are clear and precise. The referee, when making a decision for one of his personae, must be sure to make use of only that information the officer would actually know.

For example, suppose that a planetary base commanded by a referee's persona includes a small flotilla of system defense boats and three or four small courier ships. An enemy fleet jumps into the system. Looking at his orders, the referee reads "*...If enemy forces jump insystem contact Task Force 1 soonest...*"; he immediately sends a courier ship to search for Task Force 1. His orders give the planned location of the task force for the next week, so the courier is ordered to jump to that system. Unknown to the base commander (but of course known to the referee), Task Force 1 was engaged in battle last week and is currently licking its wounds in another system entirely, and when the courier finds the supposed rendezvous point empty, the referee must again consider his orders. The courier captain (another referee's persona) might decide, based on his orders, to return to base, proceed to another possible location, or some other action.

Sometimes a referee must take over a command he knows will require individual initiative in order to avoid alerting the players that something is amiss, or conversely require a player to command a force he knows will encounter nothing but routine.

Messages: The only way a player can find out about events in another system is by receiving a message. Either a ship carrying the information jumps into the system or the player's task force jumps into a system where a message is waiting. Players (or referee's personae) in the same system may talk freely; in other cases a written message is required. Messages may be written from players to players, from players to referee's personae (and vice versa), and even from one referee's persona to another. The players themselves can keep track of messages they receive; the referee will find his task easiest if he makes up a folder for each of his personae,

storing inside it all information the officer knows.

Each message must be given to the referee for delivery.

For clarity, each written message should carry several pieces of information besides the message itself:

1. The name of the person the message is from.
2. The name of the person the message is being sent to, and what others may be allowed to read it.
3. What ship it will be carried on, or which planetary base it has been given to.
4. The date (campaign week) and system in which it was dictated.

Messages may be disseminated in several ways. The same message may be sent to several places at once in hopes of finding the recipient. A ship may be instructed to go to a rendezvous point and wait for a courier from the recipient (and other ships instructed to go to such points to see what messages are waiting). A message may be left at a friendly ground installation; there is assumed to be such an installation (not necessarily a base, but some naval ground presence) at any friendly planet.

Orders: Orders are a special class of messages, telling someone not just what has happened but what to do. Orders may be intended for players (in which case they may be general in nature) or for referee's personae (in which case they had better be precise and restrictive).

Before the campaign, a clear chain of command should be devised, stating which players are in a position to command which other players. No referee's persona should ever be in a position to issue orders to a player, although some players may not be in authority over some referee's personae. Of course, players may disregard orders if, in their opinion, they were issued without benefit of relevant information or are out of date. In turn, higher-ranking players may consider opening court-martial proceedings once this comes to light.

An admiral may issue general or standing orders before a campaign, indicating actions to be taken in specific types of situations; these become the "book" that referee's personae follow.

Intercepted Messages: The referee should be alert to the possibility of capturing information. After a battle there may be prisoners to be interrogated or undestroyed computer banks on captured ships (although standard procedure is to wipe the memory before capture, things sometimes go wrong). Radio intercept is also possible; although all messages are sent in code, an overused code may be broken. In general, the chance of capturing useful information is too small for definite rules to be written, but the referee should be thinking about it;

A player should keep this in mind when sending messages and in deciding who is to be entrusted with what information.

Civilians are another possible source of information. Ships or worlds may have witnessed some enemy operation.

Of course, players are fully capable of planting false information or allowing messages to be intercepted on purpose.

Campaign Diary: A limited-communication game such as this may become so confusing that players may be unable during the course of the game to see the "big picture" of the campaign. For this reason, the referee should keep a week by week record of events so that, after the war is over, he can sit down with the players and explain what really happened. The record may be as detailed or as general as the referee likes. Visual aids such as campaign maps may prove useful. All messages

generated in the course of the campaign should also be retained as an additional source of information.

TACTICAL INTELLIGENCE

In the communication segment (before engaging in combat) it is possible to determine the approximate strength of enemy fleets in a system. Players should be told the general size and number of enemy ships (for example 1 gigantic ship, 8 large ships, 20 small ships, and 200 fighters) and their approximate maneuver drive sizes (but not agility). Ships carried inside other ships may not be detected. Once battle is joined, all factors are revealed.

