IMPERIAL STARFIRE

Original Game Designed by David M. Weber

STARFIRE DESIGN STUDIO

Introduction To Imperial Starfire and Publishers Information

IMPERIAL STARFIRE allows players to build and expand their own imperiums and spheres of influence to dominate entire sectors of the galaxy. Players build their fleets and supporting infrastructure using the resources available from their home star systems and others of which they may gain control as they expand. Along the way, they will encounter non-player races and/or other player races with whom they will ally or fight.

The tactical *STARFIRE* scenarios which will appear in *THE STARS AT WAR* are rooted in the campaigns and battles of an "official" future history, which will continue to develop and expand as the game series is expanded. *IMPERIAL STARFIRE* is designed to allow two or more players to create their own history rather than following the events described in the "official" history.

Star systems and the characteristics of non-player races are generated randomly, using the rules and tables provided, as they are encountered. This creates an infinitely variable strategic game which allows each player to face the advantages and disadvantages, triumphs and tragedies, of a space faring race in its march to empire. The fact that the galaxy is generated as the game proceeds means that no player ever has the advantage of "pre-game intelligence," and grappling with the unknown both adds to the challenge and increases the value of forethought and planning.

The game is designed for play with or without a game master. An open-ended campaign system is presented for use with a game master (called a "Space Master", or "SM", in the rules), but while an SM increases player uncertainty and enjoyment, the random generation rules also make the system suitable for play without an SM. In addition to the open-ended "New Empires" campaign, the rules also present the structure for two other campaigns: "The Barbarian Wars" and "The Mardukan Incident." The same strategic rules are used in each, but the beginning parameters are quite different.

Because *IMPERIAL STARFIRE* uses the rules from tactical *STARFIRE* as the basis for combat (which, alas, given the nature of wargamers, is generally one of the more important aspects of a strategic campaign), players should be familiar with Rules 01.00-09.00 and the technical systems in Rules 26.00-27.00 before beginning any campaign.

Players should understand that the rates at which processes such as shipbuilding, research and development, emplacement of colonies, etc., may be accomplished under the strategic rules have been considerably compressed, allowing them to accomplish these processes in much less time than the constraints of "reality" would allow. This has been accepted to simplify and speed up game mechanics. The designers, recognizing this, have opted to satisfy players who build their own campaigns at the expense of "realism." The "historical scenarios," on the other hand, are structured at a pace which reflects rather more realistic time requirements, which is one reason the fleets available to the historical empires do not mushroom enormously over the period of a given war.

NOTE TO PREVIOUS *STARFIRE* PLAYERS: The 3rd edition of *STARFIRE* is collectively known as *CLASSIC STARFIRE*. The rules are available through our website at http://www.starfiredesign.com/starfire. About 10 years ago the decision was made to move into digital distribution and only the newest versions of *STARFIRE* were made available. Technology is making it possible to publish materials for a lower cost, over more types of media, and available to the entire world... so we've decided to make all of *STARFIRE*'s versions available while we continue to publish new versions and new materials.

Publisher's Information

STARFIRE is published by:

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Dealer inquiries are welcome. All dealer and ordering requests to the SDS should be through email at orders@starfiredesign.com. The SDS can also be reached by phone or postal mail at the address above, but all correspondence by snail mail requires a stamped self-addressed envelope.

The following correspondence can also be sent to orders@starfiredesign.com: requests for spare parts prices, orders for spare parts (if available), product updates, and the replacement of defective or missing parts.

Players should direct all comments, suggestions, submissions, and any expansion material for *STARFIRE* to the SDS by joining the Starfire Forum at http://www.starfiredesign.com/forum, or emailing cralis@starfiredesign.com or marvin@starfiredesign.com. All correspondance through postal mail must include a stamped self-addressed envelope if you wish to receive an answer or evaluation of your submission. Your return envelope *must* bear enough postage to cover the return of your questions (about four pages to one first class stamp). Foreign customers should enclose three International Reply Coupons, not foreign stamps or money. It is imperative that you place your name and address on *every* page of your correspondence. Please do not put questions and expansion material on the same sheet.

When sending questions, phrase each one so that it can be answered with a yes or no, a brief answer, or by circling one of several choices. Leave several blank lines after each question (not each group of questions). Please attempt to look up the answer yourself first. We will cheerfully answer questions about how the rules work, but cannot answer questions as to "WHY?" various things work the way that they do.

Design Credits

Game Design 1993	David M. Weber
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2012 Re-Release Credits

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Components

The original *IMPERIAL STARFIRE* was a box set with components. This digital version only includes the ISF rulebook. However, we have the following components available:

- Strategic Forms (available at http://www.starfiredesign.com/starfire/downloads/)
- 4-Part Map (available for order at http://www.starfiredesign.com/starfire/order/)
- Counters (also available for download)

The Interception Scale Map that was included with the original ISF is no longer available.

Copyright

Contents

11.00 Strategic Game Components

11.01 Scale

See 01.01

11.02 Star Systems (General Definition)

See 01.02

11.03 Warp Points (General Definition)

See 01.03

11.04 Game Maps

The *STARFIRE* game system uses four maps: the large system display map, the small system display map, the interception map, and the tactical map. (Please note that the tactical map included in the *STARFIRE* tactical rules is not the map used in *IMPERIAL STARFIRE*. The smaller map in the earlier product works fine for the scenarios in the tactical rules, but it will not work for later scenarios or for *IMPERIAL STARFIRE* campaign games.

11.04.01 The System Display Maps. The large system display map (the two-part map) is used to set up entire star systems and, when necessary, conduct system play openly. The small system display map appears in the Forms Booklet in two places - as a separate map and as part of the System Data Form (which players should photocopy freely) and is used to plot hidden movement and to chart system data (populations, installations, etc.) known only to one player (and, of course, the Space Master).

Note that the large system display map is also the tactical map on which combat is gamed out. When the tactical scale is triggered, remove all units from the large strategic map, using a blank copy of the small system display map to note their locations for future reference, and set up the tactical situation.

The large numbers printed around the hex in the map's corner are referred to as the "scattergram". The scattergram is used when the optional simultaneous written movement rules are used, to indicate the initial facings of units in some "historical" scenarios, and to determine the facing of any unit making transit through an unmapped warp point.

11.04.01.1 The Tactical Map. The tactical and the large system display maps are the same physical map, but they are quite different in scale and purpose. Each hex of the system display map represents an area 12 light-minutes across; each hex of the tactical map represents an area 30 light-seconds across. The system display map is used for system scale movement; the tactical map is used for tactical-scale movement (combat).

The tactical map as a whole represents a single interception hex (see 11.04.02). When units moving at the interception level drop to the tactical, they are set up along the edge of the system display map (now the tactical map) corresponding to the direction from which those units entered the interception hex which the tactical map now represents. The leading unit(s) of each player's formation are placed in the center of the appropriate hex side, and any additional units are placed in any desired and appropriate formation behind those leading unit(s).

11.04.02 The Interception-Scale Map represents a single system-scale hex from the large system display map and has two uses: to display individual system hexes on the interception scale and for interception-scale play. The large numbers from "1" to "6" printed opposite the faces of the interception-scale map's hexagonal sides are keyed to the system display map's scattergram and are used to orient the interception-scale map to the system display map.

The hex over-printed on the map represents a system hex. Since each system hex is 12 light minutes (or 24 interception hexes) across, the area inside the large central hex of the interception-scale map is used for detailed display of any system hex on a .5-light-minute scale. The over-printed system-scale hex also serves as a guide in shifting moving units from the system to the interception scale. When players move from the system to the interception scale, they should position their units in the center hex of the side of the center system-scale hex which corresponds to the direction from which they entered the system hex the interception map represents.

11.04.03 Players should place the large system display map and the interception-scale map on their gaming table and refer to rule 01.01 of Tactical Starfire to be certain that they understand how the game scales and maps interface with one another before proceeding further with the rules.

11.05 Imperial Record Forms

IMPERIAL STARFIRE uses several record forms which are not used in the tactical game. These are: The System Data Form, the Fleet Roster, the Fleet Order Form, the Imperial Treasury Record, the Master Movement/Arrival Chart, the Miscellaneous Orders Record, and the Imperial Map. Sample forms are provided for some (but not all) of these, and players should photocopy several copies of each before beginning any campaign game. The following section gives a brief definition

of each form; their detailed use is covered under the appropriate rules sections.

11.05.01 The System Data Form is printed on the front and back of the small system-scale map. The boxes on the map are used to record data on any surveyed star system, including primary type; warp point locations, types, and destinations; and the distances between warp points. The locations of installations, the populations (if any) and value of planets, political relations between the player empire and any inhabited planet(s), etc., are noted in the appropriate boxes on the back of the map. In effect, this annotated map is a one-page entry in your Galactography Data File. (Which is one reason players should make photocopies of it!)

11.05.02 The Fleet Roster is used to record the numbers and types of all warships and Imperial Freighters assigned to the fleets, task forces, etc., of an empire. A starship not assigned to a specific force listed on the empire's Fleet Roster does not exist for the turn it is omitted. It cannot move, detect or report hostile spacecraft, or be used in combat, but neither may it be attacked. If, however, a starship not assigned to a specific force on the Fleet Roster is in a star system which a hostile force passes through in the course of a strategic turn or in which a hostile force destroys or drives out all other friendly starships, that unlisted starship is considered destroyed. Because fleets may vary so in size, players should use a separate sheet of blank paper to record each fleet, task force, etc.

11.05.03 The Fleet Order Form details the movement and mission of each formation belonging to an empire. A formation not listed on the Fleet Order Form in a given turn cannot move on any level unless it or other friendly units in the same star system are attacked. If an attack occurs, the formation begins movement at Stand-By Readiness (see 06.00) from its last properly noted position and will only defend itself and/or friendly units in the same star system until new orders are received from the nearest Imperial Command Center. Immobile units (such as warp point defense fortresses) must be listed on the Fleet Order Form only if they are to be held at a level of readiness above Stand-By.

11.05.03.1 Under the provisions of 07.02.02, a graded admiral may change or countermand fleet orders written to cover his own command or units in any system through which he passes, but this does not apply to units not listed on the Fleet Order Form. If actual combat occurs in the system containing the units, he may assume command of their defensive reaction, but he may not give them any orders which would take them out of the system of combat.

11.05.04 The Treasury Record Form is used to record all economic transactions and the current balance in the imperial treasury. Any income not recorded on the Treasury Record in the turn it is accrued is permanently lost. Any economic resources dispatched via the imperial freight network or Imperial Freighter must also be recorded. (This can be recorded on a blank sheet of paper.)

11.05.05 The Master Movement/Arrival Form is an optional but strongly recommended record. The exact strategic turn and time any unit of any empire moving on the strategic level will enter any star system should be recorded in chronological order on a single form listing all moving units of that empire. In this way, the players can be certain nothing "falls through the cracks." In Space-Mastered games, the SM should keep a single master record combining those of all players.

11.05.06 The Miscellaneous Order Form. Players will often need to send out orders which do not fit neatly on the Fleet Orders forms (such as fleet combat instructions to cover special contingencies, planetary combat orders, instructions to local governors, etc.) No single "form" could cover such a wide variety of possible needs, so the "Miscellaneous Orders Form" may be any handy sheet of paper. Note, however, that the exact place and time an order is written and when it will reach its intended recipient must be recorded for each order transmitted.

11.05.07 The Imperial Map. Each player is responsible for making and maintaining an updated map of his empire's star systems. A format for this is suggested (see 25.00), but players should feel free to use their own notations if they feel more comfortable with them and if the format used is clear and unambiguous. The Space Master will usually maintain a master map containing all known systems, but each player's map should list only those star systems he has himself surveyed or on which he has obtained data via spies, capture, or from an ally.

11.05.08 The Master Systems List. The players (or the SM, if there is one) must prepare and maintain a complete master system list (see 11.09). This is simply a list of identification numbers which will be assigned to each star system as that system is discovered by one of the players. In Space-Mastered games, the SM may choose to generate all of the systems ahead of time (if he's a masochist), but generally these will be completely unknown even to him until they are explored. An SM may, on the other hand, choose to pre-generate a limited number of systems containing exceptionally high-tech non-player races or other surprises for the players. In such a case, he must assign a system number at the time he generates each such system. If there is no SM, the players are responsible for maintaining the master system list.

11.06 Strategic Level Terminology

Certain specialized terms are used in the strategic game. Short definitions of the more important terms, along with the commonly used abbreviations for them, are given below.

Economic Level: The economic level of a planet, star system, or Imperium is determined by and equal to its tech level. In essence, the economic level reflects the revenues which can be generated by a given level of technology, regardless of the military systems of that tech level which have or have not been developed.

Economic Value Multiplier: A quantification, based on economic level, of technology and population as wealth generating factors. Abbreviated EVM.

Empire: Any multi-planet and/or star system political unit. Often called "Imperium" when speaking in general terms and an "empire" when referring to player-controlled empires.

Gross Planetary Value: The value of a planet, in megacredits, to the controlling player or NPR. Gross Planetary value is determined by multiplying REI (see below) by EVM and is abbreviated GPV.

Habitability Differential: The absolute difference between the Habitability Indexes of two worlds (see below). Abbreviated HD.

Habitability Index: All habitable planets fall into a range of categories quantified from 1 to 10. The value rolled on 1D10 for any habitable planet to define its habitability in terms of all other habitable planets is called its Habitability Index. Abbreviated HI.

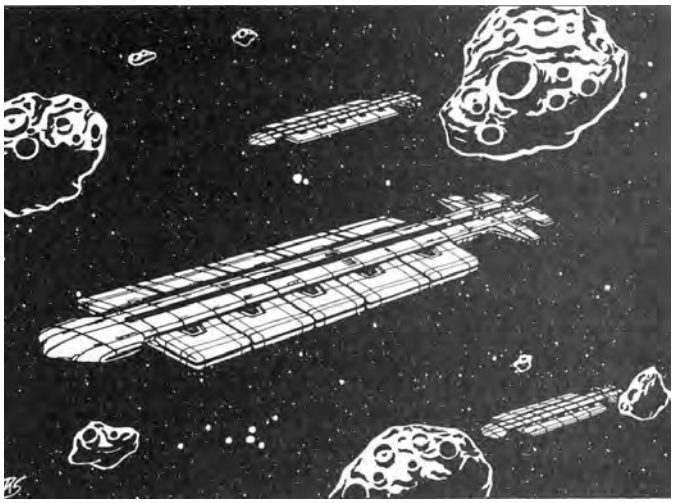
Imperial Capital: The planet from which an Imperium is governed.

Imperial Command Center: Imperial Command Centers (abbreviated ICC) are communication and decision-making nodes within an Imperium. They may be thought of as sector capitals, as they contain both civilian and military command facilities.

Imperial Communication Network: The Imperial Communication Network (abbreviated ICN) is the chain of communications between star systems. At HT4, the ICN can become quite flexible and responsive as deep space communication buoys become available; prior to that, communications will tend to be slow and cumbersome.

Imperial Freighter: These are freighters owned by an Imperium's government. They must be individually built, are treated exactly as military starships for movement purposes, and require maintenance payments.

Imperial Freight Network: Abbreviated IFN, the Imperial Freight Network represents an Imperium's privately-owned (or, at least, consumer-oriented) freighters. It extends only to star systems which contain at least one spaceport or at least one space station with cargo handling systems. The IFN is not as closely controlled by or responsive to the imperial government as Imperial Freighters, but the Imperium is not required to build



individual ships for the IFN or pay maintenance for its units. It is a subsumed portion of the game.

Maintenance: This is a monthly fee paid for Imperial Freighters, military units, and some infrastructure components of an Imperium. It represents spare parts, repairs, routine servicing, crew wages, etc.

Non-Player Race: Any civilization-building sentient race other than that of one of the players. Non-player race is abbreviated NPR. NPRs may be player-controlled (depending upon the military/political relationships a player race can establish with them) or controlled by the SM. In games without Space Masters, "independent" NPRs are generally controlled by an "uninvolved player" (see below).

Player Race: The race native to a player's home world. Also called an "Imperial Race" to differentiate it from non-player races (see above) incorporated into an empire's political structure as subjects or allies.

Resource Exploitation Index: A numerical value which quantifies the degree to and efficiency with which the inhabitants of a world exploit its resources. Abbreviated REI.

Space Master: The game's referee, organizer, chief clerk, and general all-round Master of the Universe. Abbreviated SM. (Warning to all players: Do not irritate the SM, or he will feed you to the BEMs.)

Spaceport: Properly speaking, spaceports are ground-based facilities for handling starships and/or their cargo. The term is also used in a more general fashion in the economic rules, where it is understood to include space stations with cargo-handling systems that perform the same functions.

Uninvolved Player: This term is used often in rules governing NPR actions and should be clearly understood. An uninvolved player is one who has no contact with the NPR and (if possible) none with the player race in an NPR-player race situation, as well. If all players are in contact with the player race, then the player whose empire has the least favorable relationship (short of war)

with the player race should be selected as the uninvolved player. If more than one player has an equally nasty relationship with the player race, then a random die roll should be used to decide which of a player's enemies will be considered "uninvolved."

11.07 The Imperial Economic System (General)

All economic transactions are made on a monthly basis (or once per strategic turn). Each empire uses "megacredits" (units of one million credits, abbreviated "MC") as the standard economic unit. All wealth and non-monetary resources in the game are simplified into megacredits.

Megacredits are obtained from the economies of the star systems an Imperium controls politically (see 17.00). The value of a planet to an Imperium is determined by using the tables provided (see 15.03.06), and is based on the exploitation of the planet's resources and the production capability of the planetary population. If a planet has a spaceport (see 27.02.11) or a space station with cargo handling systems (see 27.03.03 & 27.07.04), resources generated on that planet may be used on any other planet with a spaceport or by any space station in the same system, and the MC balance for all such worlds in the star system is recorded as a single whole. The resources of any planet without a spaceport must be recorded separately and can only be used elsewhere if physically picked up by cargo shuttles.

Any resources generated by any planet may be shipped to other planets or other systems if a player desires (see 15.04). This may be done via the Imperial Freight Network if the planet in question has a spaceport, or via Imperial Freighters which physically collect the resources from the planet(s) of origin.

Resources (megacredits) may be used for economic investment, infrastructure expenditures (R&D, command and control structures, etc.), or pure military items (weapons, PCF, warships, bases, etc.).

11.08 The Imperial Political System (General)

All political interaction other than First Contact (see 17.01) with other races, including activated NPRs, allied/conquered populations, and other player empires, takes place during the political phase of the strategic turn. The nine possible political states which may exist between player empires or between player races and NPRs are:

- War;
- Non-Intercourse;
- Non-Aggression;
- Conquered;
- Trade Intercourse;
- Military Alliance;
- Trade & Military Alliance;
- Partnership;
- Amalgamated.

The exact meaning and consequences of each of these states is defined under the political interaction rules (see 17.02).

11.08.01 When any NPR is discovered, its initial political relationship with the discovering empire must be determined. If the initial relationship does not cede control of the NPR to the discovering empire, the NPR will be run by the SM (if there is one) or an uninvolved player, using the NPR economic and military guidelines (see 16.00).

11.08.02 Political relationships are determined by negotiation and/or military action. Conquered races are controlled by empires by placing planetary control forces (PCF), or military forces, on the conquered planets, which may or may not rebel against the controlling empire (see 17.03.02). Certain other relationships give a player empire partial or full control of an NPR (see 17.02).

11.08.03 Player empires which come into contact with one another may make treaty agreements during the political phase. Player races may also attempt to change their political relationships with NPRs, but no more than one attempt per NPR may be made per month. Each conquered population must be checked for rebellion once per month.

11.09 The Master Systems List and Initial System Mapping (General)

In games with a Space Master, only the SM has access to the Master Systems List (11.05.08), which is simply a list of potential system numbers. In games without a Space Master, all players have access to the Master Systems List. In a New Empires campaign, the game will usually begin with a pre-agreed total possible number of systems, the ID numbers of all of which should be recorded in numerical order on the Master Systems List before play starts. In Barbarian Wars or Mardukan Incident campaigns, some system numbers will already be blocked as belonging to an established Imperium, though only the SM will know ahead of time which numbers have, in fact, been assigned to the established Imperium.

11.09.01 As the survey ships of a player transit any unexplored warp point, the surveying player rolls an appropriate number of 10-sided dice (see 13.01) to determine the system number of the system to which it connects. The SM (or the player, if there is no SM), then consults the Master Systems List and circles the appropriate system number on that list. If the system number is already circled, this indicates that someone else has already surveyed it, in which case the surveying player's entry warp point will automatically be a "closed" warp point (see 01.03 and 13.06.02), but the Space Master (if there is one) should never inform the surveying player that the system has already been surveyed or by whom.

11.09.02 In addition to the Master Systems List, the SM (or the players, if there is no SM) must maintain a master map on which the warp connections between all explored star systems are recorded. Each player is also responsible for maintaining his own imperial map, which records the warp connections between all the star systems he has actually surveyed. It is possible for astrogation information to be captured or supplied by an allied player or NPR, and information obtained in these fashions should be added to the player's imperial map as well. From time to time, the SM may want to call in the players' imperial maps and check them against his master map as a safeguard against error creeping into the system. In any case of conflict between a player's imperial map and the master map, the master map takes precedence.

11.09.03 Once a new system is entered by an empire and the SM (or the players, if there is no SM) have determined whether or not the system has already been surveyed, the newly discovering player must conduct his own survey using the rules given under 19.00. If the system has already been surveyed, the SM (or the player who first discovered it, if there is no SM) already knows what the system looks like and provides the newly discovering player with survey information as he accrues it. If the system has not already been surveyed, the survey information is not even generated until the newly discovering player's exploration ships carry out their survey.

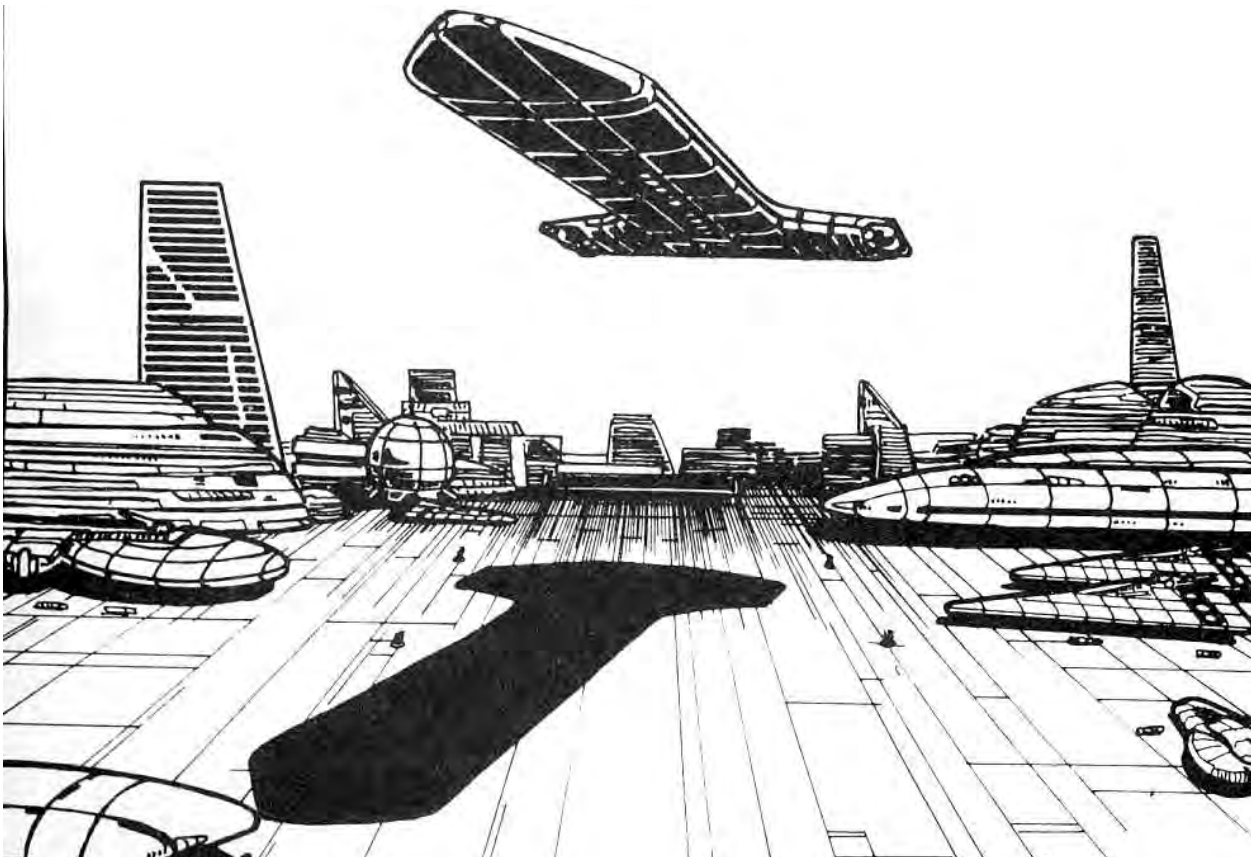
(Note to the SM: It is always advisable to keep players as much in the dark as possible. For this reason, all survey should be conducted as if the system were being generated for the first time, making dice rolls wherever appropriate, whether or not the system has actually been previously surveyed.)

11.09.04 As survey information is accrued, the surveying player records it on a fresh system data form (see 11.05.01). The system data form is then used as a permanent record of data for system-level movement (should it be required) in the system, as well as to track economic, industrial, tech level, etc., information and to calculate transit times for strategic starship movement and message transmission across the system.

(Note to the SM: It is usually a good idea to have the surveying player make 2 copies of his system data form as he goes along. This provides both of you with an identical starting point for future reference and lets you check his data against that of the original surveyor if someone else has already explored the system. It also takes some of the record-keeping burden off of you--and goodness knows you have enough to do already!)

11.10 Victory

The rules for each *STARFIRE* campaign define its victory conditions. Players should, of course, feel free to establish their own victory conditions, so long as all players know what they are before play begins. In general, the New Empires Campaign victory conditions provide a good model: the player with the greatest wealth at the end of the game, wins. "Wealth" in this case is determined by totaling the Gross Planetary Values (GPV) of all controlled planets, plus the value in megacredits of all trade allies and existing spacecraft and ground bases.



12.00 The Strategic Turn

12.01 Strategic Turn Sequence

Each strategic turn is played in a series of phases and steps. At the strategic level, all players perform the actions of each phase simultaneously. Note that the various play scales are very tightly linked, however, and that sub-scales may be activated at any time in the military phase of the turn.

1. Economic Phase
   a. Calculate Revenues.
   b. Ship resources via IFN or Imperial Freighters.
   c. Spend available resources.
   d. Record changes in economic potential.
2. Information Phase
   a. Evaluate Overt Intelligence Data.
   b. Invest in Covert Activities.
   c. Resolve Covert Activities.
3. Military Phase
   a. Receive new military units.
   b. Write Movement Orders.
   c. Move military spacecraft and convoys.
   d. System and lower-level trigger. Survey; First Contact; deep-space combat; planetary combat; etc.
   e. Receive resources arriving via IFN or Imperial Freighters in current turn.
4. Political Phase
   a. Political Control: check for rebellion of conquered planets and resolve any revolts.
   b. Extend First Contact to Sustained Contact with newly encountered races.
   c. Negotiations with other races.
5. Turn Record Phase

12.02 Explanation of Strategic Sequence of Play

12.02.01 The Economic Phase. During the economic phase, each player evaluates the gross planetary value (GPV) of each planet he controls as of the beginning of the turn and decides what (if any) portion of those resources he will ship to another star system, how he will ship them, and when they will arrive. Within each star system, he totals the resources available within the system; spends any portion of that total he chooses; and records the new balance for the next turn. As a last step, he adjusts the GPV of all planets to reflect any increases for tech level advancement or industrial expansion achieved during that strategic turn.

Resources shipped between star systems (whether via IFN or Imperial Freighter) are not added to the balance in their destination system until the end of the military phase of their turn of arrival. This provision, necessary to allow for the possibility that they might be intercepted en route by commerce raiders or the like, means such resources are not available for expenditure in their destination system until the economic phase of the strategic turn after their arrival.

12.02.02 The Information Phase. During the information phase, all information-gathering activities are resolved. Information may be gathered overtly (openly, by the acknowledged information gathering agencies of an empire) or covertly (through secret espionage activities). Information gathered from either sort of activity is also evaluated during this phase. Note that covert activities are possible only in Space Mastered games.

12.02.03 The Military Phase. During the military phase, each player receives and records any replacements (new military units); organizes and/or reorganizes his task forces and convoys of Imperial Freighters; and writes and executes movement orders. Since this is also the phase in which unknown star systems may be entered or hostile spacecraft may be encountered, careful timekeeping and sequencing are required. All space combat, planetary assaults, and survey work takes place during the military phase. At the end of the military phase, the arrival of all economic resources shipped between star systems is noted and those shipped into any system are added to the destination systems' economic balances for use in the next economic phase.

12.02.04 The Political Phase. During the political phase, each player-controlled conquered planet is checked for political unrest. Any rebellions which occur are fought out in this phase. Once rebellions have been checked for, each player determines political control for the following turn by pursuing agreements with NPRs and other player empires and/or landing additional PCF on conquered planets.

12.02.05 The Turn Record Phase. Once all economic transactions, movement, military actions, and political interactions have been completed, the passage of one more strategic turn is recorded and play moves to the economic phase of the next strategic turn.

13.00 Star System Generation

Because star systems are the basic building blocks of *STARFIRE* , the way they're generated and "put together" is described before any other detailed strategic rules. Note that star system exploration is described under 19.00.

13.01 Star System Identification Number

Each star system is assigned a unique identification number from the Master Systems List. The number of possible system numbers will vary from campaign to campaign, usually in direct proportion to the number of players in the game. Whenever a system is generated, its number must be determined by a random dice roll, but the exact numbers and types of dice used will vary with the maximum number of possible systems. In a campaign with a total of 1,000 possible system numbers, for instance, the players might roll 3D10, using one die each for the hundreds, tens, and ones, and reading "000" as 1,000. In a campaign with a total of 3,000 systems, the players might roll 1D6 and 3D10, dividing the D6 roll in half to determine the thousands, etc.

13.02 System Body Bearings

Die Roll	Radian
01-08	1
09-16	2
17-25	3
26-33	4
34-41	5
42-50	6
51-58	7
59-67	8
68-75	9
76-83	10
84-91	11
92-00	12

The system primary (or Component A of a binary system-see 13.03) is always placed in the center hex of the system map. Any star is assumed to completely fill its system hex, and a distance and bearing from the primary's hex must be determined for any other system body (including companion stars and warp points) placed on the system map. Distance is computed differently for companion stars (13.03.04), planets (13.04.03), and warp points (13.06.04), but bearing is always computed by rolling percentage dice against the table below to determine the radian on the system map upon which the body lies. If a radian lies directly along a hex side at the indicated distance from the star, the system body is always placed to the right (in a clock-wise direction) of the radian. Planets will move during the course of a game (see Orbital Mechanics: 13.07), but companion stars and warp points never move. (These assumptions are more than a tad unrealistic, but they make the game mechanics lots simpler.)

13.03 System Primaries

Star systems consist of one or more stars and their subordinate system bodies. The majority of the galaxy's stars are found in multiple star systems, but for reasons which are still only poorly understood, warp points appear to occur only in proximity to single stars and binary star systems and are always associated with the more massive star in any binary system. The best current theory is that while the components of distant binaries seem to concentrate or focus one another's gravities and produce a somewhat higher number of warp points, "close" binaries (separated by 50 LM or less) or larger numbers of stars in a single system diffuse one another's gravity fields in ways which preclude warp point formation.

Warp points may also be "Nomads," which occur with no star in close proximity. In such cases, the warp point (and any others associated with it) is termed a "starless warp nexus" or "starless region."

Starless nexuses have no system primaries or bodies but should be checked for additional warp points (as per 13.06.01). Whenever a survey ship discovers a Nomad warp point, the Nomad is placed at the center of the system map and any other warp points associated with it compute distance and bearing from it as if it were a system primary.

13.03.01 Whenever a system is generated, roll percentage dice against the following table to determine the system type:

Die Roll	System Type
01	Black Hole
02-10	Starless Nexus
11-45	Binary Star System
46-00	Single-Star Star System

Black Hole "star system" generation stops at this point, as any spacecraft which emerge from a warp point associated with a black hole are instantly destroyed.

[Note to the SM: Players should not be told when a black hole is responsible for the loss of their survey ships. They may be told that all communications have been lost, but not whether this is due to hostile action (like a minefield) or a black hole. If you're feeling particularly rotten, go through the entire "survey" procedure for the player, then simply inform him his survey ships failed to return. Players have been known to mount massive invasions of black holes in the belief that hostile actions are responsible for the silence of their survey forces.]

[Note to players: Never trust a smiling Space Master.]

13.03.02 For any result other than a black hole or starless nexus, percentage dice are thrown against the following table. For binary star systems, two rolls are made, one for each component; for single star systems, only one roll is made.

Die Roll	System Primary
01-05	Blue Giant: No planets possible
06-16	White Star
17-41	Yellow Star
42-66	Orange Star
67-85	Red Star
86-95	Red Dwarf
96-98	White Dwarf: No planets possible
99-00	Red Giant: No planets possible

Note that this represents an extreme simplification of the various spectral classes. For those of a more technical bent:

- "Blue Giant" subsumes spectral classes O, A, B, and F0-F4;
- "White Star" subsumes spectral classes F5-F9;
- "Yellow Star" subsumes spectral classes G0-G9;
- "Orange Star" subsumes spectral classes K0-K9;
- "Red Star" subsumes spectral classes M0-M4.
- "Red Dwarf" subsumes spectral classes M5-M9.

13.03.03 The more massive star in a binary system will be Component A while the less massive will be Component B, orbiting Component A. More massive stars are also larger than less massive ones (as a rule) and thus occupy more tactical hexes. For our grossly simplistic purposes, the diameter of each star class (in tactical hexes) is given on the table below (which also defines stars in decreasing order of mass):

Star Class	Diameter in Hexes
Blue Giant	15
White/Red Giant	11
Yellow	9
Orange	7
Red/White Dwarf	5
Red Dwarf	3

When a star system is mapped, the system primary is placed in the center of the system map. In a binary system, Component A is placed in the center of the system map with Component B placed at the appropriate distance (as per 13.03.04, below) on the appropriate radian (as per 13.02). It is possible to have two stars of the same effective mass (two white stars, two orange stars, a white star and a red giant, etc.) In such cases, a random die roll should be used to determine which of the two stars is Component A and which is Component B.

By definition, all warp points in a star system will be associated with Component A.

13.03.04 Distances Between Binary Stars. The bearing of a binary star's companion star is determined as in 13.02, above. *STARFIRE* binary stars will all lie from 51 to 350 light-minutes apart, with the exact distance between them determined by rolling 2D10 twice. The first roll is made against the following table; the second roll is read as a number from "1" to "100" and added to the result of the first roll.

Die Roll	Result
01-25	50 LM
26-50	150 LM
51-00	250 LM

Once the separation in light-minutes has been determined, it is divided by 12 (the number of light-minutes in a single system hex), rounding up, to convert to system hexes. Unlike planets, which are placed to the exact light-minute when the interception map is used to display a system hex on the interception scale, stars are always placed in the centers of their system hexes.

13.03.05 By the nature of things, there is insufficient space on the system map to display all the planets of both components of most binary star systems. This is not an insurmountable problem, however, since all warp points are associated with Component A. Both components should be completely generated, including any planets (bearing in mind the restrictions of 13.04.04, below), but Component B's planets need not be displayed until such time as a starship or ships move within its outermost occupied planetary orbit. Binary stars will normally be so widely separated (despite their "closeness" on an interstellar scale) that events in one component's planetary system are extremely unlikely to directly affect events in the other component's planetary system. For all intents and purposes, the components of a binary are no closer to one another than stars on opposite sides of a warp point.