THE OUTER SYSTEM

Ships which break off battle by acceleration flee to the outer system. Ships in the outer system may not be attacked (space is big) but an enemy in the system does receive tactical intelligence about them. Players in the outer system may receive all messages transmitted in the inner system (they may listen to friendly players talk) but may respond only in a limited way; they may send three messages per week, and the referee should delay receipt of these messages by one segment (for instance, if a message is sent in the communication segment it arrives in the battle segment).

Ships in the outer system with enough fuel may jump. The rest must hope to eventually return to the inner system to refuel. Fuel may be conserved while waiting by lack of maneuver; the ship's power plant will consume fuel as if it were a power plant-1, regardless of its true value. Every full load of fuel for a power plant-1 will last 4 weeks. Once all fuel is exhausted, all ship systems including life support no longer work.

At any time a player may decide to return to the inner system. If he decides to return before the refueling segment he returns in time for refueling (of course, he can't refuel unless his side owns the system). If he decides to return during or after the refueling segment he returns in the jump segment of the next week.

SURRENDER

For simplicity, to avoid the necessity to worry about armies, planetary bombardment, and other factors outside the scope of a purely naval campaign, the following abstract rule for planetary surrender is provided.

If a player has at least 100 total factors of weapons in a system (add up all batteries on all ships, with A counting as 10, etcetera) and all enemy ships have been incapacitated or disengaged, the planet surrenders. It becomes friendly until recaptured by the enemy.

Refueling facilities may be used immediately, and a small friendly naval shore station, suitable for transfer of messages, is established.

Starport repair facilities may be used after a 24-week waiting period; starport shipbuilding facilities may be used after a 548-week waiting period.

Enemy ships awaiting repair on the planet may attempt to escape by disengaging through acceleration if they are capable of maneuver. If they do not escape they are captured. Ships on the planet undergoing construction or refitting are automatically captured. Work may be resumed on captured ships where the enemy left off after the waiting period is over or, if capable of flight, they may be flown to a

friendly starport. The referee may also consider the possibility that worlds will be able to partially or fully destroy ships before capture. Partial destruction is measured in weeks (and weekly cost) added onto a ship's construction time or refitting time; ships in ordinary or in port for repairs take battle damage (roll several times on the interior explosions and/or critical hit tables).

REFUELING

On the campaign level, a fleet either refuels in no time at all or in an entire week. Whether a fleet takes time to refuel or not depends on its refueling capability and the source of its fuel. Any ship may be refueled at a starport. Only streamlined

Required Refueling Times

<i>Fuel Source</i>	<i>Stream-lined</i>	<i>Partially Stream-lined</i>	<i>Un-Stream-lined</i>
Gas Giant	0	0	1
Ocean/Ice	0	1	1
Base	0	0	0
Starports:			
A	2,000,000		
B	1,500,000		
C	1,000,000		
D	500,000		
E or X	no fuel available		

and partially streamlined ships may refuel from gas giants. Only streamlined ships may refuel from planetary oceans or ice caps.

A task force is considered streamlined if ships with fuel tankage equal to at least 50% of the total fuel tankage of the task force are streamlined, and partially streamlined if at least 50% are partially streamlined. It is considered unstreamlined in other cases. In order for an unstreamlined task force to refuel at a gas giant, at least 10% of its fuel tankage must be in fully or partially streamlined

ships; in order for an unstreamlined or partially streamlined task force to refuel from a planetary ocean or icecap, at least 10% of its fuel tankage must be in streamlined ships. Task forces which do not meet these requirements may not refuel at those fuel sources. Of course, a task force could be reorganized, leaving out some of its ships, until it does meet a requirement. Refueling times for all types of task forces and refueling sources are given in the table above. Starports are a special case. They each have a refueling capacity, giving the number of tons of fuel tanks they may refuel in zero time. Any ships in excess of this may be refueled in one week.