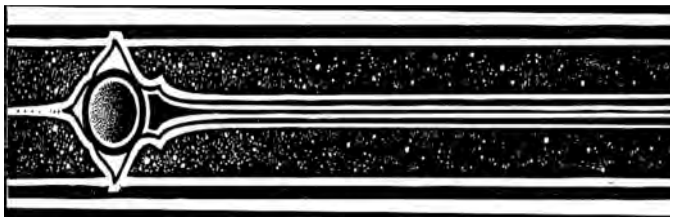
If Component B has no planets, there is no need to prepare a separate System Data Form for it. If Component B does have planets, a separate form should be prepared, placing Component B at the center of its map and Component A in its proper position relative to Component B.

13.04 Planets

Blue giants, white dwarfs, and red giants have no planets, but *STARFIRE* assumes that all other types of stars do. In the interest of simplicity, *STARFIRE* divides each star system into three zones of planet formation and one additional zone: the biosphere.

13.04.01 There are three zones of planet formation: rock, gas, and ice. These zones lie at different distances from different types of star, depending on the star's mass (and hence heat). Since each *STARFIRE* star type subsumes several spectral classes of stars, the planet formation zones for each star type are averages of the zones for all the spectral classes subsumed within that type.

13.04.02 The zone in which planetary temperatures permit water to remain in a liquid state, thus allowing life to evolve, also varies with the stellar type. Like the planet formation zones, the liquid-water zone (or biosphere) of each star type is an average of the spectral classes subsumed within that type.



No biosphere is shown for blue giants, white dwarfs, and red giants, since, by definition, they cannot possess planets.

13.04.03 Star Planet-Formation Zones and Biospheres in LM

	Planets (Distances in Light Minutes)				
Star Class	Rocky	Gas	Ice	Biosphere	Tide-locked
White	01-25	26-130	131+	10-18	01-08
Yellow	01-16	17-83	84+	06-12	01-04
Orange	01-09	10-38	39+	03-05	01-03
Red	01-05	06-18	19+	03-04	01-03
Red Dwarf	01-03	04-11	12+	None	01-02

(Please note: There is an overlap between the Red Star and Orange Star Biosphere.)

13.04.04 Planetary orbits are generated out to a maximum of 300 LM for White and Yellow Stars, to a maximum of 250 LM for Orange Stars, and a maximum of 200 LM for Red Stars or Red Dwarfs. If the table calls for a planet outside those limits for any star, that planet is ignored. In addition, planets of binary star system components are generated out to only 1/3 of the distance to the other component. Planets beyond that distance are ignored. Planetary orbits between 1/3 and 1/4 of the distance to the other component become asteroid belts instead of planets (see 13.05.02).

The radii of planetary orbits are determined using the Titius-Bode relation: R = A + (B X 2n), where R is the distance from the primary; A is the orbital radius of Planet I of the system; B is the orbital radius of Planet II of the system minus the orbital radius of Planet I; and "n" = the planet number of the planet whose orbit is being determined minus 2. (That is, "n" for planet 3 would be 3-2=1.) This may sound complicated, but the table below does all the calculations. Just perform the following steps:

1. Roll 1D10 for the orbital radius of Planet I of the system in LM. Any result from "1" to "8" is acceptable. Re-roll any result of "9" or "10."
2. Roll 1D10 for the orbital radius of Planet II in LM, re-rolling any result which gives Planet II an orbit less than "2" greater than Planet I's.
3. Using the chart below, locate the line which begins with the orbital separations you rolled for Planets I and II; it will show both the maximum possible number of planets (from seven to nine) and list the orbital radii for every other planet in the star system.

IF AND Then…

I	II	III	IV	V	VI	VII	VIII	IX
1	3	5	9	17	33	65	129	257
1	4	7	13	25	49	97	193	---
1	5	9	17	33	65	129	257	---
1	6	11	21	41	81	161	---	---
1	7	13	25	49	97	193	---	---
1	8	15	29	57	113	225	---	---
1	9	17	33	65	129	257	---	---
1	10	19	37	73	145	289	---	---
2	4	6	10	18	34	66	130	258
2	5	8	14	26	50	98	194	---
2	10	18	34	66	130	258	---	
2	7	12	22	42	82	162	---	---
2	8	14	26	50	98	194	---	---
2	9	16	30	58	114	226	---	---
2	10	18	34	66	130	258	---	---
3	5	7	11	19	35	67	131	259
3	6	9	15	27	51	99	195	---
3	7	11	19	35	67	131	259	---
3	8	13	23	43	83	163	---	---
3	9	15	27	51	99	195	---	---
3	10	17	31	59	115	227	---	
4	6	8	12	20	36	68	132	260
4	7	10	16	28	52	100	196	---
4	8	12	20	36	68	132	260	---
4	9	14	24	44	84	164	---	---
4	10	16	28	52	100	196	---	---
5	7	9	13	21	37	69	133	261
5	8	11	17	29	53	101	197	---
5	9	13	21	37	69	133	261	---
5	10	15	25	45	85	165	---	---
6	8	10	14	22	38	70	134	262
6	9	12	30	54	102	198	---	
6	10	14	22	38	134	262	---	
7	9	11	15	23	39	71	135	263
7	10	13	19	31	55	103	199	---
8	10	12	16	24	40	72	136	264

13.04.05 Classification of Planets. There are seven basic types of planets in *IMPERIAL STARFIRE*: Type O1, Type O2, Type V, Type T, Type ST, Type G, and Type I. The exact type-classification of a planet depends upon its orbital distance from its primary and its mass.

The exact distance of each planet from the primary is determined as in 13.04.04, above. Once the distance has been determined, roll percentage dice for each planet within the rocky planet zone of the star against the table below to determine its mass and read across to determine the mass and planet type at the listed distance.

Mass 1 planets have a very low mass, too low to attract and hold appreciable atmospheres. Mass 2 planets have masses sufficient to hold a life-supporting atmosphere, but low enough that their gravities are less than 1.4 times that of Earth. Mass 3 planets are massive enough to retain life-supporting atmospheres but have gravities 1.4 to 2.0 times that of Earth. Masses of planets beyond the rocky zone of the star really don't matter, since those planets are effectively useless.

Die Roll	Planet Mass	Rocky Planet Located					Moon(s) Possible?
		Inside Inner Edge of Biosphere	In Biosphere	Outside Outer Edge of Biosphere	Gas Zone	Ice Zone	
01-25%	Mass 1	Type O1	Type O2	Type O2	Type G	Type I	No for O1 or O2
26-85%	Mass 2	Type V	Type T	Type O2	Type G	Type I	No for Type V
86-00%	Mass 3	Type V	Type ST	Type O2	Type G	Type I	No for Type V

NOTE 1: Red Dwarf Stars have no biosphere. Therefore, any "Rocky Planet" more than 3 LM from the primary but not tide-locked to a moon (see 13.04.05.1 and 13.05.01.3) is treated as "Outside Outer Edge of Biosphere." See also NOTE 2, below.
NOTE 2: Any Mass 2 or Mass 3 planet within 2 LM of any star is a Type V planet unless it orbits a Red Dwarf and is tide-locked to a moon. Any Mass 1 planet within 2 LM of any star is always a Type O1 planet.

Type O1 planets are Mass 1 planets within the Rocky Planet Zone of a star but inside the innermost edge of its biosphere (see notes to table above for Red Dwarf stars). They have no atmospheres or liquid water and are extremely inhospitable, similar to the planet Mercury in the Terran Solar System. Moons of ice planets are also treated as Type O1 planets, though for very different reasons. Hostile environment Outposts and Colonies (though not Settlements - see 15.01.01 for definitions of population sizes) may be placed on Type O1 planets, but the cost to emplace them is high.

Type O2 planets are Mass 1, Mass 2, or Mass 3 rocky planets beyond the outer limits of a star's biosphere, or Mass 1 planets within a star's biosphere. (See notes to table above for Red Dwarf stars.) All moons of rocky planets and gas giants are also treated as Type O2 planets for colonization purposes. Whether or not planets beyond a biosphere's outer limits have atmospheres is immaterial for purposes of habitability, as they are too cold to possess liquid water and so cannot support life. Mass 2 and 3 Type O2 planets are considered to have atmospheres for purposes of ground base weapons (see 04.09.01). Hostile environment Outposts, Colonies, and Settlements may be placed on Type O2 planets.

Type V planets are Mass 2 or Mass 3 planets located inside the innermost edge of a star's biosphere. (See notes to table above for Red Dwarf stars.) Type V planets have no liquid water but are massive enough to retain an atmosphere. Like Sol's Venus, their atmospheres are dense, poisonous, and very hot. Populations may not be placed on them.

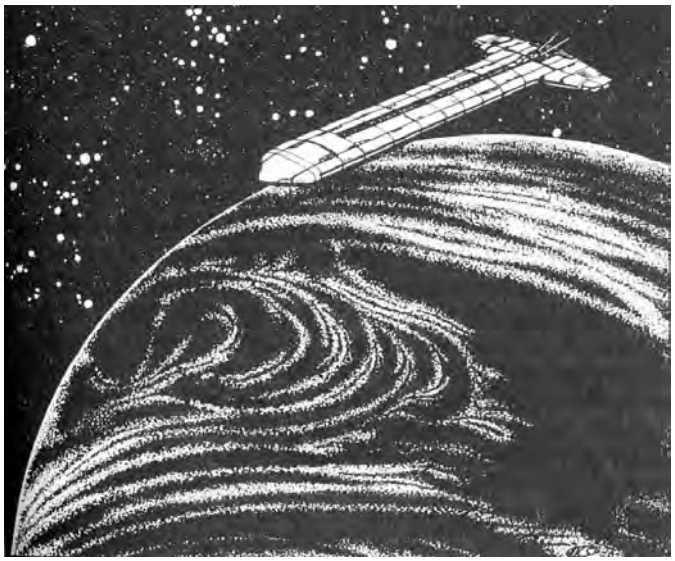
Type T planets are Mass 2 worlds within a star's biosphere (but see 13.04.05.1, below for Red Dwarfs). These are life-bearing, habitable rocky planets with abundant water, oxygen-nitrogen atmospheres, and gravities less than 1.4 times that of Earth. Roll 1D10 for any Type T planet to determine its habitability index (see 13.04.05.2).

Type ST planets are Mass 3 worlds within a star's biosphere (but see 13.04.05.1, below, for Red Dwarfs). These are rocky planets with gravities from 1.4 to 2.0 times that of Earth. Type ST planets are life-bearing and thus have atmospheres composed of the same gases as those of Type T planets, but their atmospheres are so dense that those components are present in concentrations toxic to inhabitants of Type T planets. The natives of Type ST planets, on the other hand, would find the atmospheres of Type T worlds too thin to support life. Roll 1D10 for any Type ST planet to determine its habitability index (see 13.04.05.2).

Type G planets are gas giants far enough from their stars to have retained massive atmospheres of hydrogen gas (Sol's Jupiter and Saturn are examples of this type). Any planet in a star's Gas Planet Formation Zone is automatically a Type G planet. Type G planets are neither habitable or colonizable, though their moons are considered Type O2 bodies for colonization purposes.

Type I planets are far from their stars, with vast amounts of frozen water, methane, and ammonia. They are neither habitable nor colonizable. Type I planets' moons are considered Type O1 bodies for colonization purposes.

13.04.05.1 Red Dwarf Stars are something of a special case for planets, since they normally have no biosphere at all as any planet close enough to retain liquid water would probably be tide-locked to the primary and thus turn into a Type V planet over the eons. Mass 2 or Mass 3 planets still may be Type T or Type ST planets, however, but only if they possess a moon sufficiently massive enough to create an offsetting moon-planet tidelock (see 13.05.01.3). When this happens, the moon and planet orbit around a common center of gravity, giving the planet an effective rotation vis-a-vis its primary. Whenever a Mass 2 or Mass 3 planet which lies between 2 and 3 light-minutes from a Red Dwarf is tide-locked to a moon, the planet is treated as a Type T or Type ST planet. The moon tide-locked to the planet is treated as a Type O2 planet for colonization purposes; any moons not tide-locked to the planet are treated as Type O1 planets.



13.04.05.2 Habitability Indexes. Any habitable planet is assigned a habitability index (HI) when it is generated. This is done by rolling 1D10 for the planet and recording the number rolled. The habitability index is important in the colonization rules (see 15.06), but it will not be readily apparent in a cursory survey of the planet. For this purpose, the value rolled should not be revealed to the surveying player until he has completed the planetary survey process (see 19.03), and SMs may wish to not make the roll until that process has been completed.

13.05 Other System Bodies

In addition to stars and planets, system bodies include asteroid belts and moons.

Asteroid belts consist of airless rocks in space, the debris of a planet which either was broken up or prevented from forming by the gravitation of a nearby gas giant or companion star. It is assumed by these rules that any system hex of any asteroid belt contains five asteroids large enough to support one hostile environment Colony each. They are treated as Type O2 planets for colonization

Use the Interception Scale Map (which represents a single system hex) to locate them. Normally, they will lie in hexes 0906, 2206, 1510, 0917, and 2207, but SMs (or players) who wish to place them more randomly may do so by rolling 4D10, one for each digit of an interception hex number, for each of the five asteroids in question. When dice are rolled, ignore and reroll any result which gives a number too high or too low for that digit of the hex number.

Moons are natural satellites of planets. To fit *STARFIRE*'s definition of a moon, a satellite must be larger than an asteroid; satellites smaller than this are ignored. Most moons are treated as Type O2 planets for colonization, but Ice Planet moons are treated as Type O1 planets.

13.05.01 Moons.

STARFIRE assumes that any Type T, ST, G, or I planet may have moons, as may Mass 2 or Mass 3 rocky planets outside a star's biosphere. No Type O1, Type V, or Mass 1 planet ever has moons.

Die Roll	Number of Moons
01-55	1
56-85	2
86-105	3
106-126	4
127+	5

Planet Type Modifiers:
Mass 2 rocky planet = -10%
Mass 3 rocky planet = no modifier
Type G planet = +50%
Type I planet = +35%

Some types of planets are more likely to have moons or to have larger numbers of them than other types. To determine the number of moons of any planet eligible to have moons at all, roll percentage dice against the table below, applying the indicated modifier for the planet's type. Any modified roll of less than 01% indicates that the planet has no moons.

13.05.01.1 Orbital Radii of Moons. To determine the orbital radius of any moon in tactical hexes, roll 1D10. This roll is modified for Rocky Planet Zone and Ice Planet Zone planets. Divide the roll by 2, rounding down, for Rocky Planet Zone planets, and divide the roll by 2, rounding up, for Ice Planet Zone planets. No two moons may share the same orbital radius, and any results which indicate that they do are re-rolled. The minimum orbital radius is one tactical hex, and any result modified to less than "1" becomes "1."

13.05.01.2 Unlike planets, moons do not worry about their bearings from the system primary, but players must determine initial bearings from the planets they orbit for the purposes of planet/moon system-scale movement (see 13.07.06). In this instance, however, 1D6 is rolled against the scattergram for each moon, using the result to determine its bearing from its planetary primary.

13.05.01.3 Note that under 13.04.05.1 any planet in the liquid water zone of a Red Dwarf must be tide-locked to a moon to be a Type T or ST world. It is possible for other planets to be tide-locked to their moons (assuming the moon is sufficiently massive), and, indeed, for a moon to be sufficiently massive to maintain a life-supporting atmosphere of its own.

Roll percentage dice for each moon of any T or ST planet (other planet types may be tide-locked, but it won't matter). A planet can be tide-locked to only one moon, so begin with the innermost moon and work outwards. Any result of 01-06% indicates the planet is tide-locked to the moon checked for. Any moons inside the tide-locked moon are ignored (they can't exist), and all moons outside the tide-locked moon orbit the same common center of mass as the planet and its tide-locked moon. The location of the common center of mass is determined by rolling the orbital radius and initial bearing of the moon and locating the tactical hex half way between the two bodies. If the orbital radius is an odd number greater than "1", the common center of mass is one hex closer to the planet than to the moon.

If the checking roll was 01-02%, the moon to which the planet is tide-locked is massive enough to be considered a "twin planet"-- that is, both planet and moon are life-bearing, habitable worlds.

Type T planets may have only Type T "twin planet" moons, but Type ST planets may have either Type T or ST "twins," though Type T's will be vastly more common. If a Type ST planet has a "twin," roll percentage dice one more time. A result of 01-15% indicates the "twin" is another Type ST planet; any other result indicates that it is a Type T planet. Note that the habitability indexes of "twins" are rolled separately.

13.05.02 Asteroid Belts and the Interaction of Gravity Wells.

Asteroid belts are rubble from planets which either were prevented from forming or subsequently destroyed by the gravitic influence of nearby gas giants or of companion stars.

Whenever a system contains gas giants, they may have reduced nearby planets to asteroid belts. Begin with the outermost gas giant and roll percentage dice for each planet,

moving inward from the outermost gas giant. Any roll of 01-20% indicates that the gas giant is so massive that it has reduced the next planet in to rubble, creating an asteroid belt. Note that this may result in the reduction of another gas giant to asteroids, in which case it obviously is not going to turn the next planet in from its orbital position into an asteroid belt.

Asteroid belts may also be created by the influence of the other star in a binary system. As a simple (if not necessarily accurate) rule of thumb, any planetary orbit is occupied by an asteroid belt if the radius of that orbit equals at least 1/4 of the distance between the two stars in a binary system (see 13.03.04). Remember, however, that any planetary orbit which lies more than 1/3 of the distance to the other component of a binary system from its own primary is simply ignored; the mutual gravitic interference of the two stars prevents even asteroid belts from forming. (That is, if the components of a binary are 160 LM apart, any "planet" between 40 LM and 53 LM from either component becomes an asteroid belt, instead. Any planetary orbit more than 53 LM from either component is simply ignored.)

13.06 Warp Points

Generally speaking, warp points should be generated only as part of the survey process (19.00), but it is convenient to discuss them in conjunction with the generation of a star system's other "terrain."

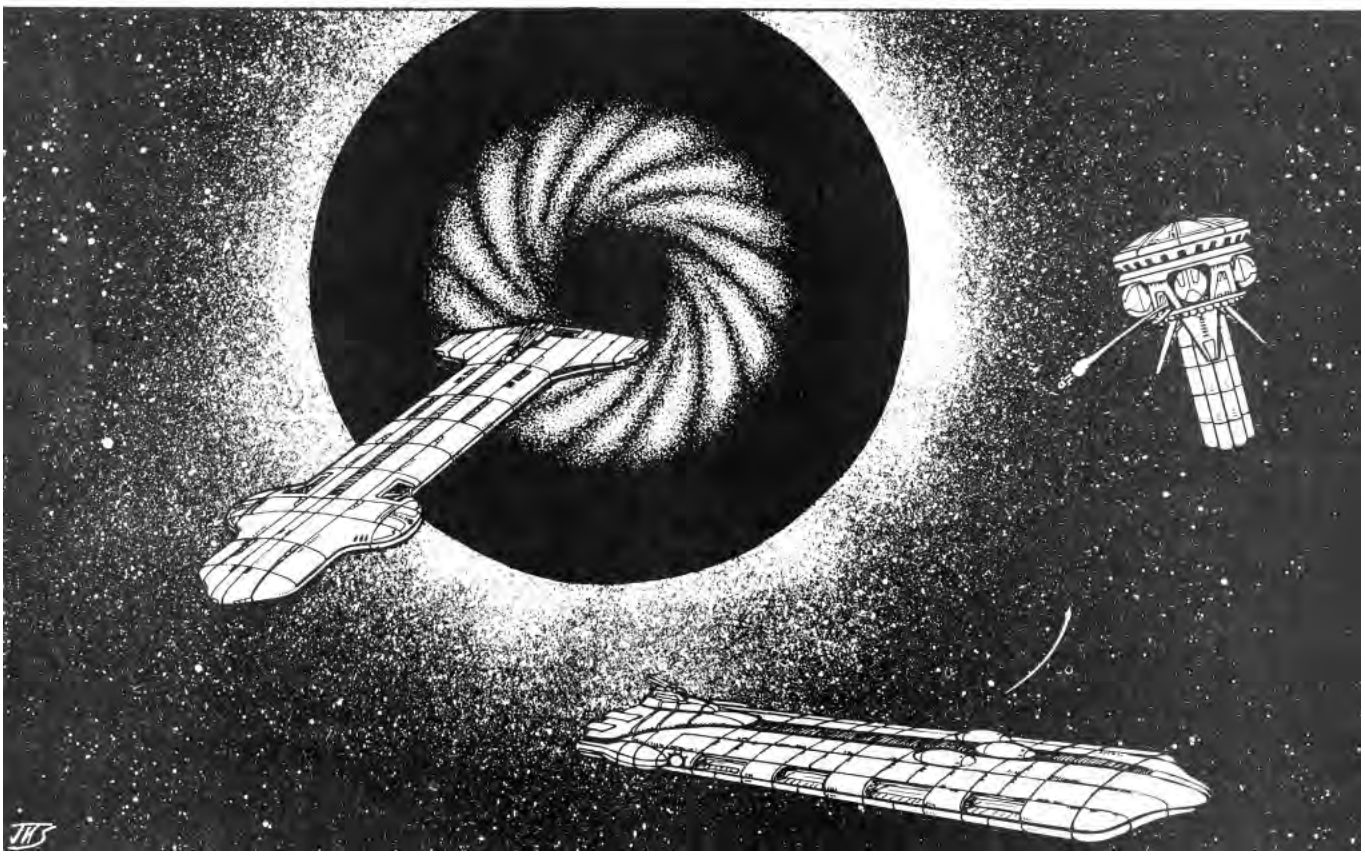
13.06.01 Each warp nexus, be it star system or Nomad, has at least one warp point, or you couldn't get there from here, but one may be all the warp points you will find. To determine the total number of warp points in any warp nexus, roll percentage dice against the following table:

Die Roll	Number of Warp Points Present
01-15 or less	1 warp point
16-48	2 warp points
49-74	3 warp points
75-93	4 warp points
94-98	5 warp points
99-00 or more	Warp Junction: Roll 1D10 and add 5

Percentage Roll Modifiers
Nomad Warp Point = -45%
Red Dwarf = -30%
White Dwarf = -20%
Red Giant= +10%
Binary Star System= +15%
Blue Giant= +20%

Modifiers are cumulative, but the modifier for star type applies only to Component A (see 13.03.03) of a star system. That is, in a Blue Giant/Red Giant binary system, the modifier would be +35% (+15% for being a binary system and +20% more because Component A is a Blue Giant), but the +10% for the presence of a Red Giant would not apply, since all warp points would be associated with the Blue Giant.

13.06.02 There are 15 known types of warp points, classified by gravitic characteristics, difficulty of detection, average distance from the star associated with them, and capacity (i.e.., the largest starship which can safely use them to make



transit). Whenever a warp point is generated, roll percentage dice against the table below:

Die Roll	WP Type	LM from Primary	Description/Notes
01-07	1	180-360	Open WP; Capacity 500 Hull Spaces
08-14	2	180-360	Open WP; Capacity 450 Hull Spaces
15-20	3	180-360	Open WP; Capacity 400 Hull Spaces
21-27	4	180-360	Open WP; Capacity 100 Hull Spaces
28-34	5	240-360	Open WP; Capacity 500 Hull Spaces
35-40	6	240-360	Open WP; Capacity 400 Hull Spaces
41-47	7	1-90	Open WP; Capacity 500 Hull Spaces
48-54	8	90-240	Open WP; Capacity 400 Hull Spaces
55-60	9	90-300	Open WP; Capacity 300 Hull Spaces
61-67	10	120-360	Open WP; Capacity 200 Hull Spaces
68-74	11	300-360	Open WP; Capacity 180 Hull Spaces
75-80	12	180-360	Closed WP; Capacity 100 Hull Spaces
81-87	13	180-360	Closed WP; Capacity 300 Hull Spaces
88-94	14	240-360	Closed WP; Capacity 400 Hull Spaces
95-00	15	1-360	Closed WP; Capacity 500 Hull Spaces

13.06.03 The warp points at opposite ends of a warp line need not be of the same type, and there is no way to know what type the far warp point is without making transit to see. Under the provisions of Rule 19.00, any warp connection to a system which has already been surveyed must be a closed warp point (detectable only by a ship coming from the "open" WP at the far end), but any warp point by which a survey ship enters any system may also be a closed warp point. All other warp points generated for a star system at the time of its creation must be open warp points.

Roll percentage dice against the table above to determine the type of warp point by which a survey ship has entered a star system. When a mandatory closed warp point occurs, roll percentage dice normally but add 74% to the value rolled. [Note that this also helps an SM keep a surveying player from knowing he's entered an already surveyed system, since the SM is rolling percentage dice anyway.] Because all non-entry WPs generated when a star system is first created must be open ones, subtract 26% from all percentile rolls for any WP other than that by which a surveying starship first enters a star system.

Warp point "capacity" has nothing to do with the numbers of ships which can make transit simultaneously or in one movement turn (see 03.06), but rather defines the largest hull size which can use the warp point at all. Should a starship whose hull is larger than the capacity of a warp point attempt to make transit, the starship and all aboard it will be torn apart. In effect, then, 500 hull spaces is the largest hull size which can ever make transit.

13.06.04 Warp Point Bearings and Distances. Unlike other system bodies, warp points are located in the exact center of their system hex. This is a game mechanics decision to simplify calculations required under 18.00 and 19.00. Determine the bearings of warp points normally under Rule 13.02. In the case of a binary, however, all warp points are associated only with Component A, so no warp point may lie on any radian within 2 radians to either side of Component B's bearing.

To determine the distance in system hexes from the primary, roll percentage dice against the tables below. (Any result which would place 2 warp points of any type in the same system hex or an open warp point at exactly the same distance from the primary as a planet or an asteroid belt is ignored and re-rolled.)

	WARP POINT TYPE														
Die Roll	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
01-05	15	15	15	15	20	20	01	06	06	10	25	15	15	20	01
06-10	16	16	16	16	21	21	01	06	07	11	25	16	16	21	03
11-15	17	17	17	17	21	21	01	08	08	12	25	17	17	21	04
16-20	17	17	17	17	22	22	02	08	09	13	25	17	17	22	06
21-25	18	18	18	18	22	22	02	09	10	14	26	18	18	22	07
26-30	19	19	19	19	23	23	02	09	11	15	26	19	19	23	09
31-35	20	20	20	20	23	23	03	10	12	16	26	20	20	23	10
36-40	20	20	20	20	24	24	03	11	13	17	27	20	20	24	12
41-45	21	21	21	21	24	24	03	12	14	18	27	21	21	24	13
46-50	22	22	22	22	25	25	03	13	15	20	27	22	22	25	15
51-55	23	23	23	23	25	25	04	14	16	21	28	23	23	25	16
56-60	23	23	23	23	26	26	04	15	17	22	28	23	23	26	18
61-65	24	24	24	24	26	26	04	16	18	23	28	24	24	26	19
66-70	25	25	25	25	27	27	04	17	19	24	29	25	25	27	21
71-75	26	26	26	26	27	27	05	18	20	25	29	26	26	27	22
76-80	26	26	26	26	28	28	05	18	21	26	29	26	26	28	24
81-85	27	27	27	27	28	28	05	19	22	27	30	27	27	28	25
86-90	28	28	28	28	29	29	06	19	23	28	30	28	28	29	27
91-95	29	29	29	29	29	29	06	20	24	29	30	29	29	29	29
96-00	30	30	30	30	30	30	06	20	25	30	30	30	30	30	30

(These tables are intended for quick reference and there are a couple of "hiccups" in the progression. Players who wish to determine the exact distance in system hexes may do so by rolling percentage dice and multiplying the greatest possible distance for the warp point from 13.06.02 by the result, ignoring any roll which would give a result lower than the smallest possible distance, and then dividing by 12. The chart will give a close approximation without suffering through all the math, however, and the designers recommend that you use it.)

13.07 Orbital Mechanics

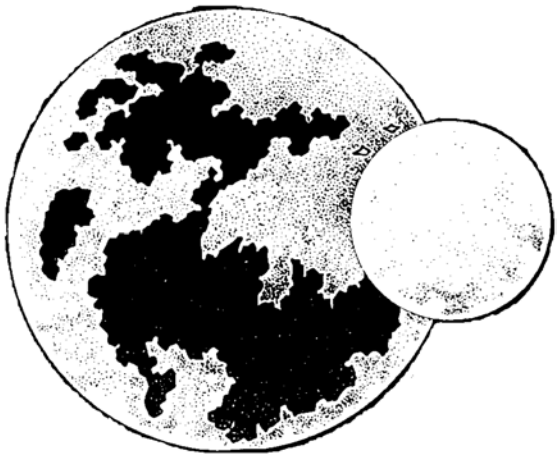
Most system bodies move. (Well, to be perfectly accurate, all system bodies move; the rules simply ignore some of that movement in the interests of simplicity.) The following rules provide a highly simplified format to deal with the orbital mechanics which provide the constantly changing "terrain" of a deep-space battlefield.

13.07.01 Whenever a system is generated, the exact positions of all system bodies--companion stars, planets, moons, WPs, etc., are recorded on the System Data Form printed on the small System-Scale Map. In addition, the exact month (strategic turn) on which the system was generated is recorded. The positions on the System Data Form then represent the positions of all the system's planetary bodies as of 00:00:01 on Day One of the month in which the system was generated. All future movement of system bodies uses this date and time as a reference point.

13.07.02 Certain system bodies do not move. In *IMPERIAL STARFIRE*, the stars of a binary system never move in relationship to one another, nor do the warp points in a star system move in relationship to the system's star(s). Stars and warp points are always placed in the exact center of a system hex at the proper distance and on the proper bearing from the primary.

13.07.03 All system bodies other than stars and warp points do move. Planets and asteroids orbit their stars, and moons orbit their planetary primaries. Spacecraft other than BS in stellar orbit (orbiting a system primary and not a planet) move as planets. Bases have station-keeping drives capable of maintaining position relative to a primary without orbiting if they so desire. Of course, BS may be placed in stellar or planetary orbit (and move) if the building player so desires.

13.07.04 Each planet is placed initially at the distance and bearing from the primary, calculated as per 13.02 and 13.04.04 in the central row of vertical hexes in its system hex (using the Interception-Scale Map to represent system hexes). On the strategic scale, the planet will move 1/2 system hex each month (strategic turn) in a clockwise direction around the primary. This is done by moving the planet along the horizontal hex row it occupies from the center vertical row to the last complete interception hex in the system hex at the end of the first month; along its horizontal hex row from the system hex occupied at the end of the first month to the center vertical row of the next



system hex at the end of the second month, etc. Thus the exact location of any planet at the end of any given month can be determined by moving the planet 1/2 system hex for each month which has elapsed since the system was generated.

13.07.04.1 Using the procedure in 13.07.04 provides a crude but useful approximation of orbital movement, at least relative to the other bodies in a star system. Because the circumference of orbits increases in proportion to increases in the radii of the orbits, the years of outer planets will be proportionately longer than the years of inner planets, which is as it should be, but the years of all planets in the same 12-LM system hex will all be exactly the same length, which they should not be.

The true orbits of planets are distorted because the orbital paths on the System Map are hexagonal rather than circular, and the distortion is compounded by the fact that a "half system hex" as defined in 13.07.04 is actually a different distance for each row of interception hexes within the system hex. Thus a planet 2 LM (or 4 interception hexes) into the system hex would move 8 interception hexes in a month but one 6 LM (12 interception hexes) into the system hex would move 14 interception hexes in a month. This will make little practical difference in play, but the gamer should be aware of the distortion, which has been accepted in the interest of game mechanics.

13.07.04.2 Planets never stand still, and they can move on the system and lower scales on which starships move within a star system. For the purposes of this rule, each planet moves in a clockwise direction from the position it occupied at the start of the present strategic turn at the rate of 1 interception hex every 3.5 days (every 7.5 system-scale turns, or 1 interception hex every 180 interception scale turns). For simplicity's sake, the system-scale interval between planet movements should be rounded up and down in alternate movements whenever all other movement in the system is conducted on the system scale. [That is, it would be moved 1 hex seven system turns into the strategic turn, then 1 hex eight system turns later (on the 15th system turn), then 1 hex seven system turns later (on the 22nd system turn of the current strategic turn) then 1 hex eight system turns later (on the 30th system turn of the current strategic turn), etc.]

Again, this will resort in distortion of the actual orbits and may well result in a planet being "ahead" of or "behind" where it should be according to 13.07.04 at the end of any given strategic turn, but it should be accepted in the interests of playable mechanics. Note, however, that the position of any planet should always be corrected to its proper position according to 13.07.04 between strategic turns. (That is, the planet should always begin a strategic turn in the location 13.07.04 defined for it as of the end of the previous strategic turn, no matter where it may have been moved to in the course of system or interception scale movement in the preceding strategic turn.)

13.07.04.3 All these "distortions in the interests of playability" may seem clumsy but they give the feel of relative movement without burying players in calculations. And if the positions aren't exactly what they should be, players should reflect on the fact that planets are far enough apart it is extremely unlikely that their exact relative positions will have a critical impact on events going on in their neighbors' vicinities.

13.07.05 Asteroids within asteroid belts orbit their primaries exactly as planets do (see 13.07.04), but this will be unimportant unless a given asteroid hex contains populations or installations which must be tracked.

13.07.06 Planet/Moon System Movement. In effect, each planet and its moons form a tiny star system all their own and, because the radii of moon orbits is so much shorter than those of planetary orbits, the relative movement rate is much higher.

13.07.06.1 Rotation. Planets within the tide-locked zone of their primary do not rotate unless they are tide-locked to a moon (see 13.04.05.1 and 13.05.01.3). All planets outside the tide-locked zone of their primaries rotate in a clockwise direction at the rate of 1 hex side every 8 interception turns (or 1 hex side every 480 tactical turns). For tide-locked planets and moons, see 13.07.06.3.

13.07.06.2 All moons which are not in a state of mutual tidelock with their planetary primaries orbit their primaries in a clockwise direction at a rate of 1 tactical hex per day (1 tactical hex for every 2 system turns or 48 interception turns). If a planet is tide-locked to one of its moons but not to all of them, the moons outside the tide-locked moon/planet pair orbit both the inner bodies at a rate of 1 tactical hex per day.

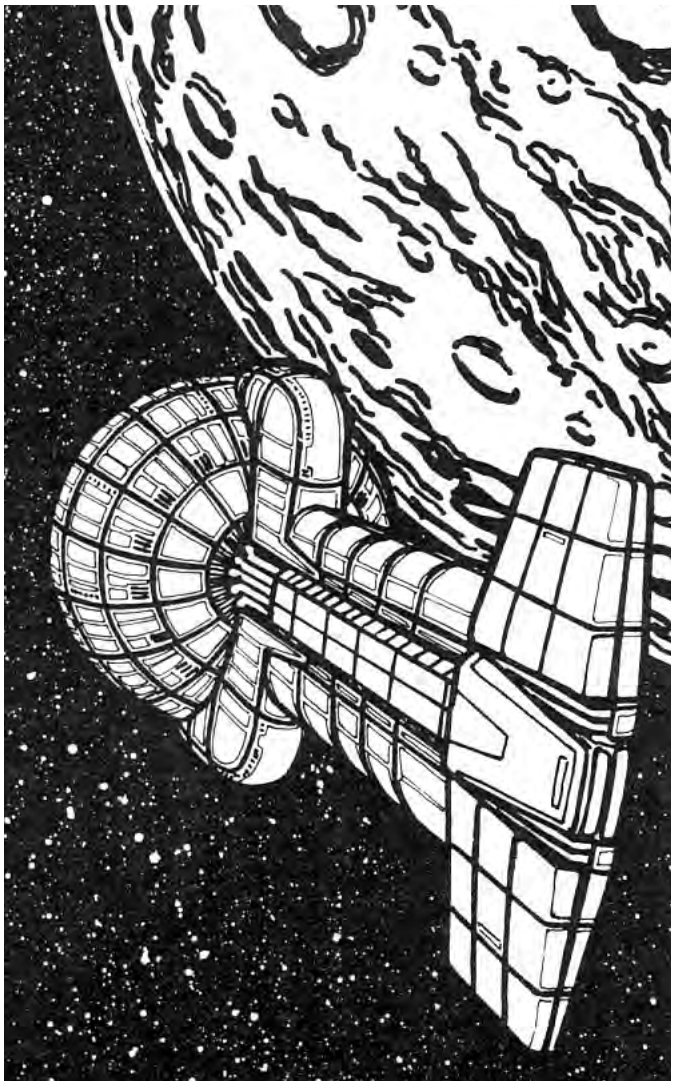
13.07.06.3 Moons and planets which are mutually tide-locked to one another do not rotate, but both bodies move 1 tactical hex clockwise in every 8 interception turns (or 1 hex every 480 tactical turns) around their common center of mass. Outer moons of mutually tide-locked moons and planets orbit the common center of mass at a speed of 1 tactical hex per day (1 hex every 2 system turns).

13.07.07 Players and Space Masters who so desire may, at their option, ignore moon/planet relative motion, but planet/star relative motion should never be ignored. The designers strongly recommend against ignoring even moon/planet motion, as this can have major effects on combat in the vicinity of populated planets.

13.08 Orbiting Spacecraft

Space stations and other spacecraft in geo-synchronous orbit have, by definition, an orbital radius of 1 tactical hex and are moved one tactical hex in a clockwise direction each time the planet which they orbit rotates one hex-side as per 13.07.06.1, thus keeping the spacecraft permanently located over the same point on the planetary surface. Spacecraft may be placed in orbits of 1 tactical hex without automatically occupying a geosynchronous orbit if the player placing them so desires. Indeed, spacecraft may not be placed in geosynchronous orbit around planets which do not rotate, regardless of orbital radius, since the planetary surface doesn't move and so no orbiting spacecraft could remain stationary in respect to it.

Spacecraft in non-geosynchronous orbits are treated as moons are under 13.07.06.2, though BS and starships may remain motionless in relation to a planet by using their drives in station-keeping mode.



14.00 Non-Player Race Generation

By game definition, any Type T or ST planet always supports life and may support intelligent life, but unless that intelligent life is also sufficiently numerous and advanced to generate wealth and/or ally with or resist a player race, it is disregarded by the strategic rules. (Had an advanced alien race landed on Earth in 50,000 BC, it would probably have regarded Paleolithic humanity as simply one more interesting species of animal, after all.) For this reason, indigenous non-player races at the hunter-gatherer stage of development are ignored. Any NPR encountered will have attained at least a pre-industrial, city-oriented stage of development. By definition, no NPR encountered, regardless of tech level, has discovered the existence of warp points, although once an NPR is "activated" by contact with a player race (see 16.00), they will learn about warp points and may well begin to expand on their own.

[Note to Space Masters: If your players are particularly talented at ruthless expansion and conquest, you might consider making an exception to the "no warp points" provision above and create one or two small but doughty NPR imperiums for them to stumble across. If you do, you should generate all star systems claimed by the NPRs and build up their economic infrastructures and military forces (see 15.00) to a level commensurate with their size.]

14.01 Presence of NPR Civilizations

Whenever a star system contains a Type T or Type ST planet, it must be checked for the presence of an indigenous civilization by rolling percentage dice against the table below:

Die Roll	Civilization
01-40	No Significant civilization
41-65	Pre-Industrial (population fixed at "Small")
66-78	Ind-1 (population "Medium" to "Large")
79-85	Ind-2 (population "Medium" to "Large")
86-00	High-Tech (population "Medium" to "Very Large")

14.02 Tech Level and Population Size

14.02.01 All Pre-Industrial civilizations' populations are fixed at "Small" (see 15.01), since a pre-industrial technical base could not provide the food supply needed for a larger population. Industrial and High-Tech civilizations may have much larger populations, but before actual population size can be determined, the exact TL of the civilization must be ascertained.

14.02.01.1 A High-Tech civilization may range in TL from HT1 to HT 11. To determine a High-Tech civilization's exact TL, roll percentage dice against the following table.

Please note: The percentage values above 100% are provided for players who have attained fairly high tech levels of their own and are prone to get a bit bored when all the NPRs they encounter are of insufficient tech level to prove a challenge. (Let's face it--an HT8 or 9 player race shouldn't even work up a sweat polishing off an HT1 or 2 NPR.) To provide a greater challenge, the SM (or the players, if there is no SM) should add 10% to the NPR tech level determination roll for each tech level above HT1 attained by the highest tech level player race in the game. Thus in a game in which the most advanced player race has climbed from HT1 to HT5, the die roll would be modified by +40%, making it impossible for the players to encounter any high-tech NPR of less than HT3 and raising the maximum NPR tech level to HT7.

Level of Civilization	Tech Level
01-20	High-Tech Level 1
21-40	High-Tech Level 2
41-60	High-Tech Level 3
61-80	High-Tech Level 4
81-00	High-Tech Level 5
101-120	High-Tech Level 6
121-140	High-Tech Level 7
141-160	High-Tech Level 8
161-180	High-Tech Level 9
181-200	High-Tech Level 10
201-220	High-Tech Level 11

14.02.02 Industrial and High-Tech NPR Home World Population Sizes. It is likely most Industrial Level home world populations would be "Medium" in size and

most High-Tech Level home world populations would be at least "Large" (see 15.01), but other results are certainly possible. Some Industrial civilizations might accept very high population densities, while some HT civilizations might have an aversion to over-crowding and so restrict their planetary populations to "Medium" sizes.

To determine the exact population size for an Industrial or High-Tech NPR home world, roll percentage dice against the following table and apply the appropriate TL modifier. Treat any result of less than 01% as 01% and any result greater than 00% as 00%.

Die Roll	Population Size
01-25	Medium
26-75	Large
76-00+	Very Large
IND-1 Civilization = -75%; IND-2 Civilization = -30% HT Civilization = +05% per TL above HT1	

14.03 System Exploitation By High-Tech NPRs

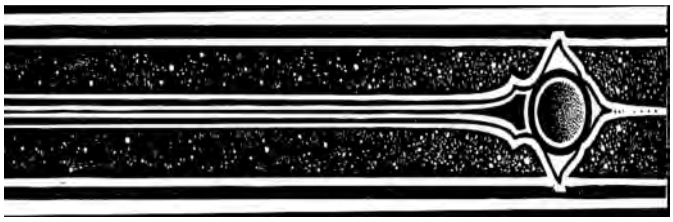
High-tech NPRs have the capability to exploit their own star systems, despite their ignorance of warp points. Whenever a high-tech NPR is generated, roll percentage dice against the table below to determine the extent to which the NPR has exploited its system. Add 10% to the dice roll for each tech level of the NPR above HT1.

If the system contains an additional unpopulated but habitable world of the same type (T or ST) as the racial home world, add an additional 20% to the dice roll.

Die Roll	Civilization
01-50	Only home world
51-70	Home world and one additional outpost
71-80	Home world; one Outpost; and one Colony
81-95	Home world; one Settlement; one Colony; and two Outposts
96-00+	Full Exploitation: an Outpost on each Type O2 planet (including all Type O2 moons); a Colony on any moons of the race home world; a Small population on any habitable planet compatible to the race; a hostile environment Settlement on any Type T or ST planet not compatible to the race

14.04 Multiple NPRs in a Single Star System

It is possible for a star system to have more than one habitable world and for each habitable world to have a native NPR civilization of its very own according to the initial checking dice rolls, in which case the relationship between the NPRs must be determined. Since this relationship would (presumably) be relatively long-standing, it is determined before any interaction with a player empire is allowed.



14.04.01 If neither civilization is a high-tech civilization, they are handled as totally separate entities, since even if one or both has attained an IND-2 TL, neither is capable of sustained interplanetary space flight and, even if they are aware of one another's existence, any contact between them must be tenuous and indirect at best.

There is one major exception to this rule. If both worlds in a "twin planet" relationship (see 13.05.01.3) are inhabited and if either of those civilizations has attained the IND-2 TL, then both planets are treated as a single Amalgamated civilization as in 14.04.02, below.

14.04.02 If only one civilization in a star system has achieved a high-tech TL, that race will have amalgamated any lower tech races. In this instance, each low-tech population is raised to the tech level of the higher-tech civilization and its population level is determined as in 14.02.02, above, but any "Very Large" result on the lower-tech NPR's home world is re-rolled. A single system exploitation roll is performed for the entire system-wide civilization, but an additional +10% is added to the system exploitation roll.

14.04.03 If more than one civilization has achieved a high-tech level, things get a bit more complicated. The procedures for initial system economic setup (see 16.01) and First Contact and Negotiation (see 17.02) are followed, with uninvolved players assuming the roles of the two civilizations. Any result of First Contact is possible, ranging from Amalgamation to War, with the uninvolved players making the choices for the NPRs at each stage of the process. Note that if an NPR war lasts long enough, R&D by the NPRs may change the victorious NPR's "starting" TL as of the time it is activated by a surveying Imperium.

Given the nature of war gamers, a lot of "uninvolved players" tend to end up sabotaging any negotiations in order to fight each other just for the heck of it. The SM may wish to rein in these festive souls and require them to negotiate in good faith. On the other hand, he may not. One way for the SM to keep an eye on things (and to enjoy a brisk little war himself, if he's so inclined) is for him to assume the role of one NPR and assign the other to an uninvolved player.

Except in a "Full Exploitation" result from 14.03, there should be sufficient real estate in most star systems for any and all NPRs to satisfy their system exploitation rolls without conflict. In the event of a "Full Exploitation" result, the off-home world population enclaves must be apportioned some-how.

If the NPRs are in a partnership relationship, then all off-home world populations are joint ventures and each partner receives an exactly equal percentage of all income generated.

If the political relationship is trade intercourse or military alliance, then each NPR is assigned ownership of a percentage of off-home world enclaves equal to that NPRs home world GPVs as a percentage of total system GPVs.

Example: *In a system with two NPRs, one NPR has a home world GPV of 1,000 and the other has a home world GPV of 2,000. The smaller GPV is 1,000/3,000=.33 = 33% of the combined system GPV, so 33%, or 1/3, of all off-world system populations would belong to the lower home world GPV NPR. All fractions of populations are rounded in favor of the race with the larger home world GPV.*

If the political relationship is non-intercourse or non-aggression, then a "Full Exploitation" result from 14.03 is not allowed. In essence, this represents a situation in which a political agreement to respect one another's territories has put a brake on system exploitation.

14.04.03.2 The chance of a player race entering a system during the actual resolution of an NPR interplanetary war or conquest is slight and should only be allowed in a Space-Mastered game at the discretion of the SM.

14.05 Racial Outlook

Any NPR (or, for that matter, player race) has a Racial Outlook (RO) which governs the way in which that race approaches the rest of the galaxy. A racial outlook may be thought of as a mind-set made up of a host of cultural and intellectual elements. For the purposes of *STARFIRE* , only three of these elements really matter: Racial Chauvinism (RC); Racial Militancy (RM); and Racial Determination (RD). Whenever an NPR (or, for that matter, a starting player race) is generated, these three attributes are generated by rolling percentage dice once for each. The RO of any race is the average of its RC, RM, and RD. Each of these attributes has its own role to play in different rules sections, but at this point we will simply define them.

Racial Chauvinism: RC is a quantification of how the race views other sentient races. It combines fear of the unknown, eagerness for new knowledge, arrogance, caution, etc. The higher the RC, the less tolerant of and eager for contact with alien civilizations a race will be.

Racial Militancy: RM is a quantification of a race's aptness to the use of military force to resolve difficulties. It combines ferocity, timidity, military tradition, courage, etc. The higher the RM, the more likely a race is to resort to war in a threat situation and the more willing it is to accept casualties in warfare.

Racial Determination: RD is a quantification of a race's obstinacy, or how likely it is to persevere in a course of action once adopted. It may be thought of as stubbornness and may reduce the willingness of a race's military units to surrender, but should not be confused with militancy. A race need not be militant to be determined.

14.06 But What Does the NPR Do?

An NPR civilization which comes into contact with a player race will be "activated" and, unless incorporated into the player race's political sphere by negotiation or conquest, will pursue one of several strategies, as described in 16.00, below. Discussion of NPR strategies is deferred to Rule 16.00 because those strategies are highly dependent upon the economic capabilities of the NPR, and the economic rules detailed in Rule 15.00 must be grasped clearly before the NPR strategies can be understood.

15.00 Economic Affairs and Infrastructure

The total power of any player empire or NPR civilization is dependent upon its economic power, which, in turn, is a product of its population, tech level, and resource base. Additional wealth can be gained from trade with NPRs or other players (see 17.02.05), but by far the greatest portion of a player's economic power will be internally generated by his imperial population.

15.01 Population

15.01.01 Populations may be indigenous to a given planet or non-indigenous (emplaced there as colonists of a high-tech race) and are defined in categories based on their ability to produce wealth rather than on any specific numbers of citizens. These categories, from smallest to largest, are: Outposts; Colonies; Settlements; Small Populations; Medium Populations; Large Populations; and Very Large Populations.

Permanent indigenous populations are always at least "Small" or larger; Outposts, Colonies, and Settlements are non-indigenous population enclaves emplaced on a planet, moon, or asteroid by a high-tech race. Permanent planetary populations generally will not increase within the time-scale of the game, but non-indigenous population enclaves may do so and can be upgraded by shipping in additional colonists and resources.

15.01.01.2 A planet may have both an indigenous population and a non-indigenous population, but only one of each type. (That is, all non-indigenous population placed on a planet or moon is grouped into a single unit for wealth generation purposes; you cannot put 50 Outposts on a single moon, for example.) If a planet has both an indigenous and a non-indigenous population, the wealth generated by each population is calculated separately and then totaled to determine the total wealth generated by the planet.

If a Settlement emplaced on a planet with an indigenous population is upgraded to the status of a "Small" population (see 15.06.04), the two populations may be combined (if the populations are of amalgamated races of the same high-tech TL) or remain segregated. If they combine, the new population is one population size larger than the original indigenous population size. (But remember that no population may be larger than "Very Large.")

The maximum by which emplacement of non-indigenous populations may increase the total population of a planet is one population bracket. That is, a "Medium" population could be increased to "Large" by combining it with a "Settlement," but a player could not then add a second "Settlement" to increase the total population to "Very Large."

The size of the population which can be placed upon a planet or moon is limited by the environment. Planets which are hostile environments for the colonizing race and airless moons (which are hostile environments for any race) may not support populations larger than Settlements. Asteroids (because of their limited size) and Type O1 system bodies (which are particularly hostile environments) may not support populations larger than Colonies.

15.01.02 Population and Manning Requirements. The size and number of military units an Imperium can build and support is limited by the ability of the Imperium's population to man them, defined in terms of the initial EVM (see 15.03.02 and 15.03.06) of the population at its current tech level. Each increment of EVM equates to one "personnel point" per month for the population, but industrial investment increases in EVM are ignored for the purposes of this calculation. (That is, a Medium HT2 population has an initial EVM of 450 and could generate 450 personnel points per month. Industrial investment could increase its EVM to a maximum of 675, but only 450 of that would count for personnel generation.) These personnel points are used to crew units as they are built and to provide replacement crewmen when units suffer casualties.

15.01.02.1 In general, each personnel point provides the personnel required to crew one spacecraft hull space, but armor, holds, and bulkheads have no crew requirements, and those systems' hull spaces do not count for crew computations. Shields do have crew requirements and are counted. Each cutter, shuttle, or pinnace of any generation requires 1 personnel point of flight crew.

15.01.02.2 Some other military requirements are manpower intensive. Strikefighters require separate personnel points, in addition to the personnel point required to crew the hangar bay from which a fighter operates. Strikegroups usually have more pilots than fighters, however, to allow each fighter to be operated without pilot fatigue limitations. To reflect this, one personnel point of flight crew is required to man each fighter normally, but it requires only 1/2 personnel point to operate a fighter on an emergency basis. (Another way to look at it is that each strikegroup has enough pilots to man twice its nominal number of fighters, which means that a carrier which takes fighter casualties still has enough personnel to man replacement fighters equal to its original strikegroup on a short-term, emergency basis.) Pilot fatigue is a factor, however, and strikegroups operating with understrength flight crews suffer grade penalties for pilot fatigue if they undertake intensive operations.

Each fighter lost reduces a strikegroup's crew total by 1/2 personnel point. Whenever a fighter supported by less than 1

full personnel point of flight crew makes more than one sortie (flight) in a 24-hour period, the grade of the squadron containing that fighter is reduced by one level for each sortie over 1 flown.

Example: *A CV with 30 fighters starts out with 30 personnel points worth of flight crews. If the CV loses 10 fighters, it loses 5 personnel points worth of flight crew, reducing it to a total of 25. The CV could continue to operate its remaining 20 fighters indefinitely without penalty for pilot fatigue. If, however, it received 10 replacement fighters and no replacement flight crew, it could use all 10 replacement fighters only once in a 24-hour period without penalty. If the CV chose to "double up" the surviving flight crew from its 10 lost fighters, it could produce 5 full-strength flight crews, and so could operate up to 25 fighters indefinitely without penalty for pilot fatigue.*

15.01.02.3 PCF are also manpower-intensive units. Raising a high-tech PCF requires 8 personnel points. IND-1 and IND-2 PCFs require 10 personnel points each because their less sophisticated weapons require larger numbers of troops to produce their combat power. Pre-Industrial PCFs require much less logistic support than either HT or Industrial Level PCFs, but their combat power assumes much larger combat formations, given their extremely crude weapons, and Pre-Industrial PCFs require 20 personnel points each.

15.01.02.3.1 To raise a PCF's TL, the PCF must be returned to a suitable planet, disbanded, and reformed. A "suitable" planet is one of the same type as the PCF's home world, with a habitability differential no greater than 2, within the empire to which the PCF belongs. It must also (obviously) be of the TL to which the PCF is to be raised. Once arrived at the planet, the PCF is disbanded and added to the planetary personnel point total, from which personnel for a new PCF at the new TL are drawn. (In effect, the original troops are being sent back into training with their new equipment. The financial cost of raising the new PCF at the new TL is not changed, but its personnel points are available without the need to generate new ones, and the time requirement is reduced from two months to one and certain other benefits apply [see 15.09.09].)

15.01.02.4 Personnel points must be used to man units when they are first raised or built (or taken out of mothballs and reactivated) and also to replace casualties. Shields are not "destroyed" when they are knocked out; accordingly, a unit loses no personnel points from "damage" to shields unless it proves impossible for emergency repairs (see 05.02) to restore them. In that case, it is assumed that the overload caused a secondary explosion within the generator compartment and the personnel point manning that generator is considered to have been killed. Each spacecraft suffers casualties in personnel equal to 1 per manned hull space destroyed (or 1/2 personnel point per fighter lost, in the case of strikefighters). When PCFs are destroyed, all of their personnel become casualties (or prisoners) and new PCFs must be raised to replace them.

Personnel points may be shipped out to spacecraft and strikegroups in distant star systems, in which case they are received aboard as if they were maintenance payments. (That is, in the maintenance portion of the strategic turn in which they arrive in their destination star system.) Replacement personnel points are shipped at the rate of 50 per Q aboard Imperial Freighters and may not be transported using the IFN.

15.01.02.5 Note that the personnel points generated by a population represent the military personnel which may be extracted from the population without damage to the civilian economy. More personnel may be extracted, but each personnel point above the EVM of a population extracted from that population reduces the population's EVM by "1" for 1 month.

Example: *A population has an EVM of 400. In one month, that population could supply 400 personnel points worth of military personnel without damaging the economy. If it provided 750, or 350 more personnel points than its normal maximum, in a single month it would reduce its EVM for the following month to 400-350=50 (which would also reduce its Gross Planetary Value [see 15.03]). If it provided 2,000 personnel points, or 1,600 more than its normal maximum, it would reduce its EVM to 400-1,600=-1,200. 1,200/400=3, so 3 full months would pass before its EVM rose above "0" once more. (And, of course, if the EVM of a planet is "0," so is its GPV.)*

15.01.02.6 Imperiums usually maintain training programs to amass trained personnel against future need. To reflect this, each population larger than a Settlement may accrue a total of 3 times its normal personnel points in the form of "reserves" which may be drawn upon at need. (Thus our 400 EVM population above could maintain a reserve of 400X3=1,200 personnel points.) Settlements, Colonies, and Outposts have too few people to maintain a reserve system.

If a reserve system is maintained, the Imperium must pay maintenance at the rate of .1 MC per personnel point for each month in which the reserve is maintained. (Hence our 1,200 personnel point reserve would cost 1,200X.1=120 MC per month to maintain.) The reserve is not magically produced in addition to the normal personnel generating capacity of the population. It must be built up and maintained by diverting normally generated personnel points to reserve status. (Thus our EVM 400 population could maintain a reserve of 1,200, to which it could add 400 personnel points in a single turn, giving it a total "surge" manning capability of 1,600 personnel points without damage to its economy, but could not produce a 400 point "reserve" in successive turns without a break to build the reserve back up.)

15.01.02.7 If it seems a bit odd to base personnel generation on EVM, reflect that a higher EVM indicates a higher base tech level for a population of a given size, thus reflecting a higher degree of automation and similar industrial manpower reduction capabilities. In effect, you can run the factories with fewer people, which means you can put more of them into uniform at need.

15.01.02.8 Players who wish to do so may adopt an optional rule which reflects the militancy of their races. This rule assumes that a race with a high militancy is more willing to make sacrifices on the civilian front to support the folks in uniform and permits a player to add a bonus percentage equal to 1/2 his Racial Militancy to his personnel generation capability. Thus a population with an EVM of 400 and a RM of 80% would receive a bonus of (1+[.80/2])X400 = 1.4X400 = 560 personnel points. Like all optional rules, this one may be used only if all players so agree before beginning play.

15.01.02.9 Starships may be manned with "passage crews" if there are not sufficient personnel points to crew them in the system where they are built, demothballed, or repaired after damage. A passage crew consists of sufficient personnel to man only the essential systems: engines and life support. A passage crew therefore requires personnel points equal only to the hull spaces occupied by engine systems and the life support hold(s) and crew quarters required by those hull spaces. Obviously, a passage crew is insufficient to man the ship's weapons, offensive or defensive; it can only move the starship from place to place, not fight it.

15.01.02.10 Note that personnel from scrapped or mothballed units or picked up by search and rescue operations after a battle (see 07.01.01) may be redistributed among other ships of the same fleet or task force to replace casualties or shipped to some central base for future use. Personnel returned to central personnel depots in this fashion form a special category of reserve, in addition to whatever reserve the population of the star system could normally support, but maintenance for them is computed at the same rate (that is .1 MC per personnel point).

15.02 Economic Levels

A population's ability to produce wealth depends heavily upon its technological attainments. The tech level of a population is used to evaluate its wealth-generating capacity, in which function it is referred to as the "economic level" of the population. Economic level and tech level are always identical for any population.

A Pre-Industrial Economic/Tech Level indicates an agrarian civilization which has evolved a degree of sophistication in tool-making and city-building capable of generating at least some surplus wealth, although (by the standards of higher-tech civilizations) only a very limited amount. The rough Terran equivalent would be from late Bronze Age to approximately 1800 A.D. No Pre-Industrial population may be larger than "Small;" the technology to support a larger population simply is not available. A Pre-Industrial population may not conduct R&D to obtain a higher economic/tech level within the time limits of a *STARFIRE* campaign unless assisted by a higher-tech ally or partner. Without that assistance, a Pre-Industrial population doesn't even know where to start.

An Industrial-One Economic/Tech Level indicates a civilization which has completed the first stage of industrialization and developed a factory-based production system but has not yet progressed far beyond steam power or the very early stages of fission power. The rough Terran equivalent would be from the 1800's to approximately 1960. All IND-1 populations are fixed at a size of "Medium."

An Industrial-Two Economic/Tech Level indicates an industrial civilization which is in transition from purely-planetary industry to a true space-based culture. This may also be thought of as a "High Frontier" civilization, since some orbital space technology is available but practical inter-planetary space flight is not. The rough Terran equivalent would be from approximately 1960 to roughly 2020. An IND-2 population produces a moderate amount of wealth and is limited to "Medium" or (rarely) "Large" size.

A High-Tech Economic/Tech Level indicates a civilization centered on advanced technology, including space flight. An NPR High-Tech population is, by definition, ignorant of warp points until contacted by a player race, but may have substantially exploited its own star system. High-Tech populations are capable of generating large amounts of wealth.

15.03 Gross Planetary Value (GPV)

The Gross Planetary Value of a planet is equal to the total amount of wealth that planet is capable of generating for governmental use each month (strategic turn). Please note that the GPV does not represent a planet's total wealth production; only the percentage of planetary wealth which the government can extract. The GPV of a planet is calculated using the formula:

(Resource Exploitation Index) × (Economic Value Multiplier) = GPV

15.03.01 Resource Exploitation Index. The planetary Resource Exploitation Index (or REI), which measures the efficiency with which the planet's population makes use of its resources, must be determined. The REI for any planet is determined by rolling 1D10 and adding 5 (thus the minimum REI is "6" and the maximum REI is "15").

A planet's REI may increase when tech level advances occur or an indigenous and non-indigenous population are combined (see 15.01.01.2). When either of these occur, 1D10 is rolled and five is added as above. If the result is higher than the old REI, it becomes the new planetary REI. If it is lower, it is ignored. (That is, for game purposes, a planet's REI may only increase.)

When determining pre-discovery income for NPRs, only one REI roll is made for each population enclave of the NPR. That is, an HT 5 NPR would make one roll per population for HT5, not one for HT 1, a second for having passed HT 2, a third for having passed HT 3, etc.

15.03.02 Economic Value Multiplier. The Economic Value Multiplier (EVM) measures the inherent capability of

a given population of a given tech level to generate wealth. EVM is determined by consulting the appropriate Planet Value Table (see 15.03.06) and cross-indexing the "Initial Value" line from the chart with the "High-Tech Economic Level" of the population.

15.03.03 EVM may be increased through industrial expansion (investments in the planet's industrial base), tech level advancement (which produces advances in industrial capacity as well as weaponry), or increases in population size (which increase the work force).

EVM added by industrial expansion are added at the rate of "1" for every 200 MC invested, but the total EVM increase from industrial expansion may never exceed 50% of the initial EVM of the planet and population at their current economic level. EVM increases derived from industrial expansion are permanent but must be tracked separately from population/tech-level EVM increases, both to insure that they are not buried (lost) when EVM increases for TL increases and to insure that the "50% of initial EVM" limitation at any given economic level is not exceeded. Industrial civilizations may invest in industrial expansion; Pre-Industrial civilizations may not invest in industrial expansion (there is no industry to invest in).

EVM added by tech level advancement are shown on the "Value Added" line of the appropriate Planet Value Table. Races may continue Research & Development (see 15.07) to extend their tech levels beyond HT11 for economic purposes even though no technical systems for HT12 or above are available to them.

EVM added by increases in the population level of a non-indigenous population are determined by consulting the Planet Value Table for the Initial Value of the new population level on the appropriate planet type.

Any increase in EVM takes effect at the start of the strategic turn immediately following that in which the change occurred.

15.03.04 EVM can also be be decreased by attacks which destroy industrial infrastructure and/or population (see 21.03). Any EVM loss due to an attack on the planet takes effect at the beginning of the strategic turn immediately after the one in which the planet was attacked. EVM losses are taken first from industrial expansion EVM. In addition, industrial expansion may be used to replace some or all of the losses in base EVM (as per 15.03.03, above), in which case it actually represents reconstruction and is not tracked separately until the total current EVM reaches the initial EVM from the table in 15.03.06 for the population and economic level. EVM can also be reduced by the rebellion of a conquered planetary population. In this instance, the EVM loss is only temporary and the lost EVM will be regained when (and if) the rebellion is suppressed.

15.03.05 The Cortez Approach. An empire can increase the effective GPV of a conquered population (see 17.03) by means of ruthless exploitation, called the "Cortez Approach" in honor of that enlightened philanthropist Hernando Cortez. Under the Cortez Approach, the conquering empire squeezes every possible megacredit out of the population, regardless of the adverse impact that has on the population in question. Effectively, the GPV of the population is raised, but so is the population's hostility, resentment, and likeliness to rebel. An empire may extract revenues of up to 150% of the nominal GPV of the planet, but the probability of revolt is increased by 02% for each percentage point by which the GPV is raised above the 100% level.

15.03.05.1 As an optional rule, SMs and players may allow player empires to apply the Cortez Approach to their own citizens (in which case it may be thought of as the "Stalin Approach"), with the possible outcome of a shooting Tax-Payers Revolt. In this instance, each percentage point increase squeezed out of the GPV of a planet inhabited by the imperial race or an amalgamated NPR creates a 0.5% chance of a revolt by the imperial or amalgamated population. This chance of revolt is cumulative from turn to turn and results from the "squeeze" effect and lasts as long as the "Stalin Approach" is applied. Once the "Stalin Approach" is abandoned, the chance of revolt falls by 03% per turn until it once more reaches zero.

This chance cannot be reduced by stationing PCF on the planet prior to a revolt (any PCFs stationed there may be used to suppress the revolt when and if it breaks out, but cannot reduce the chance of a rebellion). Once the planet revolts, it will (if the revolt succeeds) become an activated NPR at war with the rest of the empire. If the revolt is suppressed, the planet is treated precisely as any other conquered planet and cannot become a part of the empire once more until and unless the empire reaches an amalgamation result through negotiation with its inhabitants.

15.03.06 Planet Value Tables

Planet Economic Value Multipliers For Type O1 and O2 System Bodies*

High-Tech Economic Level	Outpost		Colony		Settlement	
	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added
HT1	3	--	9	--	18	--
HT2	6	+3	18	+9	32	+14
HT3	9	+3	27	+9	40	+8
HT4	11	+2	34	+7	48	+8
HT5	13	+2	41	+7	56	+8
HT6	15	+2	47	+6	64	+8
HT7	17	+2	53	+6	72	+8
HT8	19	+2	59	+6	80	+8
HT9	21	+2	65	+6	88	+8
HT10	23	+2	71	+6	96	+8
HT11	25	+2	77	+6	104	+8
+1HT	+2	+2	+6	+6	+8	+8

*No population larger than a Colony may be emplaced on any Type O1 system body.

Planet Economic Value Multipliers For Type T and ST Planets

High-Tech Economic Level	Outpost		Colony		Settlement		Small		Medium		Large		Very Large	
	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added	Initial Value	Value Added
Pre-IND	--	--	--	--	--	--	15	--	--	--	--	--	--	--
IND-1	--	--	--	--	--	--	50	--	150	--	--	--	--	--
IND-2	--	--	--	--	--	--	100	--	250	--	420	--	--	--
HT1	5	--	25	--	50	--	150	--	350	--	750	--	1000	--
HT2	10	+5	37	+12	90	+40	200	+50	450	+100	950	+200	1250	+250
HT3	16	+6	51	+14	132	+42	255	+55	560	+110	1170	+220	1525	+275
HT4	23	+7	67	+16	176	+44	315	+60	680	+120	1410	+240	1825	+300
HT5	31	+8	85	+18	222	+46	380	+65	810	+130	1670	+260	2150	+325
HT6	40	+9	105	+20	270	+48	450	+70	950	+140	1950	+280	2500	+350
HT7	50	+10	127	+22	321	+51	525	+75	1100	+150	2250	+300	2875	+375
HT8	61	+11	151	+24	375	+54	605	+80	1260	+160	2570	+320	3275	+400
HT9	73	+12	177	+26	432	+57	690	+85	1430	+170	2910	+340	3700	+425
HT10	86	+14	205	+28	492	+60	780	+90	1610	+180	3270	+360	4150	+450
HT11	100	+14	235	+30	555	+63	875	+95	1800	+190	3650	+380	4625	+475
+1HT	+14	+14	+34	+34	+67	+67	+100	+100	+200	+200	+400	+400	+500	+500

15.04 Transporting Economic Resources

Wealth (in the form of MC) may be transported between planets in different star systems by using either the Imperial Freight Network (IFN) or Imperial Freighters (those built and owned by the imperial government).

15.04.01 Within a star system, wealth may be transported between any planets with spaceports (or cargo-handling space stations) via the IFN without any cost penalty. Resources may also be transported between planets without spaceports, but only aboard Imperial Freighters [with at least one large boat bay (27.03.02) and 2 shuttles (27.03.11) each] assigned to that purpose (that is, they spend the entire strategic turn in the same system). Whether transported by IFN or Imperial Freighter, resources within a system arrive on the same turn they are shipped.

15.04.02 Resources shipped between star systems via IFN pay a transport fee of 10 MC or 10% of the total value being transported, whichever is greater. Resources transported aboard Imperial Freighters never pay a transport fee.

Wealth transported out of a star system, whether by IFN or Imperial Freighter, is deducted from the resources available in the system in the turn it is shipped and is credited to the system balance of the system to which it is shipped at the end of the Military Phase in which it arrives. (In other words, it becomes available in the Economic Phase of the strategic turn after the strategic turn in which it actually arrives.)

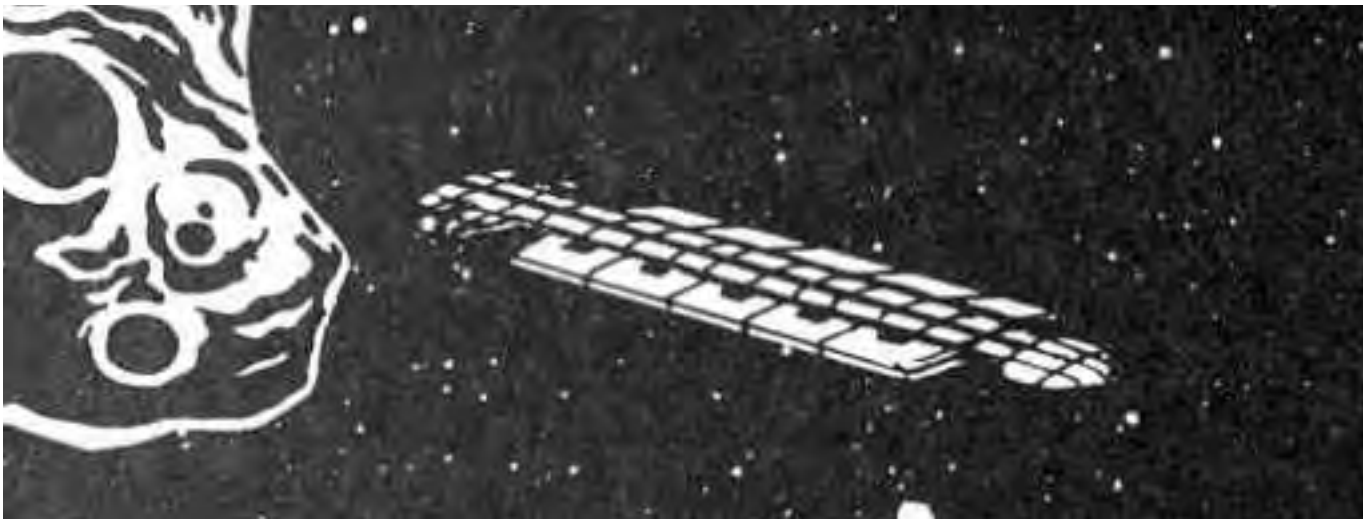
15.04.03 Wealth transported via the IFN moves at a constant speed of 4 on any movement scale. Wealth transported aboard Imperial Freighters moves at the speed of the freighter used.

15.04.04 Wealth transported via the IFN may be transported in any amount, but only between spaceports and/or space stations with cargo handling systems; the IFN does not reach into systems or serve planets which do not have these facilities.