Streamlined or partially streamlined ships are also capable of refueling from a gas giant during battle. The ship must be part of the reserve during the operation, and if interrupted is considered not refueled. One pass through the gas giant's atmosphere is sufficient to fill all tanks and takes 7 turns. Fuel may be transferred between ships in two turns.

The Islands Clusters Campaign

Early in the space-faring history of Terra, a long-range program of interstellar colonization was begun, only to be abandoned with the discovery of the jump drive. Before that abandonment, however, several large colony expeditions were launched. The most ambitious such effort was launched in 2050 by the European Space Agency, in cooperation with the French O'Neil colony and Beltmetallfabrikant, AG. Three large asteroids were hollowed out and fitted with reaction drives, becoming the colonization ships *Voyageur*, *Marinus van der Lubbe*, and *C-Jammer*. Each was filled with a thousand crew, none of whom would live to see the end (or much more than the very beginning) of the voyage. Flight time was projected at two thousand years. Despite this, there was no shortage of volunteers for the crew, many of whom were already living in artificial space colonies: one colony was much like another, and this one was going somewhere interesting. Space was provided for a tenfold population increase during the trip.

Each ship also carried 100,000 additional colonists in cold sleep. During the voyage, each colonist was awakened for a five-year work period; at any one time there were 750 of them awake, and thus the culture of the ships maintained its contact with 21st Century society, and each new shipboard generation was reminded of its mission by some of those who had begun the trip.

This system worked well: although some unavoidable cultural gulfs developed between the crew and the sleepers, nothing jeopardized the mission.

The ships' computers ultimately found, and locked onto, a suitable group of worlds and designated them the mission destination. That destination proved to be the Islands Clusters, located in the center of what is now the Reft Sector, in a low stellar density branch of the Great Rift. Their trip took over two thousand years.

The three ships separated near the beginning of the deceleration period and each eventually took up orbit around hospitable planets, *C-Jammer* around New Home, *Voyageur* around Amondiage, and *van der Lubbe* around Neubayern. Colonists were awakened and ferried down. An unexpected development was that most of the crews of the three ships refused to land, preferring life in space to the unknown and unsettling surface of a world. Together with a few of the more adventurous colonists they set off to explore the rest of the cluster. *C-Jammer* eventually found and settled Serendip Belt. *Van der Lubbe* and *Voyageur*, after several hundred years of wandering, returned to the colonies and served as ferries, transporting new colonists to the worlds they had discovered around other suns.

Meanwhile, the three original colonies quickly grew in population and somewhat more slowly gained an industrial base. New Home was the first to construct an interstellar spaceship, a scaled-down version of the originals. In AD 4788 it launched an expedition to colonize Colchis. A second ship was built in 4810 and launched toward Esperanza. Amondiage followed suit with a fleet that eventually rose to four ships; in the 4800s and for the next 400 years colonization of the clusters continued as fast as allowed by the slow sublight drives available. St. Denis, Acadie, Quichotte, Sansterre, and Joyeuse were settled from Amondiage; St. Hilaire and Besancon from Joyeuse; Topas, Herzenslust, and Berlichingen from Neubayern;

New Colchis from Colchis; Elysee and Gloire from Besancon. Zuflucht was settled by refugees from a civil war on Topas; *Voyageur* happened to arrive insystem looking for colonists just as the war was ending. In all their journeys, only one ship was lost: *Infinite*, from Amondiage, made a forced landing on Sturgeon's Law with a load of colonists from New Home. Crew and colonists were forced to settle on this uninviting planet and were cut off from the outside for hundreds of years. It was fortunate for them that they landed in the planet's single sea: the plant-forms growing on the land surface metabolize metal and human protoplasm with equal ease.

This was the state of the clusters 130 years ago; nearly thirty independent planets almost isolated from each other, connected only by the slow wanderings of the seven working interstellar ships. Then, during the Third Frontier War, the clusters were inadvertently contacted by an Imperial strike cruiser which had misjumped as a result of battle damage. It sought help (at Serendip Belt) and succeeded in repairing its jump drives; through the use of auxiliary tanks, it then returned to the Imperium. With the end of the war, the Imperial Interstellar Scout Service followed up on the Navy's report and dispatched a survey team to establish relations. Upon their arrival, they found that the Serendips had already duplicated the jump drives they had seen (and helped repair) and were themselves in the process of establishing control over the entire cluster. The Survey team carefully distributed jump drive technology to seven other systems and helped reestablish a balance of power within the region.