Wealth transported aboard Imperial Freighters is shipped at the rate of 1 MC per cargo hold stowage point (that is, up to 500 MC per H). If some of an Imperial Freighter's cargo is to be loaded or off-loaded at more than one star system, that freighter's strategic movement must allow for time to move it to its loading/unloading point within each system in which cargo is to be transferred. If the system has an SS equipped with cargo handling systems, there is no time requirement (on the strategic scale) for loading/unloading; the moving player must simply allow enough additional transit time to swing by the SS before moving on to his next warp point. If the system does not have an SS equipped with cargo handling systems, the owning player must allow time to move to each planet where cargo is to be transferred and add 1/2 day (12 hours = 1 system-scale turn) per spaceport at which cargo is loaded/off-loaded or 1.5 days (36 hours = 3 system-scale turns) for each planet without a spaceport at which cargo is loaded/off-loaded. In addition, no Imperial Freighter may load/off-load cargo to a planet without a spaceport unless the freighter carries its own shuttles (27.03.11) or they are available from some other source.

Note that in no case is a player shipping "money" aboard his IFN or Imperial Freighters. He is shipping resources (raw materials, food products, prefabricated parts, industrial machinery) which is simply quantified in terms of megacredits to make bookkeeping simpler.

15.04.05 Maintenance resources (see 15.10) for military units and non-military units may be shipped to the units requiring maintenance via either the IFN or Imperial Freighters. If, however, the IFN is used, both the star system generating



the maintenance resources and the star system to which those resources are delivered must contain Spaceports (27.02.11) or spacecraft with Cargo-Handling Systems (27.03.03 & 27.07.04). Further, if the Cargo-Handling System is mobile (that is, mounted in a starship rather than in a space station serving a specific population enclave), the normal IFN shipping fee of 10% is increased to 20% because the IFN (which is composed of merchant ships) does not normally serve such out of the way or "frontier" systems.

Military cargoes other than maintenance payments (i.e., replacement personnel, crated strikefighters, prefabricated system components, etc.) may not be shipped via IFN and must be transported aboard Imperial Freighters.

15.04.06 Trade revenues (see 17.02.05) may be transported between empires only by Imperial Freighter but once within the imperial boundaries may be distributed via IFN.

15.05 Spending Resources

After a player has calculated his available resources in a given star system (subtracting any shipped out and adding any shipped in and available that turn), he may spend those resources in that system. If all the planets in the system have spaceports or if he has used Imperial Freighters to transfer funds between planets without spaceports, he may treat all MC available in the system as a single pool of funds which may be spent at any point he wishes in the system. If a planet has neither spaceport nor an available Imperial Freighter, its funds may not be spent on any other planet, nor may funds from any other planet be spent on that planet. All funds expended in a given system must be expended at a specific planet and/or space station within that system. After all expenditures have been completed for the month (strategic turn), the total spent is subtracted from the balance for the system as a whole or, if necessary, for each planet within the system.

At the option of the SM (or the players, if there is no SM), fractional transaction costs may be rounded to the next highest megacredit or tracked as fractions. That is, if the gamers so choose, the cost of a given FG might be recorded as 91.2 MC or 92 MC. Obviously, it will save the players money in the long term to retain the fractions, but rounding up will tend to save bookkeeping time by simplifying calculations.

15.05.01 There are three basic categories of possible expenditures, each of which covers many different possible combinations of expenditures. These are:

1. Economic
2. Infrastructure
3. Military

15.05.02 Economic expenditures are those directly associated with the production of wealth--industrial expansion, in other words.

15.05.03 Infrastructure expenditures are probably the largest single category for an empire. They may support either economic or military activities or both. Infrastructure expenditures include population transfers, investments in research & development (which enhances both income and military capability), command and control (communication) facilities, etc.

15.05.04 Military expenditures are those made in direct support of military power: shipbuilding, raising PCF, maintenance, procurement of weapon systems at each tech level, etc.

15.06 Population Transfers

Population transfers represent the movement of labor forces and the industrial infrastructure they require to produce wealth from one planet or moon to another. This may be done for several reasons, of which the five most important are:

1. To increase the wealth of an empire in the long term and to diversify its wealth in the short term.
2. To increase the sizes and numbers of populations from which personnel points (see 15.01.02) for military manpower may be drawn.

3. To assist in upgrading the economic/tech level of an allied or conquered population as per 15.07.04.2.
4. To increase scanner/communications ability, since any population enclave of HT1 or above also provides the equivalent of long-range scanners (27.05.05) and a "planet-based transmitter/receiver" capability (27.06.02).
5. To create an imperial command and control center (or sector capital as per 15.12).

15.06.01 Factors Involved in Population Transfers.

All "lift" requirements for any Outpost or Colony must be accomplished in a single operation (that is, all required Q and H must reach the destination planet in a single strategic turn). Settlements and Small populations may be lifted in over a period of up to six months, with the "emplacement time" from 15.06.03 beginning in the month after the final population installment is delivered. For a "crash emplace-ment" (see 15.06.06) of any size, all lift requirements must be met within a three month period.

The major factors involved in population transfers are: cost (in megacredits); transportation requirements (Q for personnel and H for support equipment) aboard Imperial Freighters; the pre-existing population (if any) required to support the new population immediately after its arrival; the emplacement time (the length of time in complete months required for the population to settle in and begin generating wealth); and the suitability of the destination planet or moon.

Each level of population transfer is assigned a basic cost, transportation requirement, and emplacement time, based on the difficulty of transferring that level of population to a world with a habitability differential (the absolute difference between their habitability indexes; see 13.04.05.2) of "0" for the race providing the colonists. The HD will rarely be "0," however, and requirements are modified for differences in habitability. The Q requirement and emplacement time are not modified, but the cost and cargo (H) requirements are multiplied by 50% for each point of difference in the HDs of the colonists' home world and destination.

All Type 02 system bodies are assigned an automatic HD of "12," regardless of the home world from which the colonists come. Any Type O1 system body is assigned an automatic HD of "18." Type T planets are hostile environments for the inhabitants of Type ST planets (and vice versa), with an assigned HD of "10."

15.06.01.01 Colonists may be extracted only from populations of at least "Medium" size, and the effect of removing workers from the labor force is represented by reducing the EVM of the "donor" population for 2 months by the EVM the new population enclave will produce once it begins generating wealth. (That is, if colonists to establish an HT5 Colony with an EVM of 85 were withdrawn from an HT5 Medium population with an EVM of 810, the EVM of the Medium population would be reduced to 810-85=725 for the two months following the colonists' departure for their new home.)

15.06.02 Regardless of HD, no population above the Settlement level can ever be placed in a hostile environment and no population larger than a Colony can ever be placed on a Type O1 system body.

15.06.03 Population Basic Costs, Transport Requirements, Population Prerequisites, & Emplacement Times at HD "0"

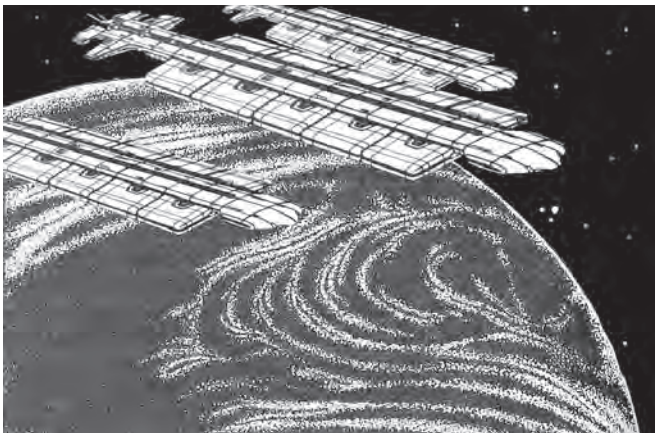
Population	Cost (MC)	Q	H	Prerequisite Population	Emplacement Time Required
Outpost	1000	250	100	None	3 months
Colony	2000	500	400	Outpost	6 months
Settlement	5000	1500	1000	Colony	12 months
Small	15000	4500	3000	Settlement	36 months

To satisfy the "prerequisite population" requirement, a population must be of the indicated size and currently generating wealth. A population begins generating wealth in the first month after it completes its emplacement time. If, for any reason (including diversion of an Outpost to increasing NPR tech levels) the population is not capable of generating wealth, it has no excess capacity to help absorb newcomers. During the emplacement period for any subsequent population transfer, the EVM of the prerequisite population is halved. As each new increment of population is transferred in, it absorbs the imperial population which was already present on the planet. Indigenous populations may not be used to satisfy the population prerequisites for any population transfer.

15.06.04 Population Growth. Most indigenous populations will not grow sufficiently by natural increase to change their population levels on the time scale of the game. Pre-Industrial populations of "Small" which are advanced to a high-tech TL can grow, and are treated as emplaced non-indigenous populations starting in the turn in which they attain HT1. High-tech populations emplaced on a habitable planet can and will increase naturally in size; populations in hostile environments never increase naturally. Of course, the population "combining" effect of rule 15.01.01.2 can be used to "shock" any indigenous population bracket upward by one bracket, up to and including "Very Large." The table below gives time requirements for natural population increases.

Original Population Size	Population grows to size of…	…in Years	…in Strategic Turns
Outpost	Colony	5	60
Colony	Settlement	5	60
Settlement	Small	10	120
Small	Medium	15	180
Medium	Large	30	360
Large	Very Large	55	660

Time for indigenous Pre-Industrial population growth is counted starting from the strategic turn in which the population attains an IND-1 TL. Non-indigenous population growth time requirements are counted starting from the strategic turn



in which the population begins generating wealth at its current size. If additional increments of population are transported in, any "natural growth" of the prerequisite population is lost (the children of the colonists are submerged in the greater mass of the newcomers).

15.06.05 Population Transfer Examples

An HT3 empire decides to emplace a population from a Type T planet with a population of Medium (the minimum size for population extraction) and an HI of "2" on another Type T planet which has an HI of "5." The habitability differential (HD) is 5-2=3. Since there is no present imperial population on the destination world, the empire must first emplace an Outpost-level population. The basic requirements for an OP are 1,000 MC, 250 Q, and 100 H. Since the HD is "2," the cost and H multiplier is 1+(3X.5)=2.5, to a total of 2,500 MC and 250 H; the 250 Q is not modified. The empire pays the entire fee in the system from which the population is extracted, loads the colonists and their equipment aboard Imperial Freighters with at least 250 Q and 200 H, and ships them off. For 2 months thereafter, the EVM of the "donor" population is reduced by "16" (the EVM of an HT-3 OP). In the third month after they arrive at their destination, the colonists become a wealth-generating population which meets the prerequisites for the next population level: a Colony.

The empire notes that the basic requirements for a Colony are 2,000 MC, 500 Q, and 400 H, which will become 5,000 MC, 500 Q, and 1,250 H because of the HD. The empire pays the 5,000 MC fee, loads up Imperial Freighters with at least 500 Q and 1,200 H worth of colonists from the same "Medium" population (or one from a home world with the same HI, at any rate), and sends them off to join the Outpost. For 2 months thereafter, the EVM of the "donor" population is reduced by "51" (the EVM of an HT3 Colony). In the sixth month after their arrival, the population enclave becomes a Colony, producing wealth for the empire and providing the prerequisite for the next population level: a Settlement.

The empire notes that the basic requirements for a Settlement are 5,000 MC, 1,500 Q, and 1,000 H, which the HD makes 12,500 MC, 1,500 Q, and 2,500 H. The empire pays the required fee, loads its colonists aboard Imperial Freighters with at least 1,500 Q and 2,500 H, and ships them off to join their fellows, reducing the EVM of the "donor" population for 2 months thereafter by "132" (the EVM of an HT3 Settlement). In the 12th month after their arrival, the population enclave becomes a wealth-generating Settlement which, since this is not a hostile environment enclave, will grow naturally to a Small population in 10 years' (120 strategic turns') time.

Assuming that the empire timed its waves of colonists so that each arrived in the first turn in which the previous wave met the prerequisite for their arrival, the empire would have spent 2,500+5,000+12,500 = 20,000 MC and used a total of 250+1,250+2,500 = 4,000 Q and 200+800+2,000 = 3,000 H over a period of 3+6+12 = 21 months (strategic turns) to create a high-tech Settlement-level population on a previously useless world.

15.06.06 Crash Population Emplacement.

As an optional rule, players may allow for the crash emplacement of populations and permit a population of any level up to Settlement to be emplaced without meeting the population prerequisites. In such a case, the normal cost and transport requirements to emplace all the intervening population levels are calculated and adjusted for HD, then multiplied by 1.5. In this case, Q are also multiplied to represent the manpower-intensive effort (and replacement of colonist casualties) involved. All EVM penalties for the "donor" population(s) are totaled, but EVM penalties are never multiplied.

In the example from 15.06.05, this would mean that a Settlement could be emplaced for a total cost of 20,000X1.5 = 30,000 MC (payable in one lump sum) using 4,000X1.5 = 6,000 Q and 3,000X1.5 = 4,500 H, with a total 2-month EVM reduction to the "donor" population of 16+51+132 = 199.

The advantage is that the population enclave would become a wealth-generating Settlement in only 12 months (not 21).

Note that while populations of up to Small may be emplaced, Settlements are the largest population which may be emplaced using the crash emplacement procedure.

15.06.06.1 The "crash emplacement" procedure may be used in reverse to evacuate populations. In this instance, however, neither the cost nor the H requirement is multiplied, as it is assumed that the non-population infrastructure of the population is simply abandoned in place.

15.06.07 Population transfers within the same star system are handled differently in that the IFN may be used to transport the population. In addition, non-indigenous populations emplaced on any habitable planet during the pre-game set-up phase for any player or NPR are emplaced at the basic cost without modification for habitability differentials or any EVM penalty to the home world. (This is allowed because these populations were presumably emplaced over an extended period of time, allowing for gradual adjustment to any difficulties encountered.) All economic costs must be paid as each level of population is emplaced on a planet: only the transport requirements may be met using the IFN.

15.07 Tech Level/Economic Level Advancement

An empire's tech level (and thus economic level) is increased by conducting research and development (R&D) as described below. It is important to remember that a tech level represents a general level of knowledge, not specific hardware produced using that knowledge. It is necessary to develop specific technical systems before they can be built (see 15.08). The economic level of any star system rises one level in the strategic turn immediately following that in which its tech level rises. Remember that the actual GPV of a planet changes in the strategic turn following that in which its economic level rises.

15.07.01 Pre-Industrial populations may not conduct R&D unless assisted by an HT ally or partner. NPR IND-1 and IND-2 populations may conduct independent R&D, but if their population size is smaller than "Medium," all R&D point requirements are increased by 50% when not assisted by a higher-tech ally or partner.

R&D for TLs above HT 1 can be carried out only at planets with high-tech populations of at least "Medium," since smaller populations cannot support the necessary pool of talent for effective research (but see paragraph above for NPRs). In addition, at least 25% of all technical systems of the current TL must have been developed (see 15.08) at the research planet before research on the next TL may begin. R&D may be carried out in more than one star system of an empire simultaneously but on a maximum of only one planet per star system at a time.

Once an empire completes the basic research for a given tech level at one planet, the research results must be transmitted to the rest of the empire before they can be used. This may be done by starship, courier drone, or interstellar communications relay. The new tech level immediately becomes available to all populations in the star system where the research was conducted and to populations in other star systems in the strategic turn after "The Word" reaches those star systems.

15.07.02 When conducting TL R&D, consult the Tech Level R&D Chart, which lists a start-up fee, monthly research cost, and "R&D Point" requirement for each TL. In order to research a given tech level, the player pays the start-up fee for the desired TL at any planet with a "Medium" or larger population of the immediately preceding tech level. (That is, you could not research HT5 at a planet whose tech level was less than HT4.) In each successive month, he then invests funds equal to the monthly research cost at the planet conducting the research and rolls 1D10, keeping a running total of all of his rolls. In the month in which his total equals the required R&D Points for the new Tech Level, his research efforts have succeeded. The player may not make die rolls in any month in which research payments are not made against the R&D time requirement. In addition, the player must pay 1/2 the start-up fee again in the first month of resumed R&D to get the project back on line after any interruption. The 1/2 start-up fee is in addition to the sustained R&D cost for that month.

15.07.03 Tech Level R&D Chart*

Tech Level	Start-Up Fee	Monthly Fee	R&D Point Requirement
IND-1	1000 MC	100 MC	300 points**
IND-2	1000 MC	250 MC	220 points
HT 1	3000 MC	1000 MC	100 points
HT 2	3000 MC	1000 MC	50 points
HT 3	4000 MC	1300 MC	60 points
HT 4	4500 MC	1500 MC	75 points
HT 5	4500 MC	1500 MC	75 points
HT 6	4500 MC	1500 MC	80 points
HT 7	6000 MC	2000 MC	85 points
HT 8	7000 MC	2300 MC	90 points
HT 9	8000 MC	2600 MC	90 points
HT 10	9000 MC	3000 MC	100 points
HT 11	9000 MC	3000 MC	110 points
HT12+	10000 MC	3500 MC	115 points

*This chart will be expanded in later *STARFIRE* products as tech levels above HT11 are added; as it now stands, HT 12 and above R&D results only in income increases, not in new technology items.
**Pre-Industrial civilizations may conduct TL R&D only when assisted by a higher-tech race. They would not know where to begin without that assistance.

15.07.04 Accelerated TL advancement may be achieved in several different ways, including Crash R&D, Assisted R&D, and Perceived Threat R&D. Each is discussed separately below. Crash and Assisted R&D are mutually exclusive; they may not be combined for greater effect.

15.07.04.1 Crash R&D is possible only under special circumstances. Historically, "Crash R&D" really only works in a crisis situation. This is true for several reasons, the most important of which are motivation (as Samuel Johnson put it, "Depend upon it, sir, when a man knows he is to be hanged in a fortnight, it concentrates his mind wonderfully") and the benefit of feedback on what works (or doesn't) from the folks actually facing an enemy in combat. Accordingly, crash R&D is allowed only to a player or NPR actively at war with a high-tech opponent.

When a player (or NPR) engages in crash R&D, he triples the start-up cost from the chart in 15.07.03 and rolls normally to determine the time requirement but each month in which he pays three times the normal sustained R&D fee he rolls 2D10 and totals them. If normal R&D for the current TL has already begun (i.e. the normal start up cost has already been paid), an additional cost of twice (not three times) the normal start up cost must be paid in the first turn of Crash R&D. He may make payments at the normal rate in any month he wishes without losing his ability to conduct crash R&D, but any month in which he pays the normal fee earns only one D10 roll.

15.07.04.2 Assisted R&D is possible for a player race or NPR which has negotiated a Trade & Military alliance or Partnership political relationship (see 17.02.07 & 17.02.08) with a higher-tech ally. For assisted R&D to succeed, a population of both allies must be established on a single planet where the R&D will be carried out. This normally takes the form of an Outpost of the higher-tech partner placed on a planet with a Medium or larger population of the lower-tech partner, but the population sizes and location can be reversed and larger transferred populations can be used. Once the transferred population has completed its emplacement time requirement (see 15.06.03), assisted R&D may begin.

NOTE: When an Outpost is used, it may assist in R&D OR produce wealth; it cannot do both simultaneously. Colonies and Settlements are large enough to pursue both activities at once.

Assisted R&D is paid for at the normal costs from the chart in 15.07.03 but each D10 roll for R&D points is multiplied by 1.5, rounding all fractions up. (That is, a roll of "10" would become "15" and a roll of "7" would become "10.5" and round to "11.") In addition, only 10% of all tech systems of the current TL must be developed before R&D for the next TL may begin.

Assisted R&D may be used for any tech level up to and including that of the higher-tech treaty partner, but the lower-tech level partner must progress through each intervening tech level, skipping none.

15.07.04.2.1 Pre-Industrial NPRs may not conduct R&D at all without outside assistance. In addition, all Pre-Industrial populations begin as "Small" populations, which normally cannot conduct R&D at all. Because of this, Assisted R&D doesn't work quite the same for them. A "Small" NPR population must accrue 1.5 times the normal R&D points for any tech level advancement, even if assisted by a high-tech ally. Note, however, that if the size of the NPR population grows to "Medium", whether by natural increase or by the addition of an off-world population enclave which combines with the indigenous population, this penalty ceases to apply.

15.07.04.3 Perceived Threat R&D. In the field of research, knowing a thing can be done is more than half the fight. Accordingly, any NPR or player race which has actually observed a tech system from a tech level higher than its own in the possession of another race has certain R&D advantages. In terms of tech level advancement (as opposed to development of individual tech systems; see 15.08), this advantage equates to a R&D Point modifier of 1.2 per D10 (rounding all fractions up) for all tech levels up to and including the tech level of the observed system. In time of war, this bonus can be combined with normal crash R&D time reductions (see 15.07.04.1). When combined with crash R&D, R&D Point rolls are multiplied by 1.7 (rounding all fractions up). The crash R&D cost multiplier also applies, of course.

If the lower tech race has managed to acquire sensor readings on a system from a higher tech level, the "non-crash" R&D Point rolls are multiplied by 1.4 and the "crash plus perceived threat" R&D Point rolls are multiplied by 2. To obtain sensor readings, a unit with Xr must have been within 15 tactical hexes of the higher tech system when it was used and return to a star system containing a high tech population of its own empire with its Xr intact (courier drones and the ICN may not be used for this purpose). A captured example of a higher-tech level system has the same effect as Xr sensor recordings.

15.07.05 In Space-Mastered games, the SM should make all R&D rolls without telling the players the results. Players should make investment decisions without knowing how long R&D efforts will have to continue.

15.08 Tech System Development

Rule 15.07 actually discusses only the research half of research and development. Tech level advancement will provide a player race or NPR with the basic ability to build tech systems from the tech systems chart (26.00), but not the detailed knowledge and engineering capability to produce a specific system. Before any given system can actually be manufactured, it must be developed by the player race or NPR.

SPECIAL NOTE: Any NPR who attains HT1 in the course of a *STARFIRE* game will always develop the I as its first HT1 system.

15.08.01 Chart 26.02 lists a development cost for each system. In order to develop that system, the player race or NPR pays a fee equal to the development cost in any system which possesses a population of at least Medium size and the required tech level, then rolls 1D10 per month, maintaining a running total, exactly as for R&D Points in 15.07. When his cumulative rolls total 25, he has developed the system and may begin manufacturing it in the next strategic turn. This is the number of strategic turns which it will require to develop the system. (As in 15.07.04, the SM should make these rolls and not inform the player of what they are.)

As for R&D, which also requires a "Medium" population, NPRs which began as "Small" populations are a special case for system development. "Small" NPR home world pop-ulations which are pursuing assisted R&D may develop tech systems, but the required point total is 38, not 25.

As for basic tech levels, data on developed systems must be transmitted to other star systems of an empire before those tech systems may be built in those star systems. The procedure for transmitting basic tech levels given in 15.07.01 is used to transmit developed tech systems.

Any number of systems may be under development simultaneously on the same planet so long as sufficient funds are available.

15.08.02 Crash System Development. Crash system development is handled in precisely the same fashion as crash research (see 15.07.04.1). That is, it may be done only in time of war and all costs are tripled, but in this case the developing

race is permitted to multiply his D10 rolls by 1.75 and round all fractions up.

15.08.03 Perceived Threat Development. As for tech level advancement, a system may be developed more rapidly if you know someone else has it. In fact, it is often actually simpler to produce a specific system (or a jury-rigged device that does the same basic thing) than to acquire all of the background knowledge upon which that system rests.

If a player race or NPR of an IND-2 or higher TL has obtained sensor data on or a captured example of a tech system from a higher tech level than its own (as in 15.07.04.3), the race may attempt to develop that specific tech system even though it does not possess the tech level normally required to produce it.

The observed system must be from a tech level no more than 3 tech levels in advance of the race attempting to develop it. The development cost is multiplied by 4 and the D10 development rolls are multiplied by 2 (crash development may be undertaken in time of war, in which case the D10 roll is multiplied by 2.5 and the development cost is multiplied by 6). Once the system has been developed, the cost of actually building it is multiplied by 2 and its hull space requirement (if there is one) is increased by "+1" for every tech level by which the system's normal tech level exceeds that of the building race. (Moral: Building printed circuits with vacuum tube technology is hard.)

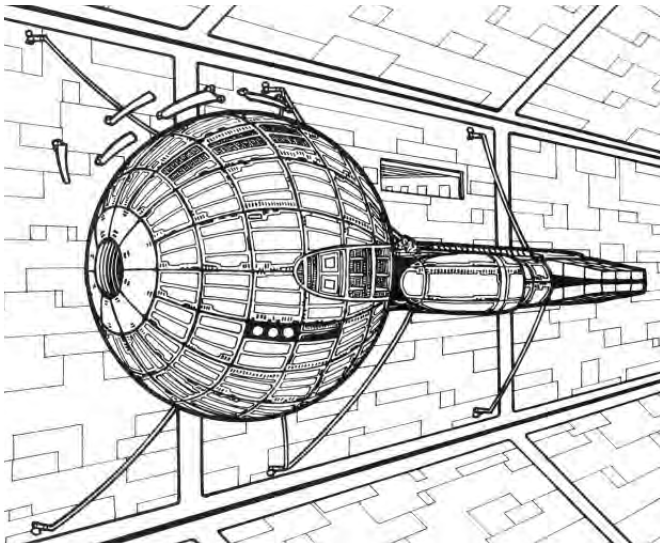
When the race attains the tech level of the system, the building cost and hull-space penalties disappear and existing "over-sized" installations of it may be refitted to "list" size. (And, of course, it is not necessary to develop the system at that tech level, since it's already been developed.)

Allies may voluntarily provide data on tech systems to one another, but this is allowed only for "Trade & Military" allies or "Partners" (see 17.02). When this is done, the lower tech ally or partner may use the "perceived threat" rules to accelerate his acquisition of the system(s).

15.09 Purchasing Military Units and Ship-Building

A major expense of any empire is the purchase of military units and the building of spacecraft. Military units come in two major categories: planetary control forces (PCF) and spacecraft and spacecraft components. Ground bases are built out of the same components as spacecraft and so, in a crude sense, may be thought of as a subclass of spacecraft.

15.09.01 Purchasing PCF. PCF may be raised on any inhabited planet (but see 15.01.02 for manning requirements), though those raised on low-tech worlds won't be very effective and colonial populations can't produce a lot of them. PCF have the tech level of the world on which they were raised and cost the amount specified in 27.01.01 for PCF of that TL.



High-tech PCF may be air-mobile or airborne, making them easier to land in planetary assaults and more mobile on the ground; Industrial and Pre-Industrial PCF cannot be air-mobile or airborne. (This may seem unfair to IND-2 PCF, but their air-mobility is so much less than that of civilizations with reactionless drives that it is insignificant).

PCF are paid for in the month of their recruitment, then spend one full month in training and may be deployed in the month following. (That is, PCF recruited in Month 1 would be paid for at that time, trained during Month 2, and could be deployed only in Month 3.)

15.09.02 Purchasing Small Craft & Expendable Munitions.

Small craft (which for the purposes of this rule includes strikefighters) must be paid for in full and each must be manned (see 15.01.02) and requires a building capacity equal to 1/2 hull space of a larger spacecraft. Small craft and strikefighters are paid for separately from and in addition to any larger spacecraft which are to carry them.

Minefields and deep space buoys must be paid for at their full cost, and each pattern of mines or single deep space buoy uses up 1/10th of a hull space of shipbuilding capacity.

Expendable munitions (i.e., missiles) are something of a special case, since empires tend to use so many of them. Players who want to do things right should pay the full list price for each missile and "build" them at the rate of 1/100th of a hull space of capacity per magazine stowage point. This can, admittedly, get a bit tedious, so as an optional rule players may dedicate one shipyard module (27.03.10) per star system to the manufacture of missiles and use it to build an effectively unlimited number of them. To reflect the cost of the missiles, the players must pay a monthly fee equal to 50 MC times the tech level of the highest TL missile the shipyard module can build. This represents, among other things, the expense of keeping the production line open even if no missiles are currently being produced. The production-line fee must be paid

for the highest TL missile the shipyard could build, not simply the highest TL missile it chooses to build.

Players may also build an unlimited number of missiles on any high-tech planet with a population of "Settlement" or greater, but the fee for ground-built missiles is 100 MC times the tech level of the highest TL missile the population can build. (Industry is more efficient in space.)

Each non-expendable fighter or small craft external ordnance item (see 15.09.02.1) is treated as an individual weapon system which must be purchased and paid for separately. Each non-expendable XO item, regardless of cost or TL, uses up 1/10th of a hull space of shipbuilding capacity.

15.09.02.1 An "expendable munition" is a warhead and/or projectile that (a) you fire at the enemy or (b) is routinely destroyed in executing its attack; anything else is considered a weapon system, not "munitions." Hence a fighter laser pack would not be an expendable munition and would have to be individually purchased and shipped out to a carrier aboard an Imperial Freighter if the carrier's original "fL" were jettisoned or lost in the destruction of a fighter/small craft. This would apply equally to gun packs, life support packs, fighter Xr packs, etc.

15.09.03 Spacecraft Construction and Shipyards. All large spacecraft, including space stations, are designed as described in rule 09.00. Turning those designs into actual hardware is a bit more complicated, however. The total cost of any spacecraft or ground base must be paid in the turn construction is begun. In addition to the actual cost of construction, spacecraft crews must be provided (see 15.01.02). Crews may be drawn from local populations, but they must be "shipped in" if local personnel generation is insufficient to provide them.

15.09.03.1 Construction on Planetary Surfaces. Any high-tech planet with a population of "Medium" or greater and at least one planetary spaceport may build an unlimited number of spacecraft simultaneously, though the rate at which each spacecraft can be built is limited. (The number of spacecraft they can build using space-based shipyards is limited by the number of shipyard modules they possess, but spacecraft built entirely in space can be built considerably faster. See 15.09.03.2.)

"Small" and "Settlement" high-tech populations with at least one spaceport may build a total number of hull spaces per month equal to their current EVM. Like larger populations, the rate at which they can build each individual spacecraft is limited.

Colonies and Outposts may not build spacecraft.

Because planet-based industry is less efficient than space-going industry, all costs for spacecraft built on the ground are doubled. In addition, only atmosphere-capable spacecraft can be entirely assembled on a planetary surface; space stations and non-atmospheric spacecraft can be built using only planet-bound industry, but their cost is tripled (not doubled) to reflect the need to freight them up into orbit in pieces for final assembly. Finally, the maximum building rate for any single spacecraft on a planetary surface is equal to 5 hull spaces per month at HT1 plus 2 additional hull spaces per month for each TL above HT1. (Thus an HT4 planet could build a spacecraft at a rate of 5+2+2+2 = 11 hull spaces per month. Which means it's going to take them a while to build a monitor.)

High-tech planets can also manufacture pre-fabricated components for assembly in distant star systems (see 15.09.03.3), at the same rate they can build them, but the cost for planet-manufactured prefabricated components is three times "list" price.

IND-2 planets may build space stations. This is the only type of spacecraft they can build, and the construction rate is only 3 hull spaces per month at four times the "list" cost. They may work on more than one SS simultaneously, but the maximum number of hull spaces they may build in one month is equal to 50% of their EVM.

15.09.03.2 Spacecraft (and small craft and munitions) may also be built in orbital shipyard modules (see 27.03.10) built into space stations. Shipyard modules become available at HT1, and any population above a Colony may provide the labor force to support them, but the total number of shipyard modules any planet can support is equal to 1/5 its current Economic Value Multiplier, rounding all fractions up. (That is, an HT3 Settlement on a habitable planet with an EVM of 132 could support 132/5=26.4=27 shipyard modules; a population with an EVM of 1,250 could support 1,250/5=250.)

All TL1, TL2, or TL3 shipyard modules have a capacity of 10 hull spaces per month. At every even numbered TL above HT2 (that is, at HT4, HT6, HT8, etc.), their capacity climbs by 1-10 hull spaces per month (see 27.03.10.2). They may apply their capacity to only one large spacecraft in a month. Any number of shipyard modules can be assigned to producing technical systems for installation in ground bases or asteroid fortresses or to manufacturing "prefabricated" components for assembly in distant star systems (see 15.09.03.3). Shipyard modules can also be mounted in starship hulls for mobility. Note, however, that they still require a high-tech population's support to build units and that the 1/5 shipyard module per EVM limit still applies whenever they do build units. Shipyard modules cannot operate on a planetary surface.

15.09.03.2.1 Asteroid Belts and Shipyards. One major advantage of shipyard modules and space-based industry as opposed to construction on planetary surfaces is that the building capacity of any shipyard module in a star system which also contains an asteroid belt is raised by 50%. (That is, a module with a normal maximum building capacity of 10 hull spaces per month would have a capacity of 10X1.5=15 hull spaces per month if located in a star system with an asteroid belt.) If a system contains more than a single asteroid belt, each module's capacity is raised by an additional 20% per asteroid belt over one. (Thus the shipyard module cited above in a system with 2 asteroid belts would have a capacity of 10X1.7=17 hull spaces, and if in a system with 3 asteroid belts would have a

capacity of 10X1.9=19 hull spaces per month.) Cost is not affected by the presence of asteroid belts.

15.09.03.3 Prefabricated Components. Prefabricated components for bases, space stations, and even starships may be manufactured and then shipped to distant star systems for assembly by mobile shipyards or vessels equipped with machine-shop modules (27.05.06). This is an expensive proposition, but it's one way to get bases and space stations into distant systems fairly quickly. It is also the only way races which have not yet developed tractor beams (27.05.08 & 27.09.05) may emplace bases and/or space stations in any interception or system-scale hex (see 11.04) which does not contain an IND-2 or HT population, since such races lack the capacity to tow completed structures to their new locations.

Prefabricated components are built at 1.5 times their normal cost in shipyards, or 3 times normal cost on a planet. All the components to be shipped out for the construction of a given unit must be manufactured before any can be shipped out. In addition, the hull (i.e., connecting structural members and outer skin) of any spacecraft to contain those components must also be paid for at the same cost multiplier.

Once built, the disassembled unit must be loaded onto Imperial Freighters for transport. Each hull space of internal systems uses 50 cargo stowage points; each hull space of hull uses 100 cargo stowage points. (That is, a cargo hold could transport 500/50 = 10 hull spaces worth of internal systems, or 500/100 = 5 hull spaces of hull.) Internal systems and hull spaces may be transported in the same hold, so long as the limits of the hold are not exceeded by its combined load.

Once arrived at its destination, the disassembled unit must be assembled. Machine-shop modules of any TL have an assembly rate of 10 hull spaces per month. Mobile shipyards may assemble units at twice the normal construction rate for their tech level and may work on more than one unit in a month, so long as their maximum construction capacity is not exceeded. The TL of the machine shop or mobile shipyard must at least equal the highest TL of any component to be assembled.

The assembly process must be paid for using resources generated in the system of assembly or shipped in by IFN or Imperial Freighter. The cost of assembly is equal to the original purchase price of the unit's components. Thus any disassembled unit built in an orbital shipyard and then assembled elsewhere will cost 3 times its "list" price while a disassembled unit built on a planet would cost 6 times its "list" price once assembled in a distant system.

There is no supporting population requirement for simple assembly of prefabricated components. It is assumed that the personnel for that job are supplied from the regular crew(s) of the mobile shipyard(s) or machine shop(s) doing the assembly.

15.09.03.4 Mass Production. The more of a given design of unit a shipyard builds, the less each costs, since the builders have worked out the design kinks and construction problems on earlier units. To reflect this, each additional starship or base built in a single star system to the same exact design, costs 10% less than the first starship or base of that design. As an alternative optional rule, SMs may allow a 1/2 percent cost reduction per additional identical unit up to a maximum reduction of 25%. (That is, the second unit would cost 100%-.5% = 99.5% of the first; the 40th unit would cost 100%-(.5%X39) = 80.5% of the first; and the 50th and all subsequent units would cost 100%-25%=75% of the first.) This requires a good bit more bookkeeping and calculation, but is probably more accurate.

If the optional method is used, the reduction is applied to each ship in addition to the first, regardless of when built. (That is, if you began construction of 3 units of a new class in the same turn, they would cost 100%, 99.5%, and 99% of the design price, respectively, and the reduction would continue to grow on later turns in which any additional units of the same design were built.)

If the base 10% reduction method is used, it applies only to units begun after the first unit of the class has been completed. All units built simultaneously with the first unit or begun before the first unit has been completed cost the full, unreduced price.

15.09.03.5 Allies and Shipbuilding. Ships may not be built for or by other races unless the races are Partners or amalgamated into the same empire (see 17.00). As an optional rule, players may allow Trade & Military Allies (but not simple Military Allies) to build spacecraft for one another. If the races are not Partners, however, the building race may install only engines and life support in the finished hulls; all other systems must be built and installed (using the refit rules; see 15.09.05) by the race which will finally use the spacecraft.

15.09.04 Repairs to Damaged Units. Damaged spacecraft and/or ground bases may be repaired. Repairs made in an (SYx) cost 1/3 the "new" cost of the damaged system plus 1/3 of the cost of the hull spaces to hold the damaged system. Repairs made to atmosphere capable spacecraft by planet-based industry on the surface of planets with spaceports cost 1/2 the cost of the "new" system and the hull to hold it. Repairs made by planet-based industry to spacecraft which are not atmosphere capable cost 2/3 of the "new" system and the hull to hold it. Both planet-based industry and (SYx) can repair damaged systems aboard spacecraft (and the hull spaces which contain those systems) at the same rate at which they could have built the hull spaces to contain them, but (SYx) may work on repairs on as many units per month as their total capacity permits. (That is, if an (SYx) has a building capacity of 25 hull spaces per month, it could repair 25 hull spaces on any single spacecraft or combination of spacecraft in a month.) Any spacecraft (other than a space station) which undergoes repair is inoperable for the full month in which its repairs are completed, as well as for any additional time required by repairs that take more than one month. Ground bases are treated as SS for this purpose.

A machine-shop module may repair damaged units (assuming resources are available to pay for the repairs) at the same rate as an (SYx) of the same empire and tech level.

Remember that in addition to repairing damage to the unit, one must make good its losses in personnel (see 15.01.02).

15.09.04.1 Races with a Partnership political relationship can repair systems aboard one another's units so long as the repairing Partner has sufficient TL to have built the same system.

15.09.04.2 (SYx) used to repair damaged units need not be mounted in permanent space stations. Mobile shipyards may be sent out to repair damaged units "in the field," as long as sufficient resources to pay for the repairs are sent with them or are available from sources within the star system where the repairs are made.

15.09.05 Refitting. Refitting a spacecraft or ground base means replacing the systems already aboard an existing hull or platform with other, different systems. A fee of 20% of the base cost of the entire hull of any spacecraft (excluding space stations; see 15.09.06) plus the cost of any new system(s) is paid for a refit in an orbital shipyard; the fee is 30% for planet-based industry to refit atmosphere capable spacecraft, and 40% for planet-based industry to refit spacecraft which are not atmosphere capable. (The higher cost for non-atmospheric ships results from the need to ferry parts and technicians up to the orbiting ship from the ground. See 15.09.03.1 for comparison.) Refits are carried out at twice the building rate of the shipyard or planet-based industry handling the refit, but any spacecraft (other than a space station) is inoperable for the full length of any month in which refitting goes forward. When a spacecraft is refitted, its control sheet may be rearranged without added cost. Systems which are removed may be stored in cargo holds on a space station (at the prefabricated rate of 50 cargo stowage points per hull space of system) or in any desired quantity on a planet (without using H) and may be used in subsequent refits or repairs.

15.09.05.1 Captured Spacecraft cannot be used by the empire which captured them until they have been refitted for that purpose. (Different species will use different measurement systems, read-out formats, life support, etc., etc. Let's face it, your average US crew wouldn't even know where the heads were in a captured Russian warship, and they're from the same planet!) To refit a captured spacecraft, the capturing player must pay a fee equal to 25% of the total cost of the unit, plus the full cost of any repairs required by damage it has sustained. It takes one full month to refit an undamaged captured spacecraft; time for repairs is added to the base one month requirement, and tech systems from a TL higher than the refitting shipyard or high-tech population may not be refitted, though they may be replaced with other systems.

The one exception to this provision occurs if a planet of an Imperium, populated by the imperial race or a race previously amalgamated into the Imperium, successfully revolts against its central government and sets up as a rival Imperium. In this instance, any warfare between the original Imperium and the rebels is actually a civil war, with both sides using the same technology, design parameters, etc., and captured units may be put to use by either side without refitting undamaged systems.

Captured fighters may not be refitted for the use of another race. (Fighters are basically "wrapped around" specialized life support systems and the cost of refitting would be greater than the cost of building from scratch.) Small craft larger than fighters may be refitted after capture, but the refit cost is 50% of the total original cost of the small craft.

15.09.05.2 Starships equipped with (SYx) and/or Ms may carry out refits "on site," without returning a unit to a planetary shipyard for the purpose, if the (SYx) and/or Ms has access to sufficient funds in the star system where the refit is to be carried out. The mobile (SYx) and/or Ms has exactly the same refit capacity as an (SYx) in an SS backed up by a high-tech population.

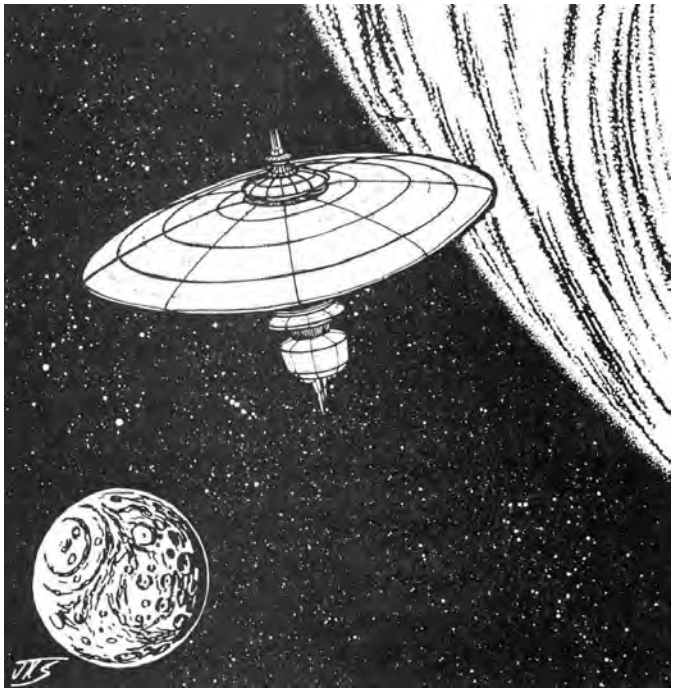
15.09.05.3 Races with a Partnership political relationship can refit one another's units so long as the refitting Partner has sufficient TL to have built the same system.

15.09.05.4 Example of Spacecraft Refit. An 80-hull space BC armed with 3 lasers (L) and 4 gun-missile launchers (W) is sent for refit to a yard whose HT-6 shipyard modules (SY6) have a building rate of 20 hull spaces per month. The refitting empire wishes to replace the L with force beams (F) and the W with advanced gun-missile launchers (Wa). The basic refit fee is 20% of the entire hull's cost, and a BC costs 4.5 MC per hull space. 80X4.5 = 360, and 20% of 360 is 360X.2 = 72 MC. In addition, the new systems must be paid for. An F costs 25 MC and a Wa costs 35 MC, so the new systems to be installed cost (3X25)+(4X35) = 75+140 = 215 MC. The total refit cost would thus be 72+215 = 287 MC.

The normal building rate of the refitting shipyard is 20 hull spaces per month, which means it may refit at the rate of 40 hull spaces per month. Since the BC is an 80-hull space ship, this means it will take 2 months (80/40=2) for the refit to be completed. During the course of the refit, the order of all systems aboard the BC may also be rearranged.

15.09.06 Space Stations, Ground Bases, and Asteroid Fortresses. These are special cases, as space stations tend to be very large collections of subsets of systems and ground bases, of course, are on planetary or lunar surfaces, while asteroid fortresses are ground bases which just happen to be built on asteroids.

15.09.06.1 Space stations are built as any other spacecraft, but any number of orbital shipyard modules can work simultaneously on any space station. In addition, SS may be added to at any time simply by building the new hull and systems and adding them to the right end of the control sheet. Systems other than shields may not be added to the left end of the control sheet without shutting down the SS and refitting all of its hull spaces. S and S1 may be added without shut-down, however, since their system codes are recorded on the left end of



the control sheet only because of the order in which they take damage. Shields are immaterial force fields, and their generators (as opposed to the shields themselves) could actually be located anywhere on the SS.

15.09.06.2 Ground base "hulls" on inhabited worlds must be built by planet-based industry, and the maximum building rate for any single ground base is 1/4 hull space per EVM of the building population per month. (Thus a planet with an EVM of 400 could build 100 hull spaces of a single ground base's "hull" in a month.) Only one offensively-armed PDC may be built in each combat area of a planet (see 21.02). Any number of PDC armed only with point defense may be built in a combat area and any number of PDCs may be under construction simultaneously so long as the total number of hull spaces built per month is no greater than the planet's total EVM.

Systems to go inside ground bases may be built on planets (at planetary building costs) or in shipyard modules (at orbital construction costs) for installation in the completed "hull." Ground bases may be of any size but because they (unlike SS) represent holes in the ground, not simply an actual hull and its systems, the final size of the ground base must be declared when construction is begun and the full hull size must be paid for at that time, though internal systems may be paid for as they are actually installed. All armor to be mounted on the ground base must be built and installed first, then "internal" systems may be added. Each group of internal systems added in a single month becomes operational as of the first day of the following month, even if additional system installation continues.

The two exceptions to the requirement to declare (and pay for) the full size of a ground base before beginning construction are armor and spaceports. Additional armor may always be added to a completed ground base (not to one under construction) in whatever increments the building player finds convenient. (This represents the fact that you're basically just pouring more concrete on top of the completed "hull.") By the same token, spaceports are always built "on top of" any PDC with which they are associated.

15.09.06.3 Asteroid bases and moon-based PDCs are actually something of a cross between a ground base and a spacecraft. As a general rule, they will have no "planet-based" industry, and construction of bases on airless moons, asteroids, hostile environment planets, and/or habitable planets with no present population is handled much more as if the builder were constructing a spacecraft. Their "hulls" and internal systems are built using planet-based industry or (SYx) orbiting a planet with a high-tech population and the prefabricated components rules (15.09.03.3). Once they are built, they are shipped to the site of the PDC and then "assembled" as per 15.09.03.3. Mobile (SYx) and "(Ms)" assembling PDCs on asteroids do so at their normal building rate; on planets or moons (where the higher gravity will make more problems) their normal assembly rate is cut in half, rounding all fractions down. However, all of the mobile "(Ms)" or (SYx) aboard a single starship may work simultaneously on the assembly of any PDC.

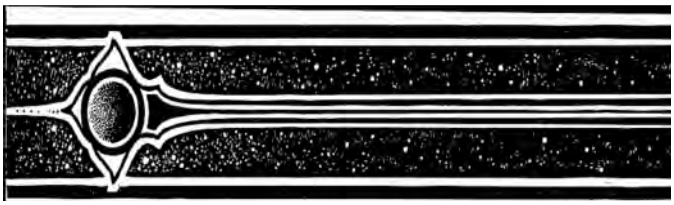
As a cheaper and faster alternative, asteroids to be used as sites for asteroid bases may be towed on tractors (see 08.00) to space station (SYx) or into orbit around a planet with a high-tech population capable of building spacecraft. Once towed to the building site, the ground base is built at the normal spacecraft building rate of the (SYx) or planetary population. If built using (SYx), the "list" price is used; if the asteroid base is built by planet-based industry, the "list" price is tripled.

NOTE: Be certain when computing the hull costs of any PDC to use the "Benign Environment" hull-space cost for PDCs on planets habitable for the race which will man them and the "Hostile Environment" hull-space cost for any PDC built on any system body which is not habitable for the race which will man it.

15.09.06.4 Refitting and Repairing Space Stations and Ground Bases. Space stations and ground bases are repaired and refitted somewhat differently from other spacecraft.

Repairs are carried out at the costs specified in 15.09.04, but portions of the space station or ground base which are undamaged remain fully operable while repairs go forward.

When space stations and ground bases are refitted, certain systems (such as shipyard modules themselves, when they change TLs) have an assigned "upgrade" refit cost which is given in the system descriptions (27.00) and which includes the cost of any necessary hull modifications. Other systems are refitted as normal spacecraft, but only the portion of the hull containing the systems actually being refitted is considered when calculating the refit cost. In addition, only the portion actually being refitted is deactivated during the refit period. The control sheet of the portions of hull containing the refitted systems may be rearranged during refit for no added cost.



Space stations and ground bases may be repaired at the same rate at which the industry doing the work could have built them or refitted at twice the rate at which they could have been built.

15.09.07 Mothballing. Spacecraft (including space stations and small craft) and ground bases may be mothballed, or placed in controlled condition storage. Mothballed units are inoperable, but no maintenance is required for their upkeep while they are mothballed. Units may only be mothballed in star systems with the capacity to have built the mothballed units originally. "Crating" fighters for shipment in cargo holds may be considered a specialized form of mothballing.

15.09.07.1 Spacecraft may be mothballed in space for free. The mothballed unit is simply put into a parking orbit, shut down, and opened to space. Space stations may mothball portions of their structure in the same fashion while other portions remain in operation, in which case their maintenance cost is calculated only for the hull and systems which remain operational.

15.09.07.2 Atmosphere-capable spacecraft may also be mothballed on a planetary or lunar surface. On airless planets or moons, this may be done simply by opening them to space as in orbit, but note that starships will require sufficient parking space in a spaceport and that any portion of a spaceport used to park mothballed spacecraft may not be used to service active spacecraft. Fighters and small craft must be placed in storage in cargo holds at the same cargo point cost as crated strikefighters (see 15.09.07.5). For this purpose, all small craft are assigned fighter cargo stowage costs.

Spacecraft mothballed in atmosphere must be hermetically sealed and maintained. Rather than a monthly maintenance cost, a unit larger than a fighter or small craft mothballed in atmosphere pays a one-time fee equal to 30% of its purchase price to go into mothballs in atmosphere. Fighters and small craft pay a fee of 1 MC each when mothballed in atmosphere.

15.09.07.3 When spacecraft are mothballed in space, the exact orbit in which the mothballed unit is to be "parked" must be recorded. Mothballed units in space are eligible targets for hostile attack, and are very susceptible to missile damage.

15.09.07.4 Ground bases, unlike space stations, must be put into mothballs in their entirety. Like spacecraft, ground bases may be mothballed in vacuum at no cost. Ground bases are mothballed in atmosphere for 20% of their purchase price, but use the "list" value of the hull and systems without any penalties for planetary construction costs, assuming any applied when the base was built.

15.09.07.5 Fighters may be crated (broken down for shipment in cargo holds at a rate of 20 cargo stowage points per fighter, or 25 fighters per cargo hold) at a cost of 2 MC per fighter. They are treated as units mothballed in atmosphere while crated and must be "prepped" by a shipyard or machine-shop module before they may be used.

15.09.07.6 Spacecraft and ground bases mothballed in vacuum are reactivated at a cost equal to 3 times their normal maintenance fee. Small craft (including strikefighters) are demothballed in vacuum at a cost of 1 MC each, regardless of type. Spacecraft and ground bases mothballed in atmosphere are reactivated at a cost equal to 5 times their normal maintenance fee. Small craft are demothballed in atmosphere at a cost of 2 MC each, regardless of type. It requires a minimum of one month and the services of at least one shipyard or a high-tech planetary population with building capacity to reactivate any mothballed unit (spacecraft or ground base) larger than a fighter or small craft. In effect, reactivation is a specialized version of a refit, although it does not permit replacement or rearrangement of the internal systems of the unit. Shipyard modules and high-tech populations can reactivate units at a rate in hull spaces equal to four times their building rates. Only one shipyard module may work on the reactivation of any given unit, but any shipyard module may work on more than one unit in a month so long as its total capacity is not exceeded. (That is, a shipyard module with a building rate of 18 hull spaces per month could reactivate up to 18X4 = 72 hull spaces in a month. It could reactivate one 72-hull space BC, two 36-hull space CLs, or one 30-hull space DD and 42 hull-spaces of a 60-hull space CA, etc.)

15.09.07.7 Crated fighters may be "prepped" by shipyards, planet-based industry, or machine-shop modules. Each prepped fighter uses up 1/10th of a hull space of capacity for shipyards and planet-based industry (i.e., a shipyard module with a capacity of 18 hull spaces per month could prep 180 fighters in a month). Machine-shop modules may prep fighters at 2/3 the rate of an (SYx) of the same empire. Any prepped fighter is treated as a small craft demothballed in atmosphere (i.e., costs 2 MC to prep).

15.09.07.8 No shipyard, planet, or machine-shop module may reactivate or prep any system or fighter of a TL higher than the shipyard, planet, or machine-shop.

15.09.08 Shake Down Cruises. A unit becomes available for use in the turn following its construction and assignment of a crew, but it has to work up before it becomes really combat-ready. In the month after any unit is built or leaves the yard after repairs or refitting, its grade (07.00) is "Poor," regardless of whatever grade it may have earned. In the following month, new and reactivated units become "Green"

and repair-ed/refitted units return to whatever grade they have earned and not lost due to damage and casualties (see 07.01). A spacecraft may move between star systems during its shake down cruise; that is, it need not spend the month after leaving the yard only in the same system as the yard.

A spacecraft must spend the entire month of its "shake down cruise" at a readiness state of "Normal" or higher and, although it technically did not exist in the preceding month, pays maintenance (see 15.10.03) based on its readiness state during the month of its shake down cruise.

15.09.09 PCF Retraining. Upgrading PCF to a higher TL is the ground forces equivalent of refitting a spacecraft. When PCF are upgraded, the unit is returned to a planet with an appropriate TL and HD from the PCF's original home world no greater than 2 as per 15.01.02.3.1. The cost to upgrade is the same as the cost to raise a "new" PCF at that TL, but the old PCF provides the manpower points. In addition, because the PCF is essentially retraining rather than training from scratch, only a single month is required to raise it to its new TL. (That is, raising a PCF from scratch requires two months--one to recruit and one to train--while an existing PCF can be retrained in only one month.) Moreover, a PCF which has attained grade higher than Average will regain one grade level per month (up to its previous grade) following its return to service at its new tech level.

15.10 Maintenance

Maintenance is a monthly fee which represents the day-to-day adjustment and repair of equipment; replacement of consumable parts and missiles; feeding, housing, and medical care for personnel; and, for most civilizations, wages.

Maintenance is calculated as a percentage of the original cost of the unit for most units. Maintenance for large spacecraft is calculated based on their "list" price--that is, on their cost had they been built in an (SYx)--regardless of where and how they were actually built.

The maintenance percentage for most spacecraft is listed on the HULL CAPABILITIES CHART. Fighters pay 5 MC per month per fighter squadron, regardless of generation and wherever based, in maintenance. Maintenance for other small craft is covered by the maintenance of their mother ships or bases. Space stations pay maintenance equal to 02% of their total construction cost. Ground bases in vacuum pay 05% of their total construction cost in maintenance each month; ground bases on planets which are habitable worlds for the race manning them pay 10%; ground bases on planets with atmosphere but which are not habitable worlds for the race manning the base cost 15%. Pre-Industrial PCF pay .05 MC per month in maintenance. IND-1 PCF pay .1 MC/month in maintenance; IND-2 PCF pay .3 MC/month in maintenance; high-tech PCF pay .5 MC + .2 MC for each TL above HT1. (That is, an HT8 PCF would pay .5+(7X.2)=1.9 MC per month.)

Fighter and small craft external ordnance stored in the magazines of large spacecraft, ground bases, or asteroid bases do not pay maintenance. The cost of maintaining them is subsumed in the "5 MC per fighter squadron" cost for carriers and the normal maintenance costs of spacecraft which carry small craft.

Maintenance may be shipped to any spacecraft or installation from another star system via IFN or Imperial Freighter.

15.10.01 PCFs of any type may draw maintenance from any revenue-generating planet of an equal or higher TL. Spacecraft may draw maintenance from any revenue-generating HT planet, and starships may carry maintenance resources with them in cargo holds built for that very purpose, thus increasing their cruising radius. Space stations built by an IND-2 population may draw maintenance from any IND-2 or HT planet.

Military & Trade Allies and Partners can be used to maintain an empire's units.

15.10.02 Maintenance is paid in the economic phase of each strategic turn. If PCF maintenance is not paid, the unit is lost. If fighter maintenance is not paid, the squadron loses one fighter per month of non-payment (it is cannibalized for spares). If maintenance is not paid on a large spacecraft or ground base, the spacecraft or ground base loses operable systems equal in number to 1/10th of its original systems (rounding fractions up) for each month in which maintenance is not paid. Systems lost due to lack of maintenance are treated as destroyed systems and must be replaced and/or repaired but will absorb damage points normally in combat. Fighters lost through non-maintenance may not be repaired and must be replaced with new craft. The particular systems and fighters lost are chosen by the owning player, reflecting the fact that he could choose which systems his on-board service personnel would keep running at the expense of others.

15.10.02.1 Unless players choose to use the rules for building missiles individually (15.09.02), a spacecraft's or ground-base's magazines are automatically refilled whenever its maintenance is paid. Note, however, that in this case all maintenance to the armed spacecraft or base must come from a star system with the capacity to build the highest TL missile required.

15.10.03 Maintenance Calculations and Readiness States. Maintenance calculations are based on the activity of the unit in the month preceding the maintenance payment--that is, they reflect and are affected by activities the ship has already carried out. As a result, the readiness state or states (see 06.00) a unit went to in the month before maintenance is calculated affect the total cost of maintaining that unit. As a general rule, the higher the readiness a unit maintains, the more wear and tear there is on equipment, power sources, etc., and the higher the cost to maintain that status.

The maintenance costs described above are for units held at Normal readiness for an entire strategic turn (month). Space stations, especially those with (SYx), are a bit of a special case where readiness states are concerned. Most SS are built specifically as platforms to mount (SYx), which are labor and material-intensive. Because of this, SS which go to "Stand-By" readiness must still add the additional "5 MC per '(SYx)'" maintenance fee described in 27.03.10.6 and as point (5) on table 28.07 after calculating their basic maintenance cost at "Stand-By."

Units held at Stand-By readiness throughout a complete strategic turn pay 20% of the amount above; units which went to Alert readiness at any point in a strategic turn pay 1.2 times the cost listed above. (That is, an SD with a normal maintenance cost of 380 MC would pay 380X.2=76 MC at Stand-By readiness and 380X1.2=456 MC in any month in which it went to Alert readiness.) Any unit which goes to GQ at any point in a month but does not engage in combat pays 133% of "list" maintenance the following month. Any unit which actually engages in combat in a month pays 150% of "list" maintenance the following month, but no maintenance is ever paid on units which were destroyed in the previous month.

15.10.03.1 Any spacecraft is required to mount sufficient H to carry its current maintenance (i.e., the spares it is using in the current month) at a Normal Readiness state. Each H used for maintenance holds 500 MC, just as any other H, and if the spacecraft's Normal Readiness maintenance is greater than 500 MC, additional holds may be required. If the spacecraft's Normal Readiness maintenance is less than 500 MC, more than one month's may be carried, thus extending its endurance. Additional H may also be used to carry extra maintenance for any spacecraft even further. Note, however, that warships of different types (hull sizes) may not "share" the full value of maintenance carried in their Hs, as their spare parts, etc., will be the wrong size. The maximum maintenance which may be transferred to another spacecraft is 33% of the total carried, but Imperial Freighter H may be used to carry "general maintenance" which may be transferred, in whole or in part, to any warship or combination of warships.

15.11 Shipbreakers and Reclamation

When spacecraft and ground bases are scrapped, the owning empire can recover some of its original investment by reclaiming useful components and recycling the scrap. Undamaged systems may be removed for re-use or storage for a fee equal to 10% of the "new" cost of the system. Undamaged systems may be removed from damaged or undamaged units. In addition, 30% of the "new" hull cost of the undamaged hull spaces can also be reclaimed. Damaged hull spaces of hull and internal systems are worth a fixed 1 MC per hull space as pure scrap. Reclaimed systems can be sold (or given) to Trade & Military Allies or Partners but not to other NPRs or player races (only Trade & Military Allies or Partners can possibly possess basic tech systems close enough to yours to make the interchange of those tech systems possible.).

Units may be scrapped for reclamation only in star systems which also have the capacity to build spacecraft and ground bases. The TL of the scrapping yard is immaterial, but if undamaged systems are removed, they may not be installed in new units by the scrapping shipyard unless that yard has the capacity to build them. They may, however, be loaded aboard Imperial Freighters as if they were prefabricated components and sent off to shipyards which do have the capacity to build them and so can mount them in other units.

15.12 Building Interstellar Command Centers

Interstellar Command Centers (ICC) are important components of an Imperium's communications and command and control network (see 20.00). They may be thought of as sector capitals; communication nodes manned by military and civilian officials and their staffs for the purposes of both day-to-day management of the star systems in the area and quick response to unexpected crises (like invasion by the Slavering Silicon Sentients of Slime VII, otherwise known as your friend Jack, for example).

An ICC must be supported by a high-tech population of at least "Small." In addition, a Settlement-level enclave of the imperial population must be transported to and emplaced upon the planet. If the planet is amalgamated (or in process of amalgamation) with the Imperium, the indigenous race may--in this instance, only--provide the prerequisite population support for the Settlement. (That is, it would not be necessary to emplace an Outpost and a Colony before the Settlement moves in.) Settlements emplaced to create ICCs are emplaced in addition to any other population on the planet and do not produce revenue, but they go "on-line" as ICCs in the month immediately following their initial arrival.

15.12.01 Replacing Imperial Capitals. If an imperial capital is destroyed, conquered, or cut off from a portion of an Imperium, an ICC may upgrade itself into a true sector capital, discharging the functions of the imperial capital for the portion of the Imperium with which the ICC has contact. The owning player selects an ICC, pays an additional fee of 10,000 MC, and ships in sufficient "colonists" to fill 150 Q, supported by 500 H worth of computers and data files. The personnel and support equipment required may come from any planet with a Small or larger population of the imperial race or any race which has amalgamated with the imperial race. The month after they arrive, the ICC becomes, for all intents and purposes, an imperial capital.

(See 20.02.03.1 for the penalties of losing an imperial capital.)

16.00 NPR Strategies

Any NPR encountered by a player race is "activated" (begins independent interaction with the rest of the galaxy), and the military, exploration, and technical strategy that NPR will pursue must be determined. In many cases, the NPR will enter into a treaty relationship with the discovering player (see 17.00) which will dictate at least a part of its future plans and actions, but the NPR's pre-discovery strategies determine the military and economic infrastructure of the NPR at the moment of First Contact. If an NPR does not enter into a political relationship of at least Partnership (see 17.02.08) with a player race, all of the NPR's decisions will continue to be made in accordance with the provisions of this rule. An NPR may not deviate from the base course laid down by its initial strategy unless and until it finds itself in a state of war, at which time the SM (or the player running the NPR) may alter the initial strategy to meet the demands of the war, reverting to the original strategy when the war is over.

16.01 Basic Determinants

An NPR's strategies are determined on the basis of its Racial Chauvinism (RC), Racial Militancy (RM), and Racial Determination (RD) (see 14.05).

There are three basic pre-discovery strategy considerations for an NPR: economic, R&D, and military. Once it is activated by contact with a player race, a fourth--interstellar expansion--may be added.

Each NPR at the moment of First Contact is given a "starting balance" of megacredits equal to six months of income (that is, a sum equal to six times the combined GPVs controlled by the NPR).

16.01.01 Economic Strategy. In simplest terms, this is how an NPR spends its non-R&D, non-military funds. NPRs may spend "economic" funds on industrial expansion, space stations (if of at least IND-2), or (if of at least HT1) additional population emplacement above any called for by 14.03, or the construction of shipyard modules.

16.01.02 Research and Development. Any NPR has an assigned TL at the moment it is discovered (see 14.02). It is assumed that the NPR has developed all tech systems within the TL it has attained, and all GPVs used to calculate set-up funds for the NPR are based on the assigned TL. To make things more interesting, however, it is possible that an NPR may have begun R&D on the next TL up at the moment it is discovered by a player race; may have achieved that TL and begun system development; or may be a "wild card" NPR (see 16.02.02.3).

16.01.03 Military. Pre-Industrial and IND-1 NPRs' military decisions are simple, since all they can build are PCF. IND-2 NPRs may add armed space stations to PCF procurement, but cannot procure other spacecraft types. High-tech NPRs may actually have space-going war fleets. Once First Contact occurs, the initial NPR military strategy is, reasonably enough, subject to change.

16.01.04 Interstellar Expansion. Interstellar expansion is not a consideration for any NPR prior to First Contact, since they don't realize that it is possible for them. Once First Contact occurs, an interstellar expansion strategy must be determined for any activated high-tech NPR which does not enter a political relationship giving a player race effective control of the NPR.

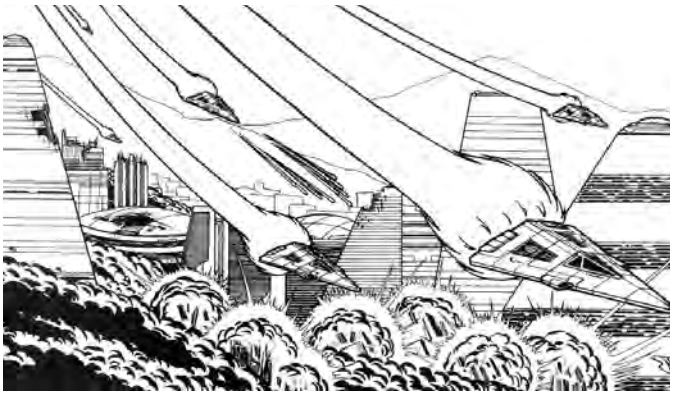
16.02 Determining NPR Strategies

Any NPR will spend a percentage of its starting balance equal to 1/2 its Racial Militancy on military forces. The remainder will be spent on industrial infrastructure: industrial expansion, the construction of space stations and shipyard modules, the emplacement of additional populations over and above those listed in 14.03, etc.

16.02.01 Mix of Pre-Contact Military Forces. Pre-Industrial and IND-1 populations may purchase only PCF, since they lack the ability to build anything else. Although they may purchase only PCF, they may expend their full pre-contact budget on PCF, regardless of their militancy or official personnel point totals. They may not, however, raise "standing armies" whose maintenance costs would exceed their GPV, nor may they buy post-contact PCFs which would exceed their personnel point value.

For IND-2 populations, at least 25% of all military units (by purchase cost) must be PCF; the remainder may be military systems mounted in a space station or space stations. Industrial races are not permitted to build ground bases. (They don't know they may have to defend themselves against a space faring menace, and surface-to-surface missiles suitable for nuking an enemy on the same planet won't have much effect on spacecraft.)

At least 10% of a high-tech NPR's initial military units (by purchase cost) must be PCF; the remainder may be any mix of orbital weapons, ships, and/or additional PCF the SM or controlling player desires. HT NPRs may not build ground bases prior to contact unless there were multiple high-tech NPRs in the system and the pre-contact political relations of the races (see 14.03 and 17.02) included a "Non-Intercourse" or "War" stage. In either of these cases, ground bases might have been built and remain at the time of First Contact.



16.02.02 State of Pre-Contact R&D.

Roll percentage dice against the following table:

Die Roll	Outcome
01-60	NPR has attained listed tech level and developed all systems of that TL, but has not begun further R&D.
61-90	NPR has begun R&D for next tech level. See 16.02.02.1
91-96	NPR has attained next tech level and developed some but not all of the tech systems of that TL. See 16.02.02.2
97-00	"Wild Card" NPR. See 16.02.02.3

16.02.02.1 Any NPR which has begun R&D on the next tech level has developed all tech systems of its current TL. When the percentage roll above determines that the NPR has begun R&D on the next tech level, the SM or controlling player makes two additional rolls of 1D10. The first determines how many months the NPR's R&D effort will require for success. The second roll is the number of months the NPR has already spent on R&D. If the second roll indicates that the NPR has already completed its R&D, re-roll it until a result which leaves the NPR with at least one month of uncompleted R&D is obtained.

16.02.02.2 When an NPR has attained some but not all of the tech systems of the next higher tech level, adjust all GPVs to the EVM of the next TL (but only after calculating the NPR's "starting balance" from 16.01 at the originally assigned TL), then roll percentage dice and multiply the total number of systems in the tech level by the result, rounding all fractions up. This is the total number of systems from the TL which the NPR has developed. Roll a second time against the NPR's Militancy. If the second roll is equal to or less than the NPR's Militancy, then military systems have priority and non-military systems will have been developed only after all military systems have been.

16.02.02.3 A "wild card" NPR is one which has somehow jumped the tracks and developed a tech system or systems from a TL higher than its own. When a "wild card" NPR is encountered, roll 1D10 and divide by 3, rounding fractions above "1" down, to determine how far "up" the tech-level chain the NPR's "wild card" systems may reach (that is, the NPR may be capable of building a system or systems from a TL up to 3 above its own). Next roll 1D10 for each TL above its own which the NPR can build systems from. Divide the result by 4, rounding fractions up; the result is the number of systems the NPR can build from that TL. The exact systems may be selected using a random die roll or by the SM or--at the discretion of the SM (if there is one) or in any game in which there is no SM--by the controlling player. These are not "Perceived Threat" systems and pay neither hull space nor cost penalties.

Although the planet-based industry and (SYx) of a wild card NPR are capable of building the wild card system(s) it may possess, the base TL of its industry is that of its base tech level. That is, the (SYx) of an HT6 "wild card" NPR capable of building fighters (HT8) would still be "(SY6)" not "(SY8)".

Should a wild card NPR amalgamate (17.02.09) with another race, its "wild card" systems become available in exactly the same way to its amalgamation partner. (Remember that under the terms of 17.02.09, both parties to an amalgamation must be of the same base TL.)

The fact that a race was a wild card NPR when it was created does not entitle it to additional "wild card" systems once it reaches the base TL of its original "wild card" tech. This is a "one-time" situation.

16.02.02.4 Any race will always procure the I as its first HT1 system.

16.02.03 Post Contact Military Procurements.

If an NPR goes to war against the discovering player race, the individual controlling the NPR may spend any percentage he likes of its post-Contact income on military forces of any type the NPR can build. In any other case, the following rules define the percentage of income the NPR will spend on military procurements. For the purposes of these rules, each MC spent on shipyard modules counts as .5 MC spent on military systems and each MC spent on industrial expansion counts as .25 MC spent on military units, since both these factors ultimately build military strength.

16.02.03.1 If an NPR adopts a policy of Non-Intercourse, the NPR will immediately begin spending a percentage of its income equal to its Militancy on military units. (That is, if the NPR's Militancy is 78%, it will spend 78% of its income on military units.)

16.02.03.2 If an NPR accepts a relationship of Trade Intercourse or Military Alliance, it will spend a percentage of its income on military units equal to its RM multiplied by its RC (rounding all fractions of a percent up), unless and until a war breaks out which involves the NPR. (That is, if the RM is 78% and the RC is 42%, the NPR will spend .78X.42=.3276, which rounds to 33%.)

16.02.03.3 If an NPR adopts a relationship of Trade & Military Alliance, it will spend a portion of its income equal to 1/2 the total in 16.02.03.2 on military units, unless and until a war breaks out which involves the NPR.

16.02.03.4 If an NPR accepts Partnership with a player, the player decides the NPR's future economic, industrial, and military policy.