In the years since the introduction of jump drive, little further colonization has occurred, since most of the hospitable worlds were settled already. Achille was colonized by a Utopian group from Sansterre; although the original fervor has waned, they are still there. An even smaller band of wealthy recluses has claimed St. Genevieve; so far no one has disturbed them. Some planets have established bases in previously uninhabited systems to exploit their resources: Neubayern at Schlesien Belt, Esperanza at Wellington. Most of the emigration, however, has been from the high-population worlds to others already occupied but less crowded. Sometimes the new residents have taken political control away from the original inhabitants; New Colchis gained its colony of Herzenslust in this manner. Other transfers of power have been by direct military conquest, as in Serendip Belt's takeover of Gloire, or economic domination, as in Sansterre's acquisition of St. Denis. There was even one case of voluntary union, when Quichotte became a province of Joyeuse. By whatever means, the most populous and technologically advanced planets of the Clusters have all gained vassal worlds and are now looking for more (with the single exception of New Home, understandably content with the most hospitable world and highest standard of living in the Clusters). Military budgets and interstellar tensions have grown considerably in the last few years. Informed diplomatic circles agree that war is inevitable eventually, but no one can say when or how.

Meanwhile, a shaky balance is maintained by shifting alliances among the major powers of New Home, Neubayern, Amondiage, Sansterre, Joyeuse, New Colchis, Serendip Belt, and Esperanza. When one planet has grown too powerful, the others have allied to bring pressure to stop it, as happened to Serendip Belt in 5542, when it was forced to give up its control of Topas, Elysee, and Besancon.

The Clusters, being in the center of the Great Rift, are cut off from the denser, more populated regions beyond its confines. Travel beyond the Clusters requires jump-6 (or auxiliary tanks and jump-3); operations on this level are impractical at

present, and the attention of the Clusters' systems is turned inward, at least for the moment.

ASTROGRAPHY

The two subsector maps show the systems contained within the Islands Clusters: Old Islands, first settled by the ESA colonization mission, and New Islands, settled in later expansions by systems in the Old Islands subsector. The world data pages show the specifics for the individual worlds within the systems, including universal planetary profiles and other data.

Location: The sixteen subsectors within a sector are traditionally lettered A through P, as shown in the accompanying diagram. The two subsectors containing the Islands Clusters are J and K. The Great Rift (as shown in the diagram) covers most of the Reft Sector. However, subsectors B and E lie outside the Rift and are part of the Spinward Imperial Territories; subsectors O, L, and P lie outside the Rift and are part of the Central Imperial Territories.

A	B	C	D
E	F	G	H
I	J	K	L
M	N	O	P

**SUBSECTORS
WITHIN A SECTOR**

Starports: As indicated in the definitions for starports in Book 2 and Supplement 3, type A starports are capable of building starships and type B starports are capable of building non-starships. All other starports can merely support starship operations.

Bases: Systems within these subsectors are not within the borders of the Imperium. Where naval bases are present, they are identified on the map with a star and on the world data listing with the code *N*; each naval base owes allegiance to the world on which it is sited.

The world data listings also indicate miscellaneous data for the star system. If there is a gas giant present in the system to allow refueling, the notation *G* is provided. If a world has a hydrographic percentage greater than zero and an atmosphere of the proper type, ships may refuel from its oceans. In the event that the world has no atmosphere (or only trace atmosphere), the world will have little or no water available for ocean refueling; however, if there is some surface water available, the notation *ice-capped* will be made, indicating that the water for fuel must be mined. If the atmosphere is exotic or worse, local water will not be available even though the world has a non-zero hydrographic percentage. In such cases, the world will be noted *no ocean refueling*.