16.02.03.5 Under any circumstances, an NPR not actively at war will retain in its home system a percentage (by cost) of its military forces, including the armed portions of any space stations and any other fixed fortifications, equal to its Racial Chauvinism.

16.02.05 Post Contact Interstellar Exploration. A high-tech NPR is, by definition, ignorant of the existence of warp points at the moment of contact. Unless it has a unit close enough to actually observe one of the activating empires' ships make transit, it will not be able to begin surveying for them (as per 19.02) for a number of months equal to the roll of 1D10. (In effect, it will have deduced what happened but must spend the indicated period figuring out how to find WPs on its own.) If it observes a ship making transit, it will know the exact location of the warp point used and exactly what to look for to find others, which allows it to begin surveying for other warp points in its own system in the following month.

In any case, a high-tech NPR which enters any relationship other than Partnership or Amalgamation with the discovering race will adopt its own exploration policy, becoming, for all intents and purposes, an Imperium in competition with the players (which can be a lot of fun for the SM). Any activated NPR will assert total control over any warp points in its system and will claim both sides of all WPs (other than the one by which the discovering race arrived) for its own exploration and expansion. That does not necessarily mean, however, that it will actually use those WPs.

Roll percentage dice against the NPR's Racial Chauvinism and consult the following chart:

Die Roll is	Then
1/2 or less of RC	NPR adopts a policy of "no expansion" and decides to stay home, either because it fears contact with other races or is so convinced of its own superiority that it sees no point in expanding.
more than 1/2; less than equal to RC	NPR adopts a cautious expansion policy. It will explore only one WP per month, regardless of the number available to it.
equal to but less than twice NPR RC	NPR adopts a policy of exploring up to 2 WPs per month.
twice or more than twice NPR RC	NPR adopts aggressive expansion policy, exploring 1D10 (to maximum possible) of WPs per month.

16.02.06 In the course of exploration, an activated NPR may encounter habitable planets and/or other NPRs. If it finds a habitable planet with no indigenous civilization, determine the planet's habitability index and the differential between it and the NPR's home world HI. Multiply the differential by .05, add the result to the NPR's RC, and roll percentage dice against the modified result. If the dice roll is equal to or greater than the result, the NPR will place population enclaves on the planet as quickly as possible.

16.02.06.1 If the NPR encounters an Industrial or Pre-Industrial NPR, roll percentage dice. If the roll is less than 1/2 the activated NPR's RC, it will ignore the lower-tech NPR as beneath its notice. If the roll is more than 1/2 but less than its total RC, the activated NPR will contact the lower-tech NPR but will offer it no relationship closer than Trade Intercourse and may seek to conquer it (see below). If the roll equals or exceeds its RC, the activated NPR will offer the closest relationship it can obtain, up to and including Amalgamation.

If an activated NPR offers an Industrial or Pre-Industrial NPR a political relationship and fails to achieve it, roll percentage dice. If the roll is less than the activated NPR's militancy, the NPR will seek to conquer the lower-tech NPR rather than continue negotiations. If the roll equals or exceeds the activated NPR's Racial Militancy, the treaty offer will be repeated. Each time it is rejected, make another checking roll against the NPR's RM. If on any check the roll is less than the activated NPR's RM, the NPR will break off negotiations and seek to conquer the lower-tech NPR.

16.02.06.2 If an activated NPR contacts another high-tech NPR, roll percentage dice against the activated NPR's RC as in 16.02.06.1 and consult the following table:

Die Roll is	Then
1/2 or less of activated NPRs RC	NPR retreats from the star system of the new NPR, maintains a naval force to cover its side of the warp point by which it entered, and avoids all contact. If the other NPR comes through the WP, the originally activated NPR will demand a Non-Intercourse relationship and attack any starship which subsequently transits the WP, regardless of its own Militancy.
more than 1/2 but less than its total RC	the activated NPR will offer the other NPR a Trade relationship
equal to or greater than but less than twice the RC	the activated NPR will offer a Trade & Military alliance
twice or more than twice the RC	the discovering NPR will offer Partnership and/or Amalgamation

If an activated NPR offers a newly-discovered high-tech NPR a treaty which is rejected, roll percentage dice against the discovering NPR's Racial Determination against the table below:

Die Roll is…	Then…
More than 1/2 the RD	The NPR will continue to negotiate.
Equal to half or less than half of the RD	The NPR will either withdraw the offer and substitute a Non-Intercourse offer as above or go to war against the other NPR. (See below.)

A war against another HT race is a tougher proposition than bashing low-tech aborigines. Whenever an activated NPR rolls less than 1/2 its RD as in the paragraph above, divide the rejecting NPR's tech level by the discovering NPR's tech level and multiply the average of the discovering NPR's RC and RM by the result, rounding all fractions up. Roll percentage dice against the value thus obtained. If the dice roll is greater, the discovering NPR will go to war and attempt to conquer the rejecting NPR. If the result of the dice roll is less than the checking value, the NPR will substitute a Non-Intercourse offer for its previous offer and will go to war only if the other NPR attacks it or violates the conditions of non-intercourse by entering its space.

16.02.06.3 Examples:

(A) An activated NPR of HT 4, RC 42%, RM 73%, RD 64%, discovers an IND-2 NPR. The discovering NPR rolls percentage dice against its RC and obtains a result of 31%, which is more than half but less than equal to its RC, so it offers the IND-2 NPR a Trade agreement. The IND-2 NPR rejects the Trade agreement, so the discovering NPR rolls against its militancy of 73% and rolls a 72%, which is lower than its RM, so it immediately moves to conquer the IND-2 NPR. Had it rolled 74% or more, it would have continued attempting to negotiate a Trade agreement unless the IND-2 NPR went to war against it.

(B) The same activated NPR encounters an NPR of HT2. The discovering NPR rolls against its RC of 42% and obtains a 47%, which is greater than its RC but less than twice as great, so the discovering NPR offers a Trade & Military Alliance. The offer is rejected, so the discovering NPR rolls against its Racial Determination of 64%. The dice roll is 28%, which is less than half the RD, so the discovering NPR will either fall back to a Non-Intercourse offer or go to war. The SM divides the rejecting NPR's TL by the discovering NPR's and multiplies the result by the average of the discovering race's RM and RC, which looks like this:

(2/4) X ((.42+.73)/2) = .5 X .575,

which rounds to .5 X .58 = .29, or 29%. The discovering NPR rolls a 31% and decides to go to war.

(C) The same activated NPR encounters an NPR of HT5. The discovering NPR rolls against its RC of 42% and obtains a result of 90%, which is more than twice its RC, so it offers Partnership to the other NPR. The offer is rejected, so the discovering NPR rolls against its RD of 64% and obtains a 49%, which is more than 1/2 the RD and means the discovering NPR continues to negotiate. The other NPR rejects the offer once more, and the discovering NPR makes another roll against its RD. This time it rolls an 18%, which is less than half its RD and indicates either an offer of Non-Intercourse or a declaration of war. The SM divides the rejecting NPR's TL by the discovering NPR's and multiplies the average of the discovering NPR's RC and RM by the result, which looks like this:

(5/4) X ((.42+.73)/2) = 1.25 X .575,

which rounds to 1.25X.58 = 72.5, which rounds to 73%. The NPR rolls a 59%, and so does not go to war. Instead, it reduces its offer to Non-Intercourse and will go to war only if attacked.

(D) The same situation as in (C) above arises, but this time the rejecting NPR has a TL of HT9, so the SM's formula is:

(9/4) X ((.42+.73)/2) = 2.25 X .575,

which rounds to 2.25X.58 =1.305, or 130.5%. Since this is greater than 100%, the discovering NPR will never choose to go to war against the HT9 NPR (which is probably wise) but will replace its previous diplomatic offer with one of Non-Intercourse and fight only if attacked by the other NPR.

16.02.06.4 This procedure is followed for each NPR any activated NPR encounters, which means an activated NPR might offer Partnership to some NPRs and seek to conquer others. The exact course of action cannot be predicted, which helps to make things more interesting for whoever is running the activated NPR and keeps the players guessing about NPR behavior.

16.02.07 Left Over Funds. After making all of the expenditures required for R&D, exploration, colonization, military procurements, and maintenance, any remaining funds are spent on industrial expansion, beginning with the largest population of the activated NPR and working down. If all populations have been raised to the highest EVM to which industrial expansion can raise them, all funds left over from R&D, exploration, colonization, military procurements, and maintenance are "banked" and held for future expenditures on those purposes or in the event of war.

16.03 Initial NPR Dispositions.

As a general rule, each NPR should retain a percentage of its total mobile forces (by hull spaces) equal to its Racial Militancy in orbit around its population enclave(s), including its home world. Beyond that, the placement of the remainder of its forces (which may be literally anywhere, carrying out scientific experiments, looking for additional population sites in asteroid belts, etc.) should be as random and even as possible and should be determined before the surveying ship leaves the hex containing its entry WP.

17.00 Political Rules

The relationships between player races and other player races or NPRs (or, for that matter, between activated NPRs and other NPRs) are defined by the political states established between them. Player races have a great deal of flexibility in negotiations with other player races, and may negotiate special, customized treaty relationships with them. Relationships with or between NPRs are much less flexible. NPRs may be thought of as card game "dummy hands," and negotiations with them are handled in a very stylized manner.

Whether with other player races or NPRs, it is necessary to establish contact before any negotiations are possible. This is handled as per 17.01, below. Once First Contact has been made and Sustained Contact is established, player races may make whatever offer(s) they wish to one another; NPRs may be offered only the stylized political relationships defined in 17.02. All political offers must be made in writing (passed through the SM, if there is one), and only one offer may be made to any one player race or NPR in each turn.

The restriction on the number of offers per turn reflects the slow passage of communications at interstellar distances. If players (or the SM) prefer, additional written offers may be made in a single turn, but only if sufficient time is allowed for each offer and its results to be transmitted to the closest interstellar control center and/or imperial capital and for a reply to be returned. The ICN (see 20.00) is of critical importance in the application of this provision.

In all Space-Mastered games, the SM should make all required dice rolls for Contact and negotiations secretly and should never reveal the actual rolls (or values required for success) to the player(s) involved.

NOTE: Independent NPRs will always abide by any treaty they have negotiated; player races may cheat on treaty obligations should they so desire. Worse, NPRs run by a player race through a Partnership relationship can do the very same thing.

17.01 First Contact

First Contact occurs whenever a survey ship enters detection range (defined in 19.00.02) of a population or spacecraft (see 27.05.05 for detection ranges) of an NPR or player race. First Contact does not mean communications have been established; only that another race has been discovered. There may be simultaneous "First Contacts" if both the survey ship and the race (player or NPR) already in the system are of sufficient TL to detect one another simultaneously.

First Contact may be made with another player race, a Pre-Industrial or Industrial TL NPR, or a high-tech NPR.

If the contact is with another player race, the player contacted makes all decisions for what his race will do, subject only to the limitations of the First Contact mechanics described below.

If the contact is with a Pre-Industrial or IND-1 TL NPR, only the surveying race may initiate First Contact, as the NPR cannot even detect the presence of the surveying race unless the surveyors choose to make themselves known. If the surveying race ignores the NPR and its home world, the NPR might as well not even exist.

Contact with an IND-2 TL NPR is treated as contact with P-IND or IND-1 NPRs so long as the surveying race keeps its ships beyond any range at which the NPR might detect them. If the surveying race's ships are detected, the NPR will attempt to establish contact on a percentage roll equal to or greater than the NPR's Racial Chauvinism; if the roll is lower than the NPR's RC, it will begin building up its military capabilities "just in case." If the surveying race ignores or rejects an NPR's contact attempt, the NPR will regard the surveying race as hostile and (if it is ever in a position to do so) will go to war against the surveying race.

If a high-tech NPR is discovered by a survey ship, the surveying race has the first opportunity to attempt First Contact. If it chooses not to do so, the SM or player running the NPR rolls percentage dice. If the roll is equal to or greater than 1/2 the NPR's RC, the NPR will attempt to establish contact. If the NPR's First Contact attempt is rejected or the percentage roll indicates the NPR chose not to make one in the first place, the NPR will regard the surveying race as a hostile invader and initiate military action against it.

The sudden intrusion of aliens into your home system can be unsettling, and large numbers of ships make people nervous. For every ship over 1 which an NPR knows a surveying race has in its home system, add 05% to the NPR's RC towards the surveying race. If the surveying race withdraws ships and the NPR knows it has done so, reduce the NPR's original RC by 02% per ship withdrawn to reflect the reassurance this friendly gesture from the "visitors" generates.

An NPR's RC can be adjusted downward by withdrawing starships only to a minimum of 50% of its original RC. That is, the maximum by which the RC of an NPR of RC 75% could be reduced would be to 75/2=37.5, which would round to 38%.

17.01.01 In order to negotiate with another race, First Contact must be extended into Sustained Contact; that is, some method of exchanging information and political offers must be created. This requires that the two races come into communication range and that a communication access be created. If both of these requirements are met, the two races are in Sustained Contact and may negotiate.

17.01.02 Communication range depends upon the technology available to both sides of the communication attempt. (You can't communicate with a radio on one side and smoke signals on the other.) If both races are HT races, communication range for spacecraft without communication modules

(27.04.06 and 20.02.01.1) is 48 light-minutes. A starship with a communication module has a communication range of 96 LM for any high-tech planetary population or other spacecraft equipped with a communication module. Maximum communication range between a starship and a newly encountered IND-2 planetary population is 1 LM. Commun-ication with an IND-1 or Pre-Industrial population requires the discovering empire to actually land on the planet to meet the natives.

17.01.03 Communication access requires the development of some common language or other means of communication. How quickly this can be done depends on several factors--the experience of the Contact teams of the discovering empire, the language and technological capabilities of the newly discovered race, the eagerness of both sides to communicate, etc. When a race enters communication range and attempts to establish communication access, roll percentage dice once per month against the Contact Table below, allowing for all modifiers from the list following the table.

Die Roll	Result
01-10	All communication impossible/rejected
11-30	Communication not established
31-65	Initial communication established
66-75	Partial communication established
76-00	Full communication established

Modifiers:
Subtract 1/2 adjusted Racial Chauvinism of newly discovered race from dice roll.
Add 05% to the dice roll for each race with which either party to the attempt has already established communications.
Add 02% to the dice roll for each HT tech level of either party.
Add 05% to the dice roll for each successive month spent in attempting to establish communications.
Subtract an additional 25% from the dice roll if the parties to the communications attempt are at war with one another.

17.01.03.1 All communication impossible/rejected: The newly discovered race's mind-set is so "alien" that any meaningful communication is impossible, or else it has taken such a dislike to (or conceived such a fear of) its discoverers that communication is rejected in hatred or hysteria. In either case, it will never be possible for the discovering race to establish Sustained Contact with the race peacefully. Further attempts to establish communication or the maintenance of any presence in the star system (or, in the case of a P-IND or IND-1 race, on the racial home world) by the discovering race will be regarded as a hostile act, and the newly discovered race will go to war against its discoverers if it can get at them. (Obviously, a P-IND, IND-1, or IND-2 race which can't reach its enemies can't hurt them, but if they ever obtain the ability to attack--as by the result of R&D for Industrial TL races--they will certainly do so.)

The newly discovered race need not go to war immediately, even if the discoverers continue to persist in contact attempts. Roll percentage dice against the average of the discovered race's Racial Determination and Racial Chauvinism. If the die roll is equal to or less than the average, the discovered race will begin preparations for war by plowing every available MC into military expenditures. It will not actually go to war for a number of strategic turns equal to the roll of 1D10 + 2 (that is, a die roll of "3" would indicate that it would launch actual hostilities in 3+2 = 5 strategic turns after the initial decision to go to war was taken). The discovered race makes this die roll and determines when it will launch its attack before deciding what its preparatory military expenditures will be. Needless to say, the discovering empire is not told what's going on, although if it has units in position to observe the sudden arms build up it may guess what's coming.

War may end in the conquest of the newly discovered race, in which case it is still possible (though difficult) to establish communications (see 17.02.01, 17.02.01.1, & 17.04).

17.01.03.2 Communication not established. Communications simply are not successfully established. The discovering player race or NPR may continue efforts to do so in succeeding months without penalty, but any roll of 01-15% (after modifications) in a succeeding turn indicates a breakdown leading to an impossible/rejected situation.

17.01.03.3 Initial communication established. True communication remains impossible, but progress has been made and any future result of "impossible/rejected" is ignored and re-rolled. This does not mean the newly discovered race has decided it likes the newcomers, but simply that it's at least willing to listen to them.

17.01.03.4 Partial communication established. Both parties can get general concepts across to the other and are doing so. It is still impossible to negotiate effectively, but 25% is added to all subsequent attempts to establish better communications and future results of "impossible/rejected" are ignored and re-rolled.

17.01.03.5 Full communication established. The races have established Sustained Contact. They can talk to one another with a fair degree of fluency, negotiations are possible, etc.

17.01.03.6 If the SM wishes (or all players so agree before beginning play), all modified results of 01-15% from the table above may be ignored if both parties to a First Contact are player races. In other words, player races would never be required to accept an "impossible/rejected" result to a communications attempt.

17.02 Political States

There are nine possible political states between players and NPRs. The same states apply to relations between player races and other player races, but player races may also negotiate "customized" treaties, subject to the SM's restrictions. If a specialized treaty is negotiated, it must be written out in full and each party must have his own copy. In addition, the SM (if there is one) must have a copy of any such treaties.

When a political offer is made to an NPR, a Political Acceptance Roll is made by rolling percentage dice against

the Racial Chauvinism (RC) of the race to whom the offer is made. When a player race makes an offer to another player race, the player to whom the offer is made normally makes up his mind whether or not to accept, but the SM may require player races to make acceptance rolls as if they were NPRs. If the political acceptance roll is equal to or greater than the RC, the offer is accepted.

If an offer is rejected, the RC is increased by 05% for each new offer which is made. This increase, however, may be offset by a "cooling off" period in which no new offers are made. The RC of an NPR drops by 02% per month, to a minimum of its original base RC.

If the modified RC reaches 100%, the side approached with the offer is so irritated it may declare war upon the other. If the irritated race is an NPR, check as in 16.02.06.2, above. If the roll indicates that the NPR does not go to war, it does immediately insist on a state of Non-Intercourse and acts accordingly. If the SM has chosen to require player races to make political acceptance rolls, a player race whose RC has reached 100% or more may decide whether to go war or insist on Non-Intercourse without further checking rolls. The SM should never reveal the RC of the other side of any negotiation to players.

The nine basic political states are listed below. The value in parenthesis behind each state is the modifier applied to the RC (and hence the Political Acceptance Value) for that state.

1. War (no modifier)
2. Non-Intercourse (+05%)
3. Non-Aggression (-05%)
4. Conquered (+30%)
5. Trade Intercourse (-10%)
6. Military Alliance (-20%)
7. Trade & Military Alliance (-40%)
8. Partnership (-60%)
9. Amalgamation (special; no modifier)

17.02.01 War. War is a very simple political state. War need not be declared (simply opening fire usually gets the message across). If Sustained Contact has been achieved before war breaks out, the war may be ended by negotiation at any time (assuming that envoys of the side wishing to end the war can contact the other without being blown to dust in the attempt). If Sustained Contact was not achieved before the war broke out, it must be achieved before negotiations can end the conflict. This may be done using any conquered population of an opponent as a communications laboratory. In this instance, communication attempt results of 01-15% are ignored; a conquered population can't just walk away, though they can be incredibly stubborn about things. The RC of races at war towards their opponents is increased by +30%, even if this produces an RC greater than 100%.

17.02.01.1 SMs may allow an intermediary (player race or NPR) to be used in negotiations between empires and/or NPRs at war with one another. The intermediary must have contact and at least a Trade Intercourse relationship with both warring powers. In this instance, the intermediary does the negotiating for both of the races at war. The intermediary begins with the negative "War" modifier to all political acceptance rolls but neither of the warring nations will go to war with it because of failed negotiating attempts. The intermediary, acting for the first of the warring races to approach it and request its aid, attempts to negotiate a Trade Intercourse arrangement with the other using the differential between its own RC and that of the second race as the basis for its modified political acceptance rolls. When a Trade Intercourse Agreement is finally reached, it actually represents a negotiated Non-Aggression state between the two warring powers. Any result of Non-Intercourse or War is ignored. (A player race with good contacts can make a pretty fair living by acting as an intermediary for a financial consideration.)

17.02.02 Non-Intercourse. The two parties reject all contact with one another after attaining peaceable (if not particularly friendly) Sustained Contact. Further attempts at negotiation or the intrusion of starships of either side into space claimed by the other will be regarded as an act of war, and the NPR's RC is increased by 05% for any future negotiations with the discovering race. If one side is a high-tech race and the other is not, the high-tech race may enter and pass through the lower-tech race's system at will (since there is nothing the low-tech types can do about it). If both are high-tech, all starships of the intruding empire must withdraw immediately from the star system. If a lower-tech NPR attains a high-tech level after establishing Non-Intercourse with an empire, the empire must then withdraw all units. If it does not, a state of war exists between it and the NPR.

An empire's starships may sometimes inadvertently enter space claimed by an empire with which it has a Non-Intercourse relationship, as when surveying an unexplored WP that doubles back into the other empire's space. In this instance, this is not regarded as an act of war if the intruding starship(s) withdraw by the shortest possible route.

17.02.03 Non-Aggression. The parties agree to peaceful but limited contact. Further negotiation is possible, with the NPR's RC towards the discovering race reduced by 05%, but no other contact is allowed. Entry of single starships into a star system controlled by a race with which one has a Non-Aggression pact (as for the purposes of further negotiation) is possible; passage through a star system controlled by a race with which one has a Non-Aggression pact, or the entry of more than a single starship for negotiation purposes, is considered an act of war.

If one partner to a Non-Aggression pact is an Industrial or Pre-Industrial race, it can do nothing to prevent the passage of starships, but if a lower-tech race attains high-tech status, it will attack any starships violating the Non-Aggression pact. Further negotiation attempts made before the relationship deteriorates into War are made with no modifier to the RC.

17.02.04 Conquered. A planet is conquered when another empire takes physical possession of it and establishes a garrison upon it (see 17.03 & 21.05). Conquered populations are

considered "at war" with their conquerors for communication and negotiation attempts even if there is no active resistance movement or rebellion, but it is possible to entice a conquered population into a more friendly relationship with patience. All "negotiation" with a conquered population is made with a +30% add to the RC. The RC of a conquered population may be modified downward with a combination of military force and economic incentives (17.03.02 & 17.04).

17.02.05 Trade Intercourse. In this political state, the parties are on good terms, further negotiations will be welcome (or, at least, not resented), and trade is allowed. The RC reduces by 10% for all other political acceptance rolls, and the trade is represented by the delivery each month to each party of an income bonus equal to 10% of the total income of the smaller party (i.e., the one with the lower income). This income is exchanged at a planet or space station designated by the Trade treaty, then transported to wherever it will be used. The exchange star system may be the home system of one of the races, but any convenient system to which both have access can also be used. Trade bonuses may be transported between empires only by Imperial Freighter but may be distributed within an empire via IFN.

Before trade can begin, the economic and legal infrastructure for it must be created. This is represented by a fee equal to 3 months' trade bonus paid by the wealthier of the two partners to the trade treaty. This fee is paid at the trade exchange planet or space station, and trade becomes possible in the month following its payment.

Trade, whether as part of a simple Trade Intercourse treaty or as part of a Trade & Military Alliance, is possible only when both parties to the trade accurately announce their combined GPVs to one another. Unless this is done, no trade is allowed.

17.02.06 Military Alliance. Both parties remain independent of one another but may participate in joint military operations. Either is obligated to come to the aid of the other against any outside attack (though NPRs will assist their military allies in wars the ally starts only if they make a percentage roll equal to or less than their own Racial Militancy). Military units of one military ally may be used to escort survey forces of the other, and military units of either ally are allowed free entry into systems claimed by the other. Further political offers may be made, and all future political acceptance rolls are made with a -20% modification to the RC.

17.02.07 Trade & Military Alliance. In the event of a Trade & Military alliance between a player race and an NPR (or between an activated NPR and an NPR discovered and activated by it), the player race (or activated NPR) controls the economic and military policies of the NPR within the restrictions of 16.00. The benefits (and restrictions) of both a Trade Intercourse agreement and a Military Alliance are available to both sides, and Assisted R&D (15.07.04.2) is possible. Further political offers may be made, and all future political acceptance rolls are made with a -40% modification to the RC.

17.02.08 Partnership. In a Partnership, both parties remain nominally independent and maintain separate economies, but the party which offered the Partnership takes effective total control of the economy and military of its treaty partner. Trade is allowed as in 17.02.05, military units of the two Partners may be used interchangeably in peace or war, and Assisted R&D (15.07.04.2) is possible. The controlling player race or NPR may formulate the economic, R&D, military, and exploration policies of the other Partner. Further political offers may be made, and all future political acceptance rolls are made with a -60% modification to the RC.

17.02.09 Amalgamation. Amalgamation may be offered only after two races have spent a full year (12 months, or 12 strategic turns) in Partnership. In addition, Amalgamation is not possible between races who are too fundamentally dissimilar. No races with Racial Outlooks differing by more than 33% (absolutely, not proportionately) may ever amalgamate, nor may races with Racial Militancies which differ by more than 50%. (That is, it would be impossible for a race with an RO of 45% to amalgamate with one whose RO was less than 15% or greater than 78%, nor could a race with an RM of 10% amalgamate with one whose RM was 61% or higher, regardless of their ROs.) Finally, both parties to an Amalgamation must be of the same high-tech level in the strategic turn in which the offer is made.

When an Amalgamation occurs, the player empire (or the larger of the two NPRs involved in an NPR Amalgamation) must pay a one-time fee at its imperial capital equal to 1/2 the total GPVs of all populations controlled by the other partner to the Amalgamation. If two player empires Amalgamate, the fee is equal to 1/2 the total GPVs of the smaller player empire but it may be split, with each player paying 1/2 the total fee at his own imperial capital.

This payment reflects the creation of the bureaucratic and command and control infrastructure needed to integrate the smaller party into the larger's empire. Six months after it is made, the Amalgamated partner's populations become imperial populations and all economic and military resources of both Amalgamation partners are merged.

17.02.09.1 Following Amalgamation, the Racial Outlook, Chauvinism, Militancy and Determination of the original Imperial Race are used in all decisions made by the empire as a whole, but the original racial characteristics of the Amalgamated race should be recorded and retained, as there may be occasions when they will be needed.

Environmental considerations often make it impractical for spacecraft to be crewed by fully integrated crews of more than one race. If the habitability indexes of two species' home worlds differ by more than "2," joint crewing by those species is impossible. This may affect surrender rolls, and all First Contact rolls are made using the racial attributes of the species actually crewing the contact ship, not of the empire as a whole. In addition, colonial populations may be drawn from any world which has an Amalgamated or imperial race

population of at least Medium size (thus, the more races your empire includes, the more flexibility you will have in the planets you can colonize).

If a unit is crewed by more than a single race, the racial outlook of the imperial race of the owning empire is used.

17.02.10 An NPR may have treaties with more than one player race so long as it has not Amalgamated with a player race. If an NPR has accepted an allied relationship short of Trade & Military Alliance or Partnership with one player race and then encounters another player race, the new player race may attempt to initiate First Contact and make treaty offers of its own. In such a case, the new player race has the same chance to establish a political relationship as it would have had if the NPR had no relationship with any other race unless the new player race is at war with one of the NPR's previous player race allies. If there is hostility (a state of War or Non-Intercourse) between player races, the RC of an NPR allied to one of them is increased by 45% for all negotiations with the other and any military alliance with the more recently met player race will be impossible.

17.02.11 If an NPR has accepted a Trade & Military Alliance with a player race, the player already allied with the NPR may choose to support or oppose another player race's effort to negotiate with the NPR. If it supports the new player race's efforts, the RC modifier for any political offer is reduced by "-20%." If it opposes the effort, the RC modifier is increased by "+20%."

17.02.12 If an NPR has accepted a Partnership relationship with a player race, the player running the NPR through the Partnership treaty makes all decisions on alliances the NPR will accept or reject and retains full control of the NPR's future military and economic policy even if the NPR signs a treaty with another player race or races.

17.03 Conquered Populations

When a planet's defensive forces have been defeated as per 21.05, the planet may be occupied. Unless it is occupied by a garrison of PCF placed by the race or empire which defeated its military forces, the population remains free to raise new PCF of its own, build additional weapons, etc., and continue fighting. (Note that "planet" as used in this rules section also refers to moons and asteroids supporting high-tech populations.)

17.03.01 Minimum Garrison Strength. In order to occupy a planet, the conquering race or empire must place a garrison force of PCF upon the planet. The minimum required garrison strength is calculated based on the EVM of the conquered population, modified by its tech level and Racial Militancy. In this instance, however, a new RM is calculated for the conquered population by adding any percentage of its pre-conquest EVM destroyed in the conquest to its original RM. A new Racial Chauvinism is calculated in precisely the same way. (The new RM and RC are the population's RM and RC towards its conquerors only; the original RM and RC are used for any interaction with any other race and for determination of NPR strategies if the population is later liberated.)

The minimum required garrison strength is a base number of PCF equal to 20% of the planetary population's EVM plus an additional force equal to the base number, modified by tech level difference (see below) and multiplied by the new RM of the occupied population, with all fractions rounded up.

The tech level modification for occupied HT planets is 05% per difference in HT level between the planetary population and the occupying PCF. If the planetary population is IND-2 or lower, calculate the modification percentage as if the planet were HT1, then add 10% for IND-2 planets, 20% for IND-1 planets, and 40% for Pre-Industrial planets.

A larger number of PCF may be used to garrison the planet in order to reduce the probability of revolt (see 17.03.02).

Special Note: The minimum required garrison strength is halved if the conquered population is a hostile environment population. It is doubled if the population is in an environment which is hostile to the conquering race but not to the occupied population.

Example: *A Large HT3 population (EVM=1,170) with an RM of 53% and an RC of 61% on a Type T world is conquered by another HT3 race, also springing from a Type T world. In the fighting which preceded the conquest, 209 EVM were destroyed, reducing the EVM to 1,170-209=961. Since 209 is 17.8% of the original EVM, which rounds up to 18%, the new RM towards the conquering race is 53%+18%=71% and the new RC towards the conquering race is 61%+18%=79%. The minimum garrison strength would thus be a base of 961X.20=192.2 (which rounds to 193) plus 193X.71=137.03 (which rounds to 138), or 193+138=331. If the conquering race had been from a Type ST home world, the conquered planet would be a hostile environment for it, and minimum garrison strength would be doubled to 331X2=662 PCF.*

If the conquering race had been HT5, the required garrison strength would be reduced by .05X2=.10, or to 90%, and would equal 331X.9=297.9, which would round to 298. If the conquered population had been HT5, the minimum required garrison would be increased by 10% to 331X1.1=364.1, which would round to 365. If the conquered population had been IND-1, the modifier would be (.05X2)+.20=.30, and the minimum garrison would reduce to 331X.70=231.7, rounding to 232.

17.03.02 A conquered and occupied population still considers itself to be in a state of war against its conquerors until such time as it accepts some other political relationship with its them. Because of this, all political relationships offered to a conquered population will be accepted only on a Political Acceptance Roll less than or equal to the occupied population's modified Racial Chauvinism plus 30%. (From our example above, this would result in an RC of 109% towards its occupiers.) As the occupied population is still at war (as far as it is concerned, anyway) it may revolt against its occupiers before a new political relationship can be established. In each month after a population has been occupied, the SM (or the occupying player, if there is no SM)

rolls percentage dice against the occupied population's modified Racial Militancy. If the result is equal to or less than the modified RM, the population will revolt, but the probability can be reduced by placing a stronger garrison on the planet. For each doubling of the minimum required garrison, the probability of revolt is lowered by 25%, down to a minimum of 01%. There is always an 01% chance an occupied population will revolt.

Example: *Using the numbers established in the example for 17.03.01, the modified RM of the occupied population is 71% and the minimum required garrison is 331 PCF. If only 331 PCF are placed on the planet, the probability of revolt is thus 71%. If, however, the garrison were increased to 331X2=662 PCF, the revolt probability would be reduced by 25%, or to 71%-25%=46%. If the garrison were increased to 331X3=993 PCF, the revolt probability would be 71%-25%-25%=21%.*

17.03.02.1 The Cortez Approach to extracting resources from a conquered population (15.03.05) does not endear a conqueror to an occupied planet. For each percentage point of income above the normal GPV which the occupying power chooses to extract from a conquered planet, the chance of a planetary revolt is increased by 02%.

17.03.03 If a conquered population revolts, it will follow one of two strategies: Low-Level Guerrilla Warfare or General Insurrection. In a Low-Level Guerrilla War (which is actually the more difficult to suppress), the insurgents concentrate on destruction of the infrastructure which makes the planet of value to its conquerors and on small-scale ambushes of troop detachments. In a General Insurrection, the population rises as a body and clashes with the occupying forces in pitched battle. To determine which strategy the rebels pursue, roll percentage dice against the modified RM; if the roll is equal to or less than 1/2 the modified RM, the rebels mount a general insurrection. If the roll is greater than 1/2 the modified RM, the rebels launch a Low-Level Guerrilla War.

17.03.03.1 In a Low-Level Guerrilla War, the Resistance doesn't attempt to overthrow the occupation in a single blow. Instead, roll 2D10 and reduce the planetary EVM by a percentage equal to the value rolled, rounding all fractions up. The strength of the occupying garrison is reduced by the same percentage. The required garrison strength, however, is still calculated using the planetary EVM as of the moment the planet was first garrisoned.

Example: *A population with an EVM of 961 and a garrison of 652 PCF rebels in a Low-Level Guerrilla War. The dice roll is a "1" and a "5," and 1+5=6, so 6% of the planetary EVM and garrison are destroyed by rebel action. Six percent of 961 is 961X.06=57.66, which rounds to 58, so the new EVM is 961-58=903. Six percent of 652 is 652X.06=39.12, which rounds to 40, so the surviving garrison strength is 652-40=612 PCF.*

17.03.03.2 In a General Insurrection, the entire population rises in a ferocious bid to throw the occupiers out. In this instance, an insurgent army of PCF is raised, and its strength is determined by multiplying the GPV of the population by its modified RM, rounding fractions up, and using the result to buy PCF. (Personnel point requirements are ignored in this instance.) In addition, a revolting planet generates no income for its conqueror in the strategic turn in which it revolts.

Pre-Industrial, IND-1, and IND-2 worlds will purchase PCF of their current TL, but HT populations may only purchase PCF of 1/2 their current TL, rounding fractions up, because of the complexity of building and difficulty of concealing stockpiled HT weapons.

(That is, an HT3 population with a GPV of 8,649 and a modified RM of 70% would spend 8,649X.70=6,054.3=6,055 MC on PCF and could purchase PCFs of only 3/2=HT1.5, which would round to HT2. HT2 PCF cost 4 MC each, so the insurgent army would be 6,055/4=1513.75, which rounds to 1,514 PCF-2.)

The insurgent PCFs appear distributed as evenly as possible among the 6 planetary combat areas of the planet (that is, 1/6 of them would appear in each). If they cannot be distributed evenly, distribute them as evenly as possible and place all "odd men out" in a single randomly selected combat area. (From our example above, this would be 1,514/6=252.33, or 252 PCF-2 in each of 5 planetary combat areas and 254 PCF-2 in the 6th.)

As soon as they appear, all PCF attack immediately, engaging any garrison in their planetary combat area in planetary combat on the interception scale as per 21.04. Although this combat is fought out during the political phase and not the military phase of the strategic turn, military spacecraft in the system and in range to reach the planet before the rebellion is resolved may support the garrison.