In starship construction, planetoids are often used to produce inexpensive starship hulls. Any world with size 0 is an asteroid belt and can provide such planetoids with ease. In other systems, there may or may not be planetoids available. The listings contain the notation *P* (for planetoids available) for those systems which have asteroid belts for such use.

PLANETOGRAPHY

The worlds within the Islands Clusters are remarkably lush and rich. They provide reasonable living areas well-adapted to humans and the majority of them have indigenous life which in turn furnishes the essential lumber, grain, meat, and

other biological products necessary for a reasonably cheap, easy life.

Intelligent Life: Two life-forms of potentially intelligent levels were present in the Clusters when the colonists arrived. One, the Batwings of Esperanza, have subsequently been identified as Droyne: they were eradicated by the colonists within two hundred years of their arrival, a process Esperanzan historians are strangely reluctant to discuss.

The second potentially intelligent race, the Orpheides of Orphee, are an herbivorous grazer species confined to their world of origin. These grazers have achieved only rudimentary development, approximating tech level 0, although their culture at that level has proven of interest to academics throughout the Clusters. It is expected that the Orpheides, with suitable protection from interference, can achieve a technological civilization within a few thousand years.

Orphee, although it does have a small human academic community, has been interdicted to trade and naval traffic by the Convention of 5575 (Terran Reckoning), signed by all worlds within the Clusters. Occasional ships carrying supplies and researchers do call on the system from time to time. The interdiction of Orphee is the equivalent of travel zone red within the Imperium.