If the garrison is destroyed, the occupying race loses control of the planet, which is free to begin building additional weapons and/or spacecraft (if its TL makes this possible) with its current EVM and at its full current TL. If the rebelling planet was populated by an independent NPR, a race which had previously amalgamated with the occupying empire, or by the imperial race of the occupying empire, the SM or an uninvolved player runs the rebels from that point onward. If the occupied population belonged, prior to its conquest, to a player empire other than that which subsequently conquered it, the player to whom it previously belonged runs the rebels.

17.03.03.3 If an Industrial or High-Tech population launches a General Insurrection, it may capture installations and spacecraft of the occupying race.

Pre-Industrial populations can destroy planetary instal-lations or planeted spacecraft but lack the capability to use anything they might capture. If a Pre-Industrial General Insurrection succeeds, all such facilities and spacecraft are considered destroyed by the rebels.

The table below indicates the rebels' chance of success.

	Chance to Seize Facilities on Intercep Turns		
Rebels are…	**1-2**	**3-5**	**6+**
IND-1	02%	01%	---
IND-2	10%	05%	01%
High-Tech	25%	10%	05%

Industrial and high-tech rebels do have a chance to seize planetary installations and planeted spacecraft intact, but the chance of doing so is greater in the earlier phases of the revolt while the rebels still enjoy the advantage of surprise. The SM (or the player running the rebels, if there is no SM) rolls percentage dice against the table for the rebels once per interception turn per facility and/or planeted spacecraft.

A garrison may attempt to destroy any spacecraft or installation after any failed attempt to capture it and will succeed on a percentage roll equal to or less than its Racial Determination on percentage dice. By the third day of a General Insurrection, any as-yet uncaptured installation can automatically be destroyed by its garrison. And, of course, operable spacecraft can take off from a planet at the end of the first interception turn of the revolt, in which case the rebels will get only one shot at capturing them.

17.03.03.4 An occupying race or empire puts down a General Insurrection by defeating (destroying) the rebelling PCF in planetary combat as per 21.04 and maintaining or replacing the planetary garrison. When this happens, the population reverts to conquered and occupied status with no active rebellion, but the possibility of future rebellion remains. If a General Insurrection succeeds, the occupying power must assault and reconquer the planet to regain control of it; until he does, it will continue to build whatever military forces it can to resist reconquest.

A Low-Level Guerrilla War is much harder to defeat, as guerrillas can maintain low-intensity operations over extended periods. A Low-Level Guerrilla War will continue until the occupying power can both neutralize the guerrillas' active cadres and undercut support for the Resistance. Both of these processes are represented abstractly.

Support for the Resistance can only be eliminated by political means--by inducing the population to accept a relationship closer than Non-Intercourse as per 17.04.

In active military operations, the occupying power applies its garrison strength above the minimum required garrison to counter-insurgency operations. To reflect this, the occupying player increases the planetary EVM by 1/10 of the percentage by which its garrison exceeds the minimum required garrison strength at the end of each month of low-level guerrilla warfare, rounding fractions up, up to the EVM which obtained at the beginning of the month. Losses in garrison strength inflicted by Low-Level Guerrilla Wars cannot be offset by counter-insurgency operations.

Example of military operations: A population with an EVM of 961, an adjusted RM against the occupying race of 71%, and a garrison of 652 PCF rebels in a Low-Level Guerrilla War as per 17.03.03.1. The 2D10 roll for EVM damage is "12," so 12% of the EVM and the garrison are destroyed by rebel action. Twelve percent of 961 is 961X.12= 115.32, which rounds to 116, so the new EVM is 961-116= 845. Twelve percent of 652 is 652X.12=78.24, which rounds up to 79, so the surviving garrison strength is 652-79=573 PCF.

The required base garrison is always that which was required when the planet was first occupied (in this case, 331 PCF), and the current garrison strength is 573 PCF, which exceeds the base requirement by 573-331=242. 242 is 73.11% of 331 (242/331=.7311), which rounds to 74%, and 1/10th of 74% is 7.4%, which rounds to 8%. So, when all the dust settles, the occupying force's counter-insurgency operations offset 8% of the 12% of damage the Resistance inflicted on the population's EVM, meaning the cumulative reduction in EVM was only 4%, or 961X.04=38.44, which rounds to 39, making the actual EVM 961-39=922.

Obviously, counter-insurgency operations can never be more than a holding action. Ending the guerrilla warfare operations of a planetary Resistance requires a political solution.

17.04 Political Interaction with Conquered Populations

Although Conquered and occupied populations are technically at war with their occupiers, they can't exactly go anywhere, and the occupying power can always continue to pursue political options. In many instances, the modified Racial Chauvinism (and hence the Political Acceptance Roll) of the occupied population will exceed 100% where the occupying power is concerned, but this can be reduced by an adroit occupation commander.

Once the Political Acceptance Roll is brought below 100%, it becomes possible to negotiate a way out for all concerned.

17.04.01 The RC of an occupied population is reduced by investment in the industrial development and resultant general improvement in the occupied population's standard of living. Reduction in RC is directly proportional to increases in EVM; for every percentage point of the maximum possible EVM increase above the initial EVM for the current TL which is achieved by the occupying power's industrial investment, the occupied population's RC toward the occupying power is reduced by 01%. All fractions round down, and EVM from pre-conquest industrial expansion investments do not count for this purpose.

Example: *The maximum EVM increase through industrial investment is 50% of the initial EVM of the population at its current TL, which means that a Large HT3 population's initial EVM of 1,170 could be increased by a total of 1,170X.5=585 (or to 1,170+585=1,755). If the EVM were increased to 1,470, this would represent an increase of 300, which is 300/585=.5128, or 51.28% of the maximum possible increase, which would round to 51%, and would reduce the modified RC (and thus the Political Acceptance Roll) of the occupied race by 51%.*

17.04.02 The RC of a conquered planet cannot be reduced by industrial investment if the occupying power is pursuing the Cortez Approach (15.03.05).

17.04.03 Increasing the EVM of the population can be risky, since the EVM is used to determine the PCF strength of the rebels in the case of a General Insurrection, but if sufficient garrison strength is maintained to prevent revolt, on the one hand, while sufficient investment is made to lower RC, on the other hand, a conquered population can be brought to accept a political

relationship other than War. Non-Intercourse is not an acceptable political offer; to attain it, the occupying power would have to withdraw from the planet. Non-Aggression is an acceptable political offer, but only as a means to a closer relationship.

The possibility of a planetary revolt will remain until and unless the political state can be raised to at least that of a Trade Intercourse treaty, but attaining Non-Aggression (which reflects a truce and "peace talks" with the rebels) ends any current Low-Level Guerrilla War and decreases the modified RC of the occupied population towards the occupying power for future revolt rolls by 15% before all other modifiers. If a Low-Level Guerrilla War or General Insurrection breaks out after a Non-Aggression relationship is attained, this indicates the talks have broken down, the relationship reverts to war, and all negotiations, RC modification, etc., begin anew.

18.00 Strategic Movement Rules

Movement occurs on the strategic level only when starships move over interstellar distances. The time consumed in such movement is of importance on lower movement scales only when moving starships enter unknown systems or systems containing hostile or unknown spacecraft. When such confrontations do occur, however, the arrival time of the moving force is of critical importance.

18.01 Planning a Strategic Move

When a player moves starships over strategic distances, he must record the date and hour the moving units leave their current location in their current star system.

18.01.01 After recording the date and hour the move begins, the player consults his imperial map, noting which star systems the starships must move through.

Warp point transits are instantaneous, but the normal space between them must be crossed, which takes time. Consult the system data sheet for each system through which starships must pass, determining the actual distance (from the WP Data Block) between the warp points the starship(s) must use, then divide by the appropriate Interstellar Movement Factor value from the table in 18.01.02 to determine how long the starships will take to cover that distance at their best speed. (Time should actually be calculated to the nearest minute, but players may decide, provided all are in agreement, to round to the nearest full hour, rounding all fractions of .5 hours or more up.) Fill in the system number, the warp point of arrival, and the time of arrival on the Starship Strategic Movement Order Form (18.01.03) for that starship or starships, then turn to the next system to be crossed and repeat the calculations.

In games with a Space Master, the SM may rule that players need calculate only the final transit's exact time by adding all distances to be covered and performing a single division operation. This speeds play considerably, but the SM will then be responsible for comparing all players' movement orders and calculating exact arrival times for any star systems through which units of more than one player or activated NPR passed in the course of the month in order to determine if there were any potential encounters along the way. As a general rule, there will be a relatively low number of such encounters (since most multiple-star system movement orders will be through known space) and it is simpler to back-track for detailed calculations than to spend the time working out each transit's exact timing ahead of time.

18.01.02 Interstellar Movement Factors

Strategic MF	% of Light-Speed
1	02%
2	03%
3	05%
4	07%
5	08%
6	10%
7	12%
8	13%
9	15%
10	17%
11	18%
12	20%

(Speeds above "6" are for the use of courier drones.)

18.01.03 Starship Strategic Movement Form

18.01.03.1 Strategic Movement Form Explanation:

"Force Designation": the designating number or name of the force from the Fleet Roster.

"Starting System": the system from which the force begins movement.

"Starting Location": the number of the system hex in the starting system from which the force begins movement.

"Time of Departure": The time (to the nearest hour) at which the force begins strategic movement.

"#1--SS# ???": The system number of the star system to which a given transit warp point leads.

"WP": The designator of the warp point within a star system through which the force will enter the next star system on its move. The first "WP" notation is always that by which the force leaves its Starting System.

"Time": The time at which the force will enter the designated star system. For each successive warp point, the time at which the force leaves the preceding system and the time at which it arrives in the next system are identical, as a transit is instantaneous.

18.01.04 A unit always arrives at the designated time. The two system turns which comprise each day within a star system begin at 00:00:01 and 12:00:01, respectively, and each system turn consists of 6 pulses, each two hours long.

Thus system movement pulses look like this:

System Turn #1	System Turn #2
00:00:01-02:00:00	12:00:01-14:00:00
02:00:01-04:00:00	14:00:01-16:00:00
04:00:01-06:00:00	16:00:01-18:00:00
06:00:01-08:00:00	18:00:01-20:00:00
08:00:01-10:00:00	20:00:01-22:00:00
10:00:01-12:00:00	22:00:01-24:00:00

18.01.05 Newly arrived units begin movement at the start of the system scale movement pulse beginning after their arrival, having already expended one movement point each on the system scale. Thereafter, they move normally on the system scale and/or at any lower scale their subsequent movement may activate.

Example: *Using the interstellar movement example below, assume that BG Aeolus, in its move from Aeolus to Khalkfontein, arrived in Rigel (which is supposed to be held by his Terran Military & Trade Ally) only to find that a Rigelian carrier force from Kalizwah is attacking the Terrans. It is imperative for him to come to the aid of his ally, and this requires that he know exactly when he can begin movement in Rigel. Consulting his strategic movement orders, he finds that BG Aeolus arrives at 09|02:20, or 02:20:00 on Day 9 of the current month. That means he arrives in System Turn 1 of Day 9 and will begin movement in the system-scale pulse beginning after 02:00, which (according to the chart above) means the pulse beginning at 04:00:01, or the third movement pulse of System Turn 1. His units will already have expended one system pulse of movement at that time, and so his SDs will have a maximum remaining movement on the system scale of "4."*

Example of Interstellar Move: *Suppose the Khanate of Orion chose to send a task force from Aeolus (ID # 0002) to Khalkfontein (ID # 0025) via Nyaza (ID # 0038) and Rigel (ID # 0045), departing on Day One, Hour One, of the current Strategic Turn. Checking the data on his System Data Forms, the Orion player would find that he needed to leave Aeolus via WP 3 to Nyaza, arriving at Nyaza's WP 3, then leave Nyaza via WP 1, arriving at Rigel's WP 8, and then leave Rigel via WP 9, arriving in Khalkfontein via WP 1, making a total of 3 transits. He would begin entering the move on his strategic movement orders like this:*

Force Designation	Starting System	Starting Location	Time of Departure	#1--SS# 0038 WP	#1--SS# 0038 Time	#2--SS# 0045 WP	#2--SS# 0045 Time	#3--SS# 0025 WP	#3--SS# 0025 Time
BG Aeolus	Aeolus (0002)	Hex #	01 | 01:00	3		1		8	

Having determined the course for his movement, the Orion player now calculates how long it will take him to make the move. His begining hex is 24 LM from WP 3 in Aeolus, Nyaza's WP 3 is 324 LM from WP 1, and Rigel's WP8 is 120 LM from WP 9, so the total distance to be covered is 24+324+120=468 LM. He decides to move his units at their highest safe strategic speed (1/2 their maximum tactical speed, since they all have military engines). Since he has SDs in the formation, that means that their maximum speed is 5/2=2.5=2. Consulting the Interstellar Movement Factors Chart in 18.01.02, he finds that a speed of "2" equals 03% of light-speed. Accordingly, moving 468 light-minutes will take him 468/.03=15,600 minutes, or 15,600/60=260 hours, which would become 260/24=10.8333 days or 10 days, 19.9992 hours, which would round to 10 days 20 hours. He will thus arrive in Khalkfontein at 11|21:00, and enters that time under his last transit.

He must also, however, calculate when he will arrive in each intervening system so that if something happens along the way he will know exactly when his own units arrive.

The 24 LM from his starting position to the transit into Nyaza will take 24/.03=800 minutes (13 hours 20 minutes) and crossing Nyaza from WP 3 to WP 1 will take 324/.03=10,800 minutes (180 hours, or 7 days 12 hours). He will thus arrive in Nyaza at 01|14:20 and arrive in Rigel at 09|02:20, and those figures would also be entered on BG Aeolus's movement form, thus:

Force Designation	Starting System	Starting Location	Time of Departure	#1--SS# 0038 WP	#1--SS# 0038 Time	#2--SS# 0045 WP	#2--SS# 0045 Time	#3--SS# 0025 WP	#3--SS# 0025 Time
BG Aeolus	Aeolus (0002)	Hex #	01 | 01:00	3	01 | 14:20	1	09 | 02:20	8	11 | 21:00

19.00 Survey Rules

No player can know anything about a system he has not personally surveyed unless that data is provided to him by an ally or he captures it from an opponent. Assuming that he has no advance information, the following rules are used to obtain information after he enters the system.

If his are the first ships to enter a given system, the system will generally be generated as he conducts his survey work, though in some cases the Space Master may have "pre-created" a system or systems. If another player has already surveyed the system, the system data gained by the new surveying player will come from the System Data File of the player who carried out the initial survey.

Space Masters should note that players should not know whether or not a system has been surveyed until and unless they make contact with the race which conducted the original survey. For this reason, the SM will generally want to make all the system generation rolls called for under 13.00 as the survey proceeds even if he is actually taking the data from an existing System Data File. As a player surveys a star system, he should enter the data he obtains in a new System Data File of his own for the system.

19.00.01 No starship may survey a star system unless it mounts science instruments (X; see 27.03.08). Adding long-range scanners (Xr; see 27.05.05) to science instruments gives the survey ship more "reach" and speeds the survey process considerably.

19.00.02 Whenever a survey ship makes transit through an unexplored warp point, the surveying player (or the SM) rolls percentage dice against the table in 13.06.02 to determine the type of warp point from which the survey ship emerges. This roll should always be made by the SM as per 13.06.03, even if he already knows the warp point will be a closed WP. Once the WP type is known, its range and bearing from the primary are determined as per 13.06.04 and entered on the new System Data File being filled out by the surveying player. If the system has already been surveyed by another player, the original surveying player is not told the range and bearing of the closed WP by which the new player entered unless one of his units lies within detection range of the closed WP at a time when one or more of the newly arriving player's units makes transit through it.

19.00.03 Once a survey ship enters a new star system, its instruments begin gathering survey data. Units equipped with X can analyze that data, though X have no detection capabilities of their own.

Large system bodies--suns, planets, moons, and asteroid belts (though not individual asteroids)--can be detected at any range within the star system by any starship, but data about planetary types, primary types, etc., cannot be processed (and so cannot be used) without X.

All starships have an inherent detection range of 10 LS (20 tactical hexes), but units without Xr cannot detect other spacecraft above that range.

19.01 Surveying for Populations

Industrial and High Tech populations and Planetary Defense Centers emit energy signatures which can be detected and classified at varying ranges depending upon a unit's sensor capabilities. (Again, units with only X are not using their X to detect the signatures but simply going through the data available to their inherent sensors with a fine-toothed comb to spot those signatures. Units with Xr are using their more sensitive scanners in a direct detection mode. Units with both X and Xr have the best of both worlds and have the longest detection range of all.) Ranges are:

Population Size	Detection Range* with…			
	Neither X nor Xr	X	Xr	X & Xr
PDC	no detection	from orbit	30 LS	3 LM
Outpost	from orbit	5 LM	15 LM	24 LM
Colony	from orbit	10 LM	30 LM	48 LM
Settlement	from orbit	15 LM	45 LM	60 LM
Small	1 LM	20 LM	80 LM	90 LM
Medium	2 LM	25 LM	100 LM	120 LM
Large	3 LM	30 LM	120 LM	240 LM
Very Large	4 LM	45 LM	180 LM	300 LM

*When calculating detection ranges remember that:
1 tactical hex = 1/2 LS
1 interception hex = 60 tactical hexes (30 LS)
1 system hex = 24 interception hexes (1,440 tactical hexes, or 12 LM).
Thus 300 LM would equal 300/12=25 system hexes; 90 LM would equal 90/12=7.5 system hexes, or 7 system hexes and 12 interception hexes; etc.

Pre-Industrial populations emit no significant energy signature and can be detected only by direct observation from orbit. The tech level of a population can be immediately identified as being Pre-Industrial, Industrial, or High-Tech from the moment it is detected. Survey from space cannot, however, distinguish between IND-1 & IND-2 or determine the exact TL of a high-tech population; only contact with the population and observation of the technical systems it has developed and deployed can tell a survey ship that.

Remember that any HT population has the equivalent of Xr, which will determine the range at which it can detect the surveying starship. Pre-IND and IND-1 populations have no sensor range at all. IND-2 populations are assumed to have 1/2 the detection range of Xr.

19.02 Surveying for Warp Points

Warp Points are much more elusive than system bodies and system populations, and locating them is possible only if a survey ship equipped with X physically moves within 3 light-minutes (one quarter of a system hex) of them. Units equipped with both X and Xr can detect them at twice that range. In addition, WPs may not be detected by survey ships moving at speeds higher than "4." (Ships may move slower than "4," but those moving faster than "4" cannot detect the gravitic anomalies which reveal warp points.)

WPs of Type 7 through Type 11 are even harder to detect; to locate them, a survey ship must first survey the entire system for Type 1-Type 6 WPs, then survey a second time to locate the Type 7-Type 11 WPs. In essence, the first WP survey is a "rough survey" in which the basic gravity anomalies of the star system are charted. Equipped with this data, the survey ship can carry out a "detailed survey" to locate the more elusive WP types.

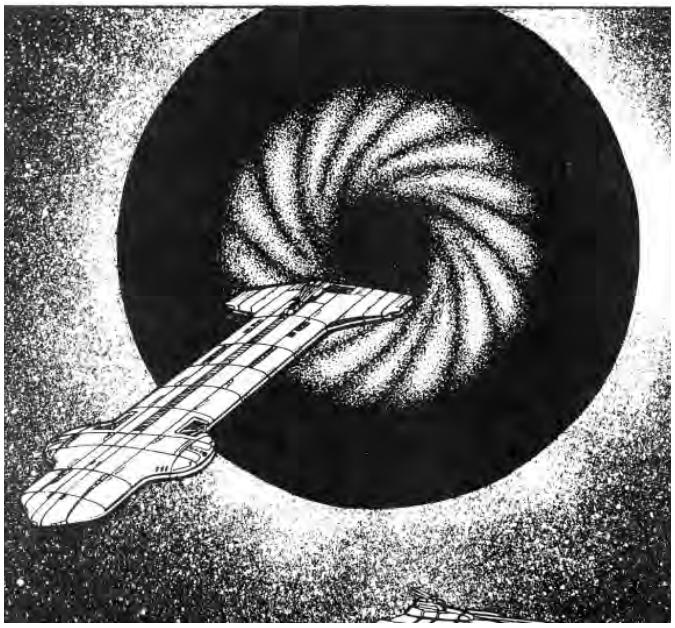
Type 12-Type 15 WPs are closed warp points and can be detected only by units passing through them from the warp point at the far end, though their locations can also be pinned down by units which observe someone else making transit through them.

Any starship, whether or not it has X and/or Xr, always knows the exact location of the WP by which it first enters a star system, whether that WP is open or closed. The ship's astrogator is able to use star fixes taken immediately after transit to relocate the WP even if the ship technically cannot "see" it.

19.02.01 When a system is first entered, the SM (if there is one) makes the normal determining rolls for WP numbers, types, and locations (13.06.01-13.06.04) and reveals them to the surveying player as his ships complete sufficient survey time to detect a WP of that type at its actual distance from the primary (see table in 19.02.02, below).

If there is no SM, the surveying player makes the determining rolls when he finishes the rough survey (see below) ignoring all WPs of Types 7-11 he generates but subtracting "1" from the total number of WPs in the system (see 13.06.01) for each Type 7-Type 11 rolled. After he completes his detailed survey, he rolls again for type determination (13.06.02), ignoring all WPs of Types 1-6 he generates, up to the total number of WPs (minus any Types 1-6 detected in his rough survey) generated in 13.06.01. If the SM is making the rolls, the surveying player should never be told the total number of WPs until he has completed both his rough and detailed WP surveys.

19.02.02 Since the SM generates all of a system's WPs as soon as the system is entered, he will already know where the WPs are located in each system and he may, at his discretion, allow players to physically move their survey ships on



the system display map and simply inform them when (and if) they pass through a system hex containing a WP.

The problem with this is that a cunning player will soon note that all WPs lie directly on or adjacent to the radians on the system map and will move his ships accordingly. The fact that WPs are located in such a fashion is an artificial convention adopted solely to make things easier on the players.

In "reality," a WP might lie on any bearing from the primary of a system, so if the SM decides to allow for physical movement of survey ships, he should require that the ships move in a gradually expanding spiral around the system primary and not directly outward along the "spokes" of the radians. Players may, of course, begin their spiral patterns on any bearing from the primary.

If the system has not been pre-generated, the time required for survey should be calculated from the table below, which gives the time in days required for a rough survey with both X and Xr. For units equipped only with X, all time requirements are doubled. The table's time requirements are given in terms of system hexes from the primary and the numbers of days time required to survey a sphere of space with the listed system-hex radius; the number of days is multiplied by 2 to determine the time requirement in system turns. More than one survey ship may be used, and fractional days are noted on the table for calculating the time required by them. To determine the time for multiple ships, divide the time listed by 1 plus 1/2 of the total number of ships used. There is, however, an "Absolute Minimum Days To Survey" listed in the last column of the table. This limitation reflects the fact that no matter how many ships are used, they must begin from a common origin point and proceed in a systematic and orderly fashion. No matter how many survey ships are employed, the time requirement cannot be reduced below the "Absolute Minimum" listed.

System Hexes from Primary	Days to Survey with one ship moving at…				Absolute Minimum DaysTo Survey
	MF 1	MF 2	MF 3	MF 4	
1	3.00	1.50	1.00	.80	2
2	9.00	4.50	3.00	2.20	2
3	18.00	9.00	6.00	4.50	2
4	30.00	15.00	10.00	7.50	2
5	45.00	22.50	15.00	11.20	2
6	63.00	31.50	21.00	15.80	2
7	84.00	42.00	28.00	21.00	2
8	108.00	54.00	36.00	27.00	2
9	135.00	67.50	45.00	33.80	2
10	165.00	82.50	55.00	41.20	2
11	198.00	99.00	66.00	49.50	2
12	234.00	107.00	78.00	58.50	2
13	136.50	91.00	68.30	68.30	2
14	315.00	157.50	105.00	78.75	2
15	360.00	180.00	120.00	90.00	4
16	408.00	204.00	102.00	102.00	4
17	459.00	229.50	153.00	114.80	4
18	513.00	256.50	171.00	128.30	4
19	574.00	287.00	191.30	143.50	6
20	630.00	315.00	210.00	157.50	6
21	743.00	371.50	247.70	185.80	6
22	909.00	455.00	303.00	227.30	8
23	978.00	489.00	326.00	244.50	8
24	1050.00	525.00	350.00	262.50	10
25	1125.00	562.50	375.00	281.30	12
26	1203.00	601.50	401.00	300.80	14
27	1284.00	642.00	428.00	320.50	14
28	1368.00	684.00	456.00	342.00	16
29	1455.00	727.50	485.00	363.80	16
30	1545.00	772.50	515.00	386.30	18

19.02.02.1 Special Note: The restriction against operating military type drives at more than 1/2 power for extended periods (27.03.07.6) also applies to ships employed on survey work.

19.02.02.2 The above values are for a rough survey only. To complete the detailed survey and locate Type 7-11 WPs requires an additional period equal to a second rough survey.

19.02.03 The above rules assume that all survey ships move at the same speed, as most players tend to build small, specialized survey ships to a mass-produced, identical design. If, however, the players or SM wish to allow for instances in which individual units of survey forces may be moving at different speeds, the following optional procedure may be used.

1. Find the average speed of all survey ships, rounding any decimal fractions to 2 places.
2. Find the time requirement for the next lower speed with the number of ships actually present.
3. Find the time requirement for the next higher speed with the number of ships actually present.
4. Subtract the time for the higher speed from the lower and multiply by any decimal fraction of the average speed of the group.
5. Subtract the result of the multiplication from the time for the lower speed and round to 2 decimal places.

Example: *Assume a total of 10 survey ships, 2 moving at speed "2" and 8 moving at speed "3." The average speed would be ((2x2) + (8x3))/10=(4+24)/10=2.8. The time required for 10 ships moving at speed "2" to survey a 30-hex radius would be 772.5/(1+(10/2))=772.5/6 =128.75 days. The time required for 10 ships moving at speed "3" would be 515/6=85.83 days, and 128.75-85.83=42.92 days. Multiplying the difference by the decimal fraction of the average speed gives 42.92x.8=34.336, so the actual time required is 128.75-34.336=94.414, which would round to 94.4 days.*

19.03 Detailed System Body Survey

Planets and system bodies can be located and identified as to type as per 19.01, above, but before a system body can be colonized the surveying player must obtain detailed information on it. This will require both careful study from orbit and, for habitable planets, the collection of atmospheric and soil samples from widespread points across the planetary surface. Type 02 bodies are easier to survey for colonization, since any population emplaced upon them will have to be placed in hostile environment habitats, which are sealed and self-contained.

19.03.01 To make a detailed survey of a habitable planet, a survey ship with X must orbit the planet at a maximum range of 2 tactical hexes for a period of 30 days. Additional survey ships may be used, as for WP surveys. When additional ships are used, the time requirement is divided by 1 plus 1/2 the number of ships over one used, retaining all fractions, to determine the number of days which must be spent The actual days required are rounded to the nearest 1/2 day. (Thus, if 6 ships were used, the time requirement would be 30/(1+2.5) = 30/3.25 = 8.57 days, which would round to 8.5 days.) The minimum possible time requirement, however, is 2 complete days per planet, and multiple X aboard a single ship will not reduce the time requirement.

19.03.02 In addition to the time in orbit, atmospheric and soil samples must be taken from any T or ST world. This will require another 30 days for a single ship, but in this case small craft, as well as additional starships, may be used. Indeed, small craft are more efficient than starships, since they can actually land on the planetary surface without a spaceport for sample collection. To determine the number of days required for sample collection, divide the 30 day requirement by 1 plus1/4 of the number of sampling starships, retaining all fractions. Each small craft used to take samples counts as 2 starships, and small craft can be busily collecting their samples while the survey starships carry out the orbital survey required under 19.03.01. Obviously, for sampling purposes any starships used must be atmosphere capable. The minimum possible time for sample collection from a habitable planet is 4 complete days.

19.03.03 The time requirement for surveying Type O2 system bodies from orbit is reduced by 50% (to 15 days) and no atmospheric or soil samples are required, but the minimum possible orbital survey time is not reduced. Type O1 system bodies are more difficult to survey from orbit than Type 02 bodies and require the same amount of time as a habitable planet, though no atmospheric or soil samples are required.

19.03.04 Any system hex containing an asteroid belt contains five asteroids large enough to support one hostile environment Colony each, but those asteroids must be located before they may be used. In this instance, Xr can definitely be of help with their greater range and resolution capability. A starship with X can locate one suitable asteroid for every 10 days spent in an asteroid belt system hex; starships with both X and Xr can locate one suitable asteroid every 3 days. Multiple starships may not be used in a single asteroid belt system hex, but multiple asteroid belt hexes may be surveyed simultaneously at the rate of one starship per asteroid belt system hex.

19.03.05 Intrepid Explorers' Peril Probability. As an optional rule, players and SMs may allow for the chance that disaster will overtake a planetary survey force. When this rule is used, any survey ship surveying a Type T or ST planet may run into some deadly and unknown disease or parasite. Calculate the Habitability Differential between the planet and the survey crews' home world and multiply the HD by .03. The result is the Intrepid Explorers' Peril Probability (IEPP), the percentage chance that the planet hides some unsuspected peril. (In this case, the fact that a Type T or ST planet is a hostile environment for citizens from the other type of habitable world is immaterial; the disease or parasite in question still finds the visitors tasty.)

The SM (or the surveying player, if there is no SM) rolls percentage dice against the IEPP. If his roll is equal to or less than the IEPP, the crews of all ships which collect samples from that planet (those which simply orbit it are unaffected) perish horribly in the same strategic turn that they began surveying it and the planet is permanently impossible for that race to colonize even as a hostile environment. A planet which is deadly to one species, however, may not be dangerous for another--even one from a home world with the same Habitability Index--and each race should check individually against its own IEPP for any habitable planet.

All survey ships whose crews perish for the glory of their race under this rule are unusable by the race which originally crewed them until completely decontaminated. Decontamination is represented by refitting the ships as if they were captured spacecraft (15.09.05.1).

19.04 Filling Out the System Data Form

As survey data is accrued, it is recorded on the System Display Map printed on the System Data Form. System bodies, including warp points, should be located in the appropriate system hexes of the small map, but unless the system scale is triggered by an encounter with an NPR civilization, player population, or hostile or unknown spacecraft, there is no need to actually set up the system on the large System Display Map.

19.04.01 Warp Point Data Block. Most of the data to be filled out on the System Data Form is fairly self-explanatory, but as the information in the Warp Point Data Block is used every time a message or starship crosses a system, it may be well to provide a specific example.

19.04.02 Example of Warp Point Data Block: (Aeolus System: ID # 0002)

WP#	WP Type	WP Cap.	Radian No.	Dist.	Dest. System	WP# 2		WP# 3		WP# 4		WP# 5		WP# 6	
						LM	IFN	LM	IFN	LM	IFN	LM	IFN	LM	IFN
1	10	200	5	29	Desok	---	----	696	9943	396	5658	---	----	---	----
2	6	400	9	23	Sigum	---	----	---	----	348	4972	---	----	---	----
3	11	180	7	29	Nyaza	---	----	---	----	---	----	---	----	---	----

WP #: The identification number assigned the warp point within the system to which the data to the right applies.

WP Type: WP type, from Type 1 to Type 15. This data is important because a warp point's type defines its capacity and the ease with which it can be detected. Closed WPs are further noted with "(c)" after the type number.

WP Cap: The largest starship, by hull spaces, which may use the WP.

Radian No.: The radian number from the system map upon which the WP lies.

Dist.: The WP's distance from the primary in system hexes.

Dest. System: The system to which the WP connects.

WP#1, WP#2, WP#3, etc.: All the other warp points in the system.

LM: Reading across, the distance in light-minutes between two warp points. (Also the time in minutes required for a light-speed transmission to cross between the two warp points via the ICN if relay stations are available.)

IFN: Reading across, the time in minutes (rounding all fractions up) required for the IFN at its speed of "4" (or 07% of light-speed) to cross between two warp points, determined by dividing the distance in LM by .07. This information is provided for quick reference for all IFN shipments across a system.

20.00 The Interstellar Communication Network

Communications can be an empire's Achilles Heel. The ability to transmit information speedily over interstellar distances is critical to control of the economic, political, and (especially) military activities of the empire. When information and orders can be passed quickly, flexible and effective response to threats is possible; when information and orders pass slowly or not at all, responses to threats become fumbling and uncertain.

The communication situation in *STARFIRE* is complicated by the fact that messages must be passed through two quite different media: the normal space within star systems and the warp points between them. Messages may be transmitted through normal space via radio or laser communications arrays and relays, but they may pass through warp points only via starship or courier drone (27.04.01). Warp points thus serve both as portals which link widely separated star systems and as barriers which cut off message transmission between them. Accordingly, an effective Interstellar Communication Network (ICN) combines technology to cope with both message transmission media into a single system.

Because most ICN transmissions will be carried by tight-focused, highly-directional beams, the possibility of their being detected by anyone other than their intended recipient will be very slight. If a spacecraft is actually in the same interception hex as the intended recipient of a message, it will be able to detect and "tap" the beam, but unless it has at least a Military Alliance with the race transmitting the message, it will be unable to read the transmission, which will presumably be in a "foreign" language and encrypted.

20.01 Order Writing and Communication Restrictions

No starship or force of starships may move on the strategic scale without express written orders to do so. Orders are written at the Imperial Capital or closest Imperial Command Center (ICC) for transmission to units which are to move, and movement may begin only after the orders reach the units expected to carry them out. At HT1, when not even courier drones are available, this means the orders must be physically carried from the capital or ICC via starship, as there is no other way to get them there. At higher tech levels, they may be transmitted via courier drone or via communication module [(CC); 27.04.07] and interstellar communications buoys (DSB-c; 27.06.02). In either case, transmission time must be allowed for when the orders are written.

20.01.01 A unit or group of units will continue to execute the last set of orders it received until they are superseded or altered by later orders. A unit or group of units, unless commanded by a graded admiral (see 07.02), can never do anything not covered by its orders except to defend itself or the star system it occupies against attack.

20.01.02 A player cannot send orders to a unit in response to a specific situation until news of the situation reaches the imperial capital or an ICC. There will thus be a three-step delay in the formulation and transmission of orders to respond to a new threat or opportunity: the time required for the capital or an ICC to learn of the threat or opportunity, the time required to formulate new orders for the units required to respond to it, and the time required for those orders to reach the appropriate units.

20.01.03 Just as military orders are binding upon military units until new orders are written and transmitted to them, so political "orders" are binding until amended by the capital or an ICC. Rule 17.00 restricts a player empire to making a single political offer per month to another player empire or NPR. This restriction is a simple way to reflect the need for messages to move back and forth between the negotiators and their superiors. SMs and players may, however, choose to exercise the optional provisions of 17.00 and allow offers and counter-offers to be transmitted via an Imperium's ICN. In this case, a player empire may make as many offers in a month as the turn-around time on messages to the capital or nearest ICC make possible.

20.01.04 There will, undoubtedly, be some wayward soul who tries to get around communications restrictions. Of course he always meant to send Sixth Fleet off to System 817 for, er, training maneuvers. The fact that the Ravening Horde of Heshi just invaded System 817 (a fact of which his closest ICC will not become aware for another month and a half) has nothing to do with the case. You believe him, don't you?

It is the function of the SM (or the other players, if there is no SM) to restrain such weaker brethren. To help with this, each player should maintain a message log, assigning each order sent and each message received in a turn a unique identifying number and recording the date and time at which it was sent/received. Orders responding to a given situation should then include the ID number of the message which made the issuing authority aware of that situation. Unless such an ID number is included, the order is invalid and may not be obeyed, and the SM has the right to examine any player's message log to be certain that no one is playing fast and loose with reception times and dates.

If the SM, in his sole opinion, decides someone is playing fast and loose with the ICN, his decision to disallow any order is final. Players without an SM's wise and dispassionate guidance should resolve differences of opinions with an amicable roll of the dice rather than attempting to nuke one another across the gaming table.