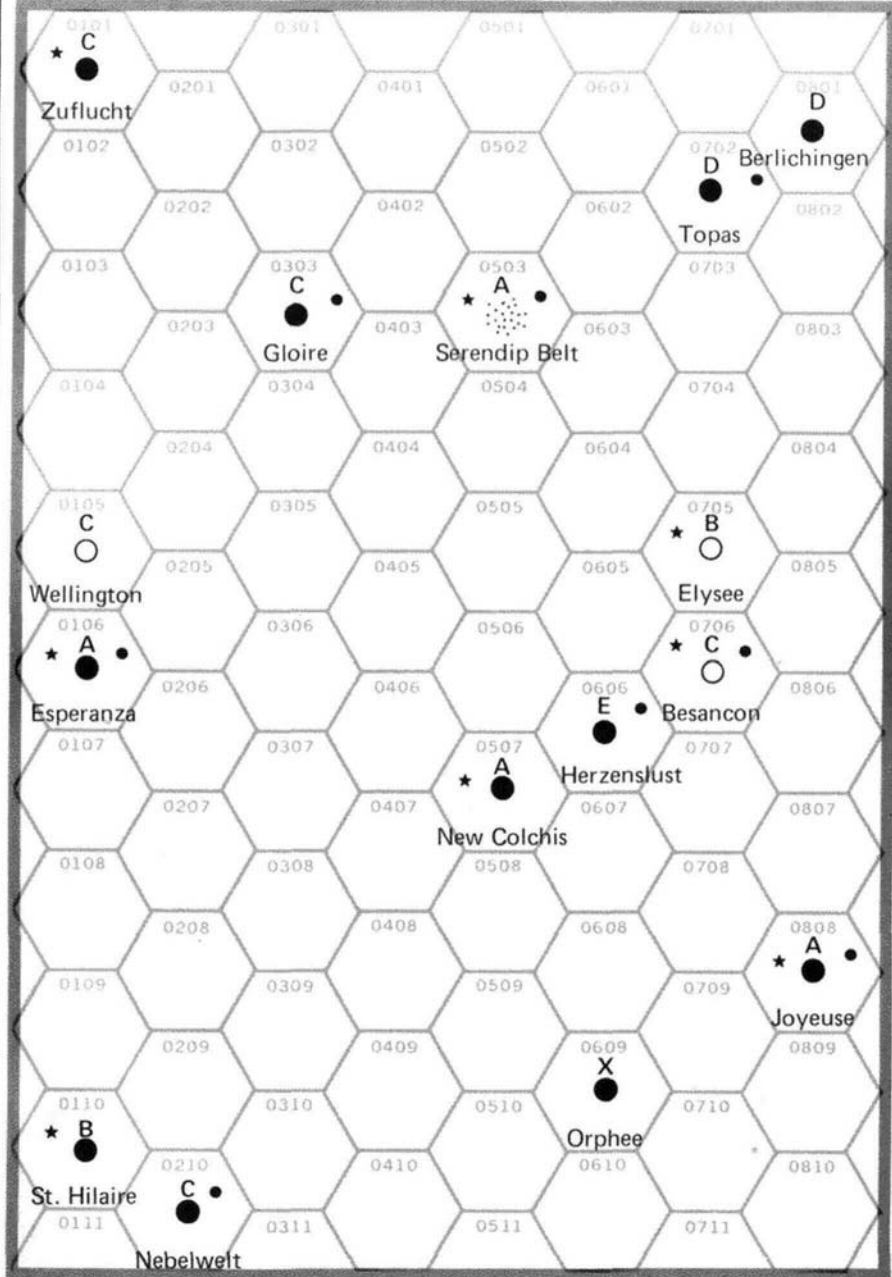
A CHRONOLOGY OF THE ISLANDS SUBSECTORS

AD 2050	ESA Longrange Colony Mission leaves Sol system
2089	Jumpdrive invented on Earth
2113	First Interstellar War
4512	<i>C-Jammer</i> takes up orbit around New Home
4516	<i>Van der Lubbe</i> reaches Neubayern
4518	<i>Voyageur</i> reaches Amondiage
4521	Founding of the Third Imperium (Imperial Year 0)
4608	<i>C-Jammer</i> discovers Serendip Belt
4788	New Home launches first ship, <i>Outward Bound</i>
4814	<i>Outward Bound</i> plants first colony on Colchis
4860	<i>Van der Lubbe</i> and <i>Voyageur</i> , in company, return to Neubayern
4861	Amondiage completes first ship, <i>Asterix</i>
5232	<i>Infinite</i> forced down on Sturgeon's Law
5500	Third Frontier War begins
5501	Imperial Strike Cruiser <i>Eldorado</i> misjumps into Clusters
5504	Serendip Belt starship <i>C-Breaker</i> makes first jump
5507	Third Frontier War ends
5534	Imperial Scout Service mission spreads jump technology
5542	Concordat of Topas establishes principal of planetary sovereignty
5575	Convention of Interdiction declares Orphee a closed world
5576	Coup on Herzenlust; government declares allegiance to New Colchis; several major signatories repudiate Concordat of Topas
5627	Present day (Imperial Year 1106)

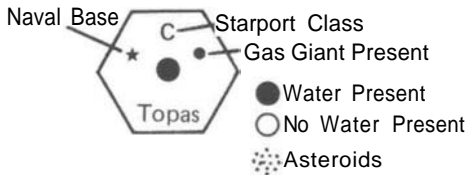
Unknown Subsector

Unknown Subsector

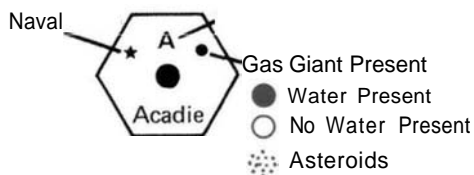
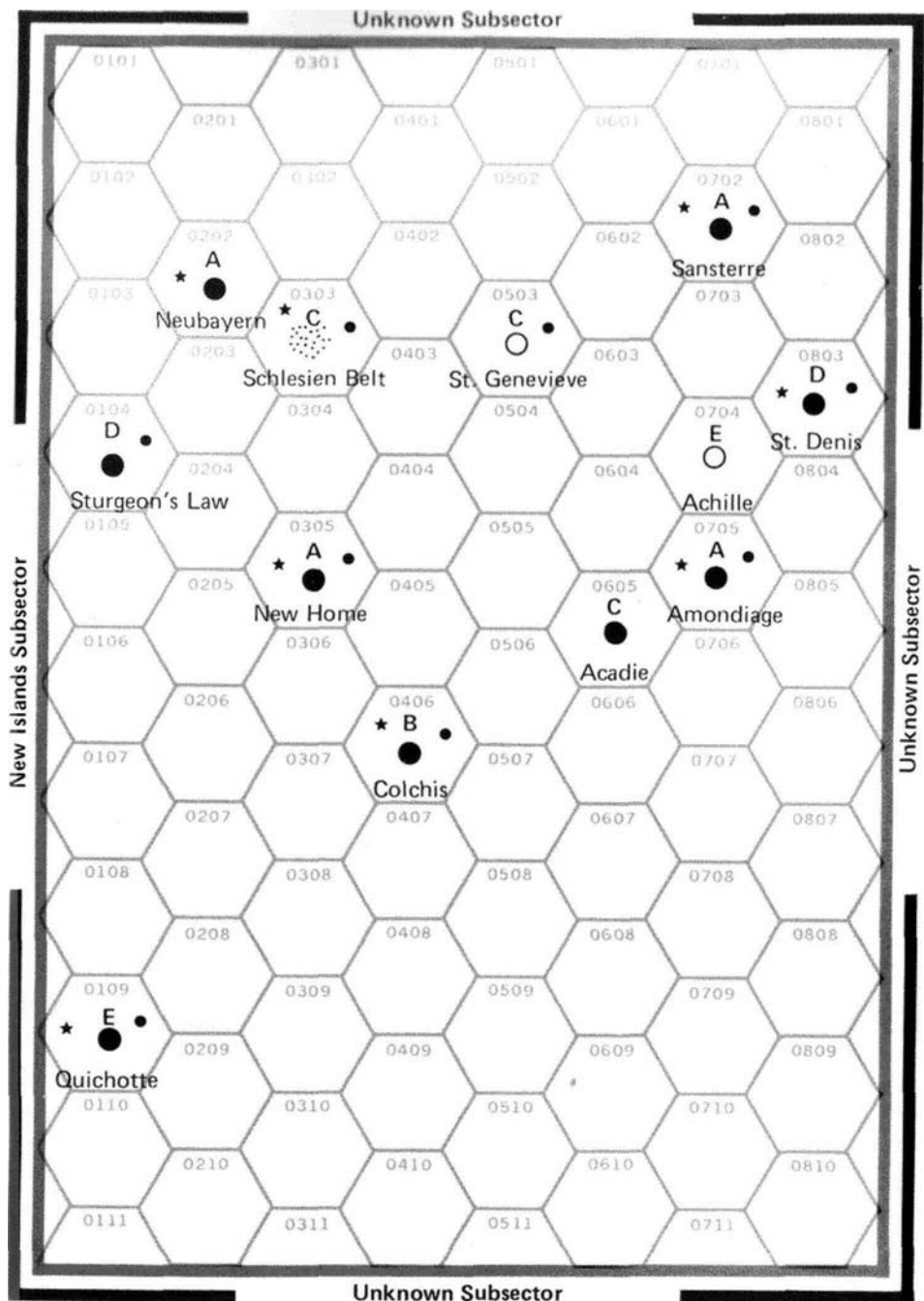
Old Islands Subsector



Unknown Subsector



New Islands Subsector



Old Islands
Subsector

New Islands Subsector

The New Islands Subsector lies in a pocket of stars deep within the Reft Sector. Colonized in the second wave of settlement after the European Space Agency Long-range Colony Mission arrived in this section of the Great Rift, it now boasts four major worlds with substantial populations. The most populous is Esperanza, far to the edge of the cluster, followed by New Colchis, Joyeuse, and Serendip Belt.

Esperanza: Located on the extreme spinward edge of the Clusters, Esperanza is ruled by a well-entrenched non-charismatic dictatorship which enforces an oppressive political structure. Its tentacles extend to two vassal worlds: Wellington and St. Hilaire. Esperanzan technology (at B) lags behind the other major worlds of the two subsectors.

New Colchis: A tertiary world colonised from Colchis, which was in turn colonized from New Home, New Colchis is an industrialized trade center with a colony at Herzenslust. Its government is headed by a charismatic dictator.