20.01.05 Example of Message Log Entry

The Empire of the Omnivoracity is under attack by an unknown enemy who has begun operations by raiding the Omnivoracity's IFN. A freighter courier drone has arrived at

the Hanak System ICC at 22:30 on the 30th day of the 21st month, announcing the attack.

The ICC assigns it the ID number "FCD-204" (since it's the 204th freighter CD of the game for this empire) and notes its arrival time, then formulates his response and sends the following order to one of his fleets:

To: Fleet 178
Proceed immediately to System 1009 via Systems 0023-1079-0102-0091 at strategic speed 6 to respond to unknown hostile incursion in System 1009 reported by freighter courier drone received here 21 30 | 22:30:00. Send units to General Quarters for each warp transit. Engage and repel attackers unless present in overwhelming force. If outnumbered by 2-to-1 or greater, fall back to closest system not yet invaded and defend entry warp point pending additional reinforcements.

In addition to writing the order, of course, he must assign it its own message number and enter it in his message log. There is no fixed format for this, but something like the following is recommended:

Message ID: ICC-04-22-01
From: Hanak System (ICC 04)
To: Fleet 178
Response To: FCD-204
Message Sent Date/Time: Month 22 01 | 13:30:30
Message Arrival Date/Time: Month 22 04 | 06:25:00

20.02 Building the ICN

At HT1, the only means of interstellar message transmission is via starship. At HT2, the courier drone becomes available, and empires may provide warp points with navigation buoys (27.04.02) to provide orientation for courier drones. Also at HT2, the communications module (27.04.06) becomes available, allowing a greater message transmission range for spacecraft and providing a courier drone "shuttle relay" function at warp points. At HT4, the interstellar communications buoy (27.06.02) becomes available, allowing empires to relay messages across the normal space between warp points at light-speed.

20.02.01 High-Tech populations in star systems have inherent message transmission capabilities, as do (in a more limited way) IND-2 populations. IND-2 and High-Tech communications can interface if the IND-2 and High-Tech populations are in a political state of Trade Intercourse or closer. IND-1 and Pre-Industrial populations have no message transmission capability. Spacecraft have a limited inherent communications range, which can be increased by mounting communication modules aboard them. The table below defines the transmission and reception ranges in light-minutes (LM) and system hexes (SH) for the various types of transmitters. HT2 and above populations have a monthly courier drone capacity equal to 1/10th their EVM.

20.02.01.1 Because long-range message transmissions must be beamed to precise targets using sophisticated tracking devices, no moving spacecraft, whether or not it possesses a (CC), may receive a message transmitted over more than a 60 light-minute (5 system-hex) range. (CC) are normally mounted in space stations, bases, or DSB-c (which are effectively stationary, maintaining exact, known positions even if they are in orbit about a star or system body) but may be fitted in starships. Moving starships may transmit messages to the full range shown on the table above.

20.02.01.2 Note that DSB-c have a maximum range of 1 system hex for message reception from other DSB-c. This means, in effect, that it takes 1 DSB-c to transmit a message across each system hex, or, put another way, that there must be 1 DSB-c in the center of each system hex across which a message is to be relayed.

20.02.02 Message Transmission Time Calculation. Whenever a message is transmitted entirely via courier drone or starship (that is, no light-speed communication relays are used to cross star systems along the way) its movement is calculated exactly as a strategic movement order (see 18.01) for a vessel of the appropriate speed.

20.02.02.1 Above HT1 and, especially, at HT4 and above, messages will generally be carried over at least a part of their range via light-speed transmission relays within the star systems the message crosses. If the ICN has been established with relay links of DSB-c connecting communication modules at each warp point, the time required to cross each star system en route to the message's destination is a number of minutes equal to the light-minutes between the transit warp points. There is never any delay for message receipt, transcription, re-broadcast, etc., though there technically should be.

20.02.02.2 There may be occasions, particularly between HT2 and HT4, when warp points are not directly linked by relay systems (since DSB-c are not yet available) but (CC)-equipped spacecraft at the warp points are linked to high-tech populations on asteroids and/or planets within the star system. In this case messages may be passed between the (CC) at the warp points, using the populations' transmission/reception capabilities as relays, but the time requirement must be calculated for each "leg" of the relay. The map side of the System Data File is used to count ranges in whole system hexes for this purpose. Any population-bearing system body is assumed to be at the center of its system hex and, to simplify matters, the initial locations of all system bodies (see 13.07.01) are used for all message relays, blithely ignoring such petty matters as orbital mechanics. (This is grossly inaccurate but makes calculation far simpler.) Asteroid bases, BS, or SS emplaced after the system was surveyed always occupy their original emplacement hexes for message relay purposes, but asteroids and SS will move as per the orbital mechanics for all other purposes. BS, with their greater station-keeping ability, need not move for any reason.

If a population is in range to receive a transmission from the WP by which a message enters a star system but not to

transmit to a (CC) at the WP by which the message must leave the system, the population may use courier drones to pass the message onward.

20.02.03 Imperial Capitals. The imperial capital is the "heart and brain" of any empire. In theory, all actions by any Interstellar Command Center (see below), fleet, ambassador, governor, etc., must be returned to the imperial capital for review and approval, while all empire-wide policy is formulated at the capital and ICC simply implement those policy guidelines. None of these activities are individually reflected in the ICN rules to cut down on the message traffic, but players should understand that it is a continually ongoing process.

The one rule which does reflect the process is 20.02.03.1.

Transmission and Reception Ranges

	Transmitting Unit				
	Population		Spacecraft		
Receiver	IND-2	HT Planet	w/o (CC)	w/(CC)	DSB-c
DSBc	--	36LM | 3SH	1LM | --	36LM | 3SH	12LM | 1SH
Spacecraft					
w/(CC)	84LM | 7SH	240LM | 20SH	96LM | 8SH	96LM | 8SH	36LM | 3SH
w/o (CC)	48LM | 4SH	120LM |10SH	48LM | 4SH	72LM | 6SH	12LM | 1SH
Planetary Population					
HT	180LM | 15SH	360LM | 30SH	120LM | 10SH	240LM | 20SH	36LM | 3SH
IND-2	96LM | 8SH	228LM | 19SH	1LM | --	12LM | 1SH	--

20.02.03.1 When an imperial capital is destroyed, conquered, or otherwise cut off from all or part of its empire, the portion of the empire without access to the capital is severely handicapped in several ways by the loss of central guidance. An ICC cut off from the imperial capital may not--

1. Negotiate any relationship closer than Trade Intercourse with newly encountered races;
2. Emplace any additional populations on any planets its exploration units encounter; or
3. Engage in espionage (22.02.03) or offensive counter-espionage (22.02.04.2).

If a cut-off portion of an empire does not have an ICC, it faces all of the above restrictions and, in addition, may not:

4. Conduct further warp point exploration;
5. Conduct Assisted or Crash R&D;
6. Complete any amalgamations which were underway when the capital was cut off; or
7. Create any new ICCs.

Further, if the cut-off portion does not contain an ICC, all of its resources may be spent only in the systems where those resources were generated and no military unit not commanded or contacted by a graded admiral may do more than defend itself and/or the star system in which it was stationed when contact with the imperial capital was lost.

See 15.12.01 for creating replacement imperial capitals.

20.02.04 Interstellar Command Centers. If the imperial capital is the brain of an empire, the hardware by which the ICN physically passes messages between star systems is its nervous system and an Interstellar Command Center (see 15.12) is a ganglion. In essence, an ICC is a message-processing node, manned by civilian and military command staffs empowered to make strategic decisions (within imperial guidelines) for any star system within message range of the ICC. New orders can be issued by an ICC to any military unit, diplomatic envoy, or planetary garrison in response to incoming messages at any point in a strategic move, subject only to the time required to physically receive, process, and transmit messages.

20.02.04.1 Any imperial capital is automatically an ICC and, in fact, takes precedence over any other ICC in the ICN.

20.02.04.2 Additional ICC may be established using the procedures in 15.12. No newly-established ICC becomes operational until the first day of the month following that in which the necessary population transfer described in 15.12 is completed; thereafter, the ICC is fully functional and exercises complete command authority over any military unit or planet controlled by its imperial government and within communication range of the ICC.

20.02.04.3 When information arrives at an ICC, the command staff must evaluate the data and formulate a response, if any, before they can send off new orders. To determine how much decision time elapses before the ICC staff can dispatch new orders in response to any message, roll 1D10. The result is the number of hours the ICC's staff spends deciding what to do with the information.

20.02.04.4 It is not necessary to assign specific units to specific ICC. While this would certainly be done in real life, the chain of command in *STARFIRE* is defined by the available capabilities of the ICN; any ICC which has the "reach" to communicate with a unit or planet has the authority to give it orders, and any unit or planet will obey the orders it received most recently.

20.02.04.5 If an imperial capital is conquered or cut off from a portion of its empire by hostile action, an ICC may be upgraded into a replacement imperial capital as per 15.12.01. If the original imperial capital is later recovered or communications with it are restored, the upgraded ICC reverts to a normal ICC but is treated as a "reserve imperial capital" and may be reactivated as an imperial capital in a single month at no extra cost if it is required again.

21.00 Planet/Space and Planetary Combat

Naval combat occurs only in the normal space between warp points, which means it will generally take place in star systems, though combat in starless regions reached by Nomad WPs is certainly possible.

The ultimate object of combat, wherever it occurs, however, is to retain or secure control of valuable real estate: strategic WPs or revenue-generating populations, which means it is often necessary to engage planets and their defensive forces, interfacing deep-space combat with purely planetary operations.

21.01 Time Scales

Planetary combat in *STARFIRE* is highly stylized because tactical space combat occurs in turns which are only 30 seconds long. An entire space fleet might be destroyed in a relatively few minutes of combat, whereas one might reasonably expect planetary combat to take up a minimum of several days. Providing for detailed coordination of such different time scales is not practical in a game of this scope (and, even if it were, would tremendously slow a strategic game played on this scale), so certain rather unrealistic restrictions are imposed by the game mechanics.

21.01.01 All space-to-space combat with a planet's defenders must be resolved before any planetary combat is fought out. Obviously, space-to-space combat can also occur while a planetary assault is underway, since defending spacecraft may launch counter-attacks from elsewhere in a star system, or even from other star systems, but any defenders in the planet's interception hex must be dealt with before the landing force goes in.

21.01.02 Any engagement between spacecraft and planetary defense centers (PDC) with offensive weapons (not all PDC have offensive weapons) must be fought out before troops are landed on the planet defended by the PDC. This does not mean that all PDC must be fought before any troops can be landed; it simply means that if the PDC is to be engaged solely from space, the attacking spacecraft must do so before landing the landing force. If the PDC is not engaged first, it may not be engaged at all unless and until all planetary control forces (PCF) outside the PDC have been eliminated by the invasion troops. (This is a "scheduling" mechanics decision to help cut down on potential confusion in the coordination of game scales.)

21.01.03 Spacecraft can engage PCF. They can also provide fire support for PCF engaged in ground combat with other PCF, which is considered a special form of planetary bombardment (see 21.03).

21.01.04 While combat between spacecraft and between spacecraft and PDCs is conducted on the normal tactical scale (that is, in 30-second turns), planetary combat between PCF and planetary bombardments are conducted on the interception scale (or in 30-minute turns).

21.01.05 As an optional rule, players may interface tactical-scale combat involving spacecraft and/or PDCs with interception-scale combat involving PCF. In such a case, the same procedure is used as for deep space combat; that is, each interception turn consists of 60 turns of tactical combat. In most cases, this will mean that any tactical scale space combats will be fought to a conclusion while the PCF are still getting ready to engage one another (which is the reason for the restrictions in 21.01.01 and 21.01.02), but players and/or SMs who feel venturesome are certainly free to interface them.

21.02 The Planetary Combat Environment

STARFIRE divides all planets into six combat areas (also referred to as "planetary areas") numbered from "1" to "6," one for each "hex side" of the planet.

6 ← 1 — 2 — 3 — 4 — 5 — 6 → 1

The diagram above is used to orient units by combat area in order to determine which other combat areas a unit may move into. All PCF and PDCs on any planet are located in a specific combat area and may not move from their combat area on any scale below the interception scale. Other units move as shown below.

Unit Type	Move to any Adjacent Combat Area in
Air-Mobile HT PCF	1 system turn (24 interception turns)
Non-air-mobile	
HT PCF	1.5 system turns (36 interception turns)
IND-2 PCF	1 day (2 system turns, or 48 interception turns)
IND-1 PCF	3 days (144 interception turns)
Pre-Industrial PCF	1 strategic turn (60 system turns, or 1440 interception turns)
PDC	No movement; they are fixed fortifications.

21.02.01 On habitable planets, the population is assumed to be spread over the entire surface of the planet. Populations placed in hostile environments (including "habitable" planets whose planet type is considered hostile for the population in question) must be located in a specific combat area of the planet. There is no requirement to locate military forces and populations in the same planetary combat area.

21.02.02 PCF may be deployed indefinitely to any combat area on a planet which is habitable for their race. On hostile

environment planets, defending PCF require H, Q, and Lh as per the table in 27.01.01. Note that hostile environment populations do not require Q and Lh (life support systems are subsumed in the higher MC and H costs paid to emplace populations in hostile environments). Normally, PCF deployed to hostile environments will live in Q and Lh located in PDCs, but they may also live in Q and Lh built without any of the other systems normally found in a PDC if a player simply wishes to station a local defense force of infantry in a given planetary area.

IND-2 PCF have a maximum endurance of 1 system turn (24 interception turns) outside Q in a hostile environment. High-tech PCF have a maximum endurance of 2 system turns (48 interception turns) outside Q in a hostile environment, but this may be extended by landing additional life support. The additional life support is represented abstractly; it need not be purchased, uses no cargo stowage points aboard a freighter, and is represented on the planetary scale simply by declaring which small craft are being used to supply it to the troops. Every 5 cargo stowage points of capacity dedicated to life support in a small craft provides another 3 system turns of endurance for 1 HT PCF. High-tech races may use their small craft to supply additional endurance to IND-2 allies in hostile environments at the same rate. (Note that although players are not required to purchase PCF life support or show it on their freighter manifests, the cargo capacity of small craft used to transport that life support may not be used to ship anything else.)

IND-1 and Pre-Industrial PCF cannot survive in a hostile environment outside Q. (Moral: Chain mail makes a lousy vac suit.)

21.02.03 No PDC has an inherent PCF strength. If PCF are to be stationed in a PDC to support the PDC's weapons' crews, additional Q must be provided to house them, even in a benign (habitable) environment. However, PCF in benign environment PDC do not require Lh to support their Q. In this case, the Q represent simple barracks.

21.02.04 In *IMPERIAL STARFIRE*, planetary terrain is ignored and has no effect on planetary combat.

21.03 PLANETARY BOMBARDMENTS FROM SPACE

Only missiles (including sprint-mode missiles; see 27.02.06 and 27.02.12) and primary beams may be used against targets in atmosphere. All weapons may be used against targets on planets or moons without atmosphere. Due to the compressibility of atmosphere, nuclear weapons will have a greater effect on specific targets in atmosphere, but destruction of planetary EVM on habitable planets does not reflect this (unless the habitable planet is a hostile environment for the bombarded populations) because the EVM of the population is widely dispersed and thus less vulnerable. For the same reason, P can be used to take out weapons and other technical systems in PDCs but may not destroy EVM (or, for that matter, PCFs in the field). Missiles will, however, inflict collateral destruction on planetary populations on habitable planets, even when the weapons are employed against PDCs and PCF rather than specifically against populations, because those populations have less protection against the blast and fallout produced by the warheads.

Hostile environment populations are much more vulnerable to direct attack from space (since their habitats are fragile) but generally will not take collateral damage from attacks on military facilities, since any defense planner with a grain of sense won't put the military facilities right on top of the civilian population. If the population isn't in the same place as the targeted military facility, the same habitat which protects them from the hostile planetary environment will protect them from radiation and fallout. Again, however, so many individual shots would be required from a primary beam before a significant number of habitats in a hostile environment population enclave were affected that P has no effect on EVM.

21.03.01 PDCs may be attacked with any weapon the atmosphere (or lack thereof) permits. PCF may be attacked by large spacecraft only with missiles or (in vacuum) lasers and force beams, including capital force beams. They are too dispersed and mobile--within the limits of their deployment area--to be effectively engaged with any other weapon, but may be attacked in vacuum by fighters with any fighter weapon. Populations in atmosphere may be attacked only with missiles; populations in vacuum may be attacked with any weapon except primary beams, which have too narrow a focus to inflict significant damage on the colonists' habitats.

21.03.02 Planetary Bombardment Table. When populations (as opposed to PDCs) are attacked by bombardment from space, damage is inflicted as detailed in the Planetary Bombardment Table on page 55, which gives the amount of damage inflicted by each weapon. All attacks on the Planetary Bombardment Table are carried out on the interception scale. Starship weapons may be fired once per tactical turn within the interception turn (or up to 60 times). Damage for expendable weapons (missiles) are listed on a per-round basis; damage for beam weapons is that inflicted in an entire tactical turn of firing.

Obviously, the total number of missiles a spacecraft can fire is limited by its magazine capacity. Fighters may be armed with missiles, each of which inflicts the damage listed, but must return to their carriers to rearm between attacks. For this reason, fighters are limited to 12 attack runs per interception turn (and, of course, by the magazine capacity of their carriers). Fighters attacking targets in vacuum with guns or lasers (whether mounted internally or as external weapon packs) may attack continuously throughout the interception turn, which is the reason those weapons are assigned a greater destructive capacity.

The Planetary Bombardment Table also lists the maximum range (in tactical hexes) at which a given weapon type may be used to carry out a planetary bombardment. EVM lost to planetary bombardment are subtracted first from any EVM produced by industrial development investment.

Note that fighters which use missiles against planetary EVM may make more than one attack run per interception turn. The exact number of attack runs would depend upon the range from the planet to the fighter's carrier and back again, allowing time for rearming aboard ship. Players who wish to carry out such repeat runs are responsible for calculating "turn-around time" between ground attack missions.

Although anti-matter explosions should (theoretically) be comparatively clean in terms of fallout, they tend to be much nastier than conventional nukes at the instant of detonation. Thus even though long-term contamination from an anti-matter bombardment would be lower, antimatter weapons are assigned a greater destructive effort, both in immediate and collateral damage, than standard nuclear warheads.

By far the "cleanest" way to bombard a planet would be with purely kinetic projectiles. Dropping a large asteroid on a planet would produce an incredible amount of thermal energy without the radiation associated with nuclear explosions. Unfortunately, the exact mass, velocity, angle of atmospheric entry, type of terrain at point of impact, etc., constitute too many variables to allow a neat game mechanics solution. (Remember that when starships tow asteroids on tractors, the asteroids stop when the towing ship stops. This is because they are actually "inside" the inertia-cancelling area of effect of the tug's drive field. It also means that you can't use a tug to accelerate an asteroid to "attack speed" against a planet.)

For example, a large asteroid strike in the middle of the Atlantic Ocean on Earth would not only wreak havoc with coastal populations in both Americas, Europe, and Africa, but would also throw up an enormous amount of steam, "salt rains," etc., and a strike on the San Andreas Fault would have devastating and far-reaching consequences for most of Western North America.

Because of this, *IMPERIAL STARFIRE* does not attempt to quantify the results of kinetic bombardments.

Planetary Bombardment Table

Weapon	Range in Tactical Hexes	Damage in EVM Destroyed against…		
			Hostile Env. Pop. Planet	
		Habitable	In Atmosphere	In Vacuum
Basic Missile*	Up to 16	1	3	2
Sprint Missile*	Up to 10	1	3	2
Standard Missile*	Up to 20	1	3	2
Capital Missile*	Up to 30	2	6	4
Strategic Bombardment Missile*	Up to 40	2	6	4
AMBAM*	Up to 10	9	18	12
Force Beam	Up to 3	--	--	6
Force Beam	Up to 6	--	--	3
Force Beam	Up to 15	--	--	1
Capital Force Beam	Up to 3	--	--	9
Capital Force Beam	Up to 7	--	--	6
Capital Force Beam	Up to 16	--	--	3
Capital Force Beam	Up to 20	--	--	1
Energy Beam	Up to 1	--	--	6
Energy Beam	Up to 3	--	--	3
Energy Beam	Up to 8	--	--	1
Capital E. Beam	Up to 3	--	--	10
Capital E. Beam	Up to 6	--	--	6
Capital E. Beam	Up to 9	--	--	3
Capital E. Beam	Up to 12	--	--	1
Laser Beam	Up to 3	--	--	3
Laser Beam	Up to 6	--	--	1
Fighter R*	Up to 1	1.5	4.5	3
Fighter Missile 1*	Up to 8	0.5	1.5	1
Fighter Missile 2*	Up to 11	0.5	1.5	1
Fighter Laser/Gun	0	--	--	10

*These weapons use nuclear warheads.
**AMBAMs always use anti-matter warheads, hence the high damage value against EVM on habitable planets.

Special Notes: If anti-matter warheads of any generation are used on non-AMBAM missiles, the damage (including collateral damage) inflicted by any hit is tripled.

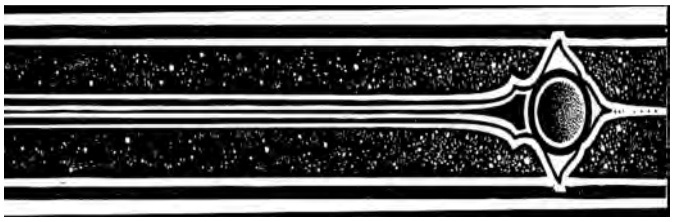
21.03.02.1 When weapons with nuclear and/or antimatter warheads are used against PDCs on benign-environment inhabited worlds, players must keep track of the total number of weapons of this type fired at military targets (PCF or PDC) in any combat area of an inhabited and habitable planet, as they will inflict collateral damage on the civilian population. After all combat has been concluded, the total number of weapons fired and not intercepted by point defense is multiplied by 10% of the appropriate EVM damage modifier from the Planetary Bombardment Table and applied to the planetary EVM. Since the population is assumed to be spread over the entire planet, the EVM damage is limited by the area(s) in which military targets were bombarded. No more than 1/6 of the total planetary EVM may be destroyed by collateral damage caused by attacks on military targets in any one of the planet's 6 combat areas. (That is, you can kill everybody in the hex you actually bombarded going after a military target, but damage in other planetary areas will be much lower.) Any additional collateral damage is lost.

21.03.02.2 Destruction of a planet's EVM represents more than destroyed real estate and industrial facilities; it also represents destroyed people, and the population level of a planet may be reduced by planetary bombardments. Following any planetary bombardment, the planetary population must be reduced to the largest population whose initial EVM at its pre-bombardment TL is equal to or less than the planet's actual surviving EVM.

If there is no population size at the planet's original TL whose initial EVM is equal to or smaller than the surviving EVM, the planet's population is reduced in TL until it reaches an economic level and population of a sufficiently low initial EVM. If, however, the planet began with a population size of "Small" or lower, damage which would require a TL reduction indicates that the entire population was killed by the bombardment, instead. (There are probably a few survivors cowering in the rubble, but not enough to count.)

Note: Reductions in economic level reflect losses in industrial capacity, not in knowledge or scientific base. The remaining GPV of a planet may be applied to any purpose the planet's original TL permitted even if its economic level has been reduced to a lower TL equivalent.

21.03.02.3 Although missiles are the most destructive form of attack (remember that missile damage on the Planetary Bombardment Table is per round whereas that for beam weapons is per interception turn of continuous bombardment) they can also be intercepted by point defense. Any planetary point defense installation in a planetary combat area may attempt to intercept any missile fired at that combat area, whether or not the missile was fired at the PDC mounting the point defense.



At the same time, any missile fired at a military target in a planetary combat area is going to hit somewhere in that combat area, even if it misses its intended target, unless stopped by point defense, which is the reason all missiles fired at a combat area are factored into the collateral damage to the population (which is also why PDCs tend to mount lots of point defense).

21.03.03 Attacking PCF from space. PCF in PDC garrisons may not be individually targeted by spacecraft; they are protected by their base and are destroyed when the Q in which they normally live are destroyed.

PCF outside PDCs may be targeted individually using the Planetary Bombardment Table. Missile attacks on dispersed PCF in atmosphere inflict a loss in PCF equal to twice the damage they would to planetary EVM; in vacuum, missiles targeting PCF in vacuum inflict losses in PCF equal to 1/2 the damage they would inflict to planetary EVM in vacuum, rounding fractions up. Beam weapons (which may be used only in vacuum) also inflict losses in PCF equal to 1/2 the damage they would inflict against EVM in vacuum.

21.04 Ground Combat

PCF and PDC may be attacked by PCF landed from space. PCF are landed using small craft (cutters, shuttles, assault shuttles, or pinnaces; see 28.05 for PCF capacity). Air-mobile high-tech PCF may be inserted by air drop; all other PCF may land only when their assault craft actually land on the planetary surface. Small craft may be attacked as fighters using any weapon mounted by any PDC in the combat area in which they are to land. All small craft used in troop landings are attacked at range "0" on the Fighter Kill Table by any PDC which engages them. Fighters may also engage small craft used in troop landings, although they must catch them outside atmosphere in the case of planets with atmospheres. If small craft used to air-drop air-mobile PCF are engaged by a PDC in the combat area of the drop, the attacking player rolls 1D10 for each engaged. A roll of 1-4 indicates the small craft dropped its troops before it could be engaged.

An air-drop of air-mobile HT PCF is carried out by moving the small craft doing the air-drop to the planet, into its atmosphere, and back out again, but the small craft is not required to actually land and take off (as per 03.05.01 and 03.05.02) and must expend only 4 movement points (total) in the planetary atmosphere. Assuming that it makes its drop and survives, the small craft (like any other small craft) may make repeat assault runs between the attacking fleet's transports and the planet. In this case, the SM (if there is one) or players are

responsible for calculating the "turn-around" time to allow for distance traveled, loading/unloading requirements, etc.

Note that atmospheric weapon restrictions on PDC weaponry apply; that is, a PDC in atmosphere could not mount non-primary energy weapons (which are inoperable in atmosphere) as an anti-fighter/anti-small craft defense any more than it could use them against large spacecraft.

21.04.01 Once PCF are landed, they may move (as per 21.02) to reach the planetary combat area in which they are to engage. All PCF of either side in the same planetary combat area are considered a single unified combat force.

21.04.02 Combat between PCF is extremely stylized. All PCF on each side are grouped by type (TL and air-mobility, if any) and totaled, then each type is converted into Combat Force Points (CFP), an abstract quantification of their combat power.

PCF Type	Base CFP Value	Add per HT Level	Add for "Air Mobile"
Pre-IND	0.25 each	N/A	N/A
IND-1	0.75 each	N/A	N/A
IND-2	1.00 each	N/A	N/A
HT PCF	1.00 each	.3 per HT level	x 1.1 each
Grade Multiplier for all PCF Poor x .60 Green x .80 Average x 1.0 Crack x 1.2 Elite x 1.4			

21.04.03 Once the total CFP for each side in a planetary combat has been totaled, combat begins. One round of combat is fought per interception turn, with each player rolling percentage dice and multiplying his own CFP total by the value rolled. The result is the number of enemy CFP his troops have destroyed in that round of combat. Combat continues until one side's CFP is totally destroyed. After combat, the victor divides his remaining CFP by the CFP value of his PCF types to determine his surviving troop strength, dropping all fractional PCF.

21.04.03.1 If the winning (i.e., surviving) side had more than one type of PCF in combat (as, for example, HT PCF and their IND-2 allies or some HT PCF which were air-mobile and some which were not), casualties may be handled in either of two ways, at the discretion of the SM or the players (if there is no SM).

(A) The victorious player may decide which of his troops died. In this option, the player essentially chooses which troops were used as cannon fodder to absorb fire intended for their betters.

Either method works. Method B is probably more realistic, but there have been enough examples of armies letting their allies take the casualties to make Method A acceptable. The essential point is that the method to be used must be selected before the campaign begins and cannot be switched part way through; the same ground rules must apply to everyone.

As an optional rule, the SM (or players if there is no SM) may choose to allow players to decide which option they will use, regardless of that which any other player may use. If this is done, players who use Option (A) should adjust the RC (towards them) of any race whose troops they use as cannon fodder by +02% for each engagement in which they do so.

21.04.04 Ground Assaults on PDCs. Generally speaking, players tend to prefer reducing PDCs by bombarding them from orbit, but this is not always true, and sometimes the ground-pounders are sent in to take the forts on the ground. This can be because the PDC is weak and the attacking player player wishes to avoid collateral damage to the planet's EVM (and hence GPV), or because the ground base has been built on a planet belonging to his own race or that of an allied race.

21.04.04.1 PDCs are specifically designed to resist ground attacks as well as attacks from space, and they can be very tough propositions if they have garrisons of PCF. Even without garrisons, they can be difficult to take and inflict horrendous casualties on the attackers.

21.04.04.2 PDCs are immobile, and the attacking player may choose to attack PCF outside the PDC before he attacks the PDC itself.

21.04.04.3 PDCs have their own inherent Combat Force Point values, but the CFP for a PDC are calculated somewhat differently from PCF CFP. PDCs have both offensive and defensive CFP values which must be calculated and recorded separately.

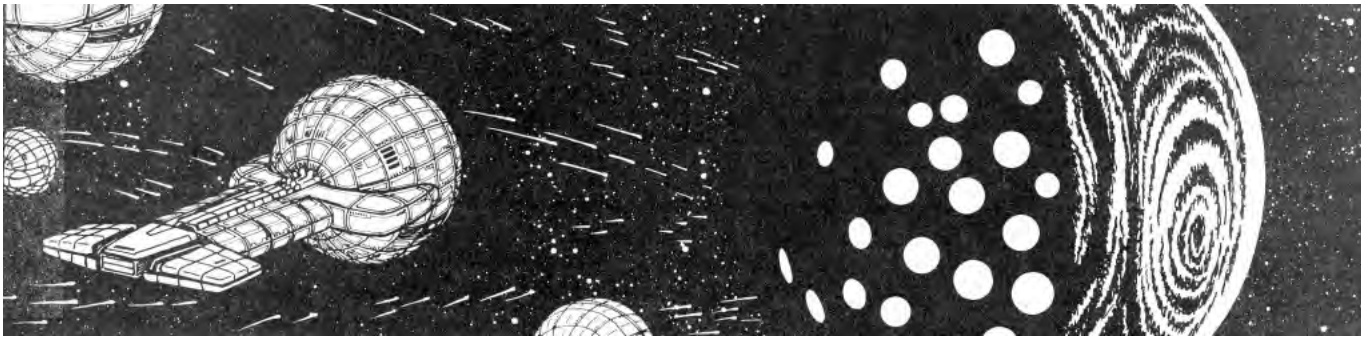
Each unit of armor mounted by a PDC is worth one defensive CFP, regardless of the tech level of the ground base.

Offensive CFP are calculated for weapon systems as below:

Weapon	In Atmosphere	In Vacuum
D, Di, Dx, Dxz	1	1
G,* R,* W*	4	2
Rc,* Wc*	8	4
Wa*	10	5
Non-P Beam	NA	5 x range O damage
P Beam	5	5
*Any generation of anti-matter warhead triples damage.		

21.04.04.4 Each PCF in a PDC's garrison is assigned its normal CFP for type and tech level, but garrison PCF CFP are totaled and recorded in a separate offensive CFP total for the PDC. PCF which are not part of the garrison are not "in" the fortress but fighting outside it and all are lost before the the PDC itself takes any damage from attacking PCF.

21.04.04.5 A PDC may use the offensive CFP produced by its missiles against any hostile PCF in the same or any adjacent planetary combat area. Note, however, that use of missiles



will produce the same collateral damage effect as missiles fired at the PDC on any civilian population in the combat area.

21.04.04.6 A PDC may use the offensive CFP produced by any garrison of PCF and/or non-missile weapons only against hostile PCF which actually attack the PDC.

21.04.04.7 When a PDC is attacked by PCF, all casualties inflicted by the attack are taken against defending PCF outside the PDC before the PDC takes any damage. Once all defending PCF outside the PDC have been destroyed, all damage inflicted by the attack is taken against the defensive CFP generated by the PDC's armor.

Once all a PDC's defensive CFP have been eliminated, it loses all offensive CFP generated by any missile launchers or guns it mounts (the attackers are inside the PDC, and nuking your own troops is generally considered a Bad Move), but any CFP produced by point defense or by energy weapons (for PDC in vacuum) remain operational. (Players and SMs may, as an optional rule, allow guns and missile launchers to continue to operate using non-nuclear warheads. In this case, each gun or missile launcher, regardless of type, produces only 1 offensive CFP in both atmosphere and vacuum.)

Once the attacking PCF have penetrated the PDC, all defensive casualties are spread evenly between the offensive CFP produced by the base's weapons and by its PCF garrison strength (if any). When all garrisoning PCF have been destroyed, the PDC surrenders (assuming there is anything left of it to surrender).

21.04.04.8 If a PDC has no PCF garrison, it will surrender when the last of the defensive CFP produced by its armor have been destroyed.

21.04.04.9 When a ground assault is made against a PDC, the damage to the PDC must be marked off its control sheet as it is taken. Marking damage to armor is not difficult, but if the base suffers internal damage things get a bit more complicated.

Unlike combat between spacecraft or spacecraft and PDCs, ground combat can spread through any part of a PDC, and so systems are not simply marked off from left to right in such cases. Instead, the player who controlled the base at the start of the combat marks off a sufficient number of weapon systems of his choice to produce the total CFP value destroyed as combat proceeds. Offensive CFP generated by PDC missile launchers may still be used to absorb damage, even if they may no longer be used against attacking PCF. If the PDC subsequently surrenders, he hands the control sheet over to his opponent as marked. The systems may come from any point on the control sheet.

21.04.04.10 When a PDC surrenders, treat it as a spacecraft which has failed its Surrender Roll (see 04.13.03-04.13.04). The garrison has the same chance to destroy sensitive information as a surrendering spacecraft. PDC weapons which survive combat are never destroyed by the garrison when it surrenders but may not be used by the victor until the base has been refitted for his use as a captured spacecraft (15.09.05.1).

21.04.04.11 To be perfectly accurate, nuclear and/or anti-matter warheads used by a PDC against PCF which actually attacked it should also produce collateral civilian casualties and EVM damage, but this is difficult to quantify because ground combat uses CFP instead of firing individual weapons. Since it is impossible to know exactly how many warheads were actually used, any PDC which includes G, R, or W in its offensive CFP calculations causes collateral damage equal to 1 EVM per launcher per round of combat. If Rc or Wc are used, the damage is 2 EVM per Rc or Wc used in the CFP calculations per round of combat. If anti-matter warheads are used, double the collateral damage.

21.05 Conquering the Planet

When all of the defending PCF and PDCs on a planet have been destroyed or (in the case of PDCs) captured, the planet may surrender. The attacking player totals his surviving PCF on the planet and then calculates the minimum garrison strength (17.03.01) required to garrison the planet. If his surviving PCF equal or exceed the minimum garrison strength, the planet surrenders; if his surviving PCF are weaker than the minimum garrison strength, the planet will not surrender and, in the succeeding strategic turn, will raise fresh PCF to the limit of its population size and GPV and continue its resistance.

21.05.01 There are a couple of things a player can do if he finds himself with insufficient surviving PCF strength to

garrison the planet and compel its surrender. First, he can call in the fleet and bombard the planet to reduce its EVM to one which his PCF strength is sufficient to garrison, but this is rather like spanking the goose that lays the golden egg with an axe. True, you can get the survivors (if any) to surrender, but the planet may not be worth very much to you after you've done that.

As an alternative, the attacking player may require the planet to make a Surrender Roll (as per 04.13.03) using the planetary GPV as the defenders' "force point" total for the planet's surrender roll and his own surviving PCF CFP plus 10% of the surrender force point value (as per 04.13.01) of any starships in orbit