Joyeuse: Straddling the divider between the New and Old Islands, Joyeuse is a well-developed world with a government similar to that of Esperanza. It has a colony at Quichotte.

Serendip Belt: The asteroid belt at Serendip is a rich storehouse of mineral wealth; it is inhabited by independent merchants and miners under a feudal technocracy form of government. The center of government is still the *C-Jammer*. Serendip controls nearby Gloire as an agricultural colony.

Name	Statistics		Remarks	
Zuflucht	0101	C445720 - 8	N	P
Wellington	0105	C8B0263 - A	Controlled by Esperanza. No ocean refueling.	
Esperanza	0106	A674ABC - B		P G
St. Hilaire	0110	B579763 - A	N	Controlled by Esperanza.
Nebelwelt	0210	C879425	5	G
Gloire	0303	C764567 - 9	Controlled by Serendip Belt.	G
Serendip Belt	0503	A000959 - C		P G
New Colchis	0507	A8959AA - C	N	Industrialized.
Herzenslust	0606	E995765 - 6	Controlled by New Colchis	G
Orphee	0609	X885600 - 0		P
Topas	0702	D120899 - 5		G
Elysee	0705	B502532 - 9	N	Ice-Capped.
Besancon	0706	C201341 - 9	N	Ice-Capped.
Berlichingen	0801	D600437 - 7		
Joyeuse	0808	A7899B9 - C	N	G

The New Islands Cluster contains 15 worlds with a total population of 13.1 billion. The highest population level is A, at Esperanza. The highest tech level is C, at Serendip Belt, New Colchis, and Joyeuse.

Old Islands Subsector

Old Islands Subsector, first settled in AD 4512 (-9 Imperial) with generation ships and cold sleep capsules from Terra, developed and expanded with ships using sublight drives for nearly a thousand years. During the Third Frontier War, a chance encounter with an Imperial navy cruiser brought jump drives to all major worlds in the Cluster. In the 130 years since then, contact with the Imperium has been slight, but the worlds within the subsector have struggled almost continually to achieve supremacy over neighboring systems.

Neubayern: One of the original three worlds settled, Neubayern remained on the fringes of development until jump drives became available. Thereafter, it has joined in the competition for its share of the Cluster. Neubayern is governed by a charismatic oligarchy, and has one colony: Schlesien Belt.

New Home: The first world to be settled by the ESA Longrange Colony Mission, New Home is the oldest settlement in the Cluster, and the richest. It boasts the highest technology, although its population level is slightly lower than the other major worlds.

Amondiaage: The third of the three initially colonized worlds, Amondiaage is an arid world with little in the way of riches or resources. Ruled by a charismatic dictatorship, it has emphasized exploitation of its main colony, at Acadie, as a source of minerals and raw materials.

Sansterre: A water world on the coreward edge of the Cluster, Sansterre is a representative democracy with extensive underwater settlements scattered all across the world's ocean bottoms. Its major resource colony, at St. Denis, provides some surface agricultural produce.

Name	Statistics	Remarks	
Sturgeon's Law	0104 DAC1451 - 6	Ocean refuelling <i>is</i> allowed.	G
Quichotte	0109 E576667 - 6	N Controlled by Joyeuse.	G
Neubayern	0202 A7889C9 - C	N	P
Schlesien Belt	0303 C000367 - B	N Asteroid Belt. Controlled by Neubayern	PG
New Home	0305 A565857 - D	N Rich World.	PG
Colchis	0406 B676898 - 9	N	G
St. Genevieve	0503 C460100- A	Desert World.	G
Acadie	0605 C868563 - 9	Controlled by Amondiaage	
Sansterre	0702 A87A943 - C	N Water World.	PG
Achille	0704 E101335- 9	Ice-Capped.	P
Amondiaage	0705 A5629A9 - C	N	G
St. Denis	0803 D735764 - 7	N Controlled by Sansterre.	PG

The Old Islands Subsector contains 12 worlds with a total population of 3.2 billion. The highest population level is 9, at Neubayern, Sansterre, and Amondiaage. The highest tech level is D, at New Home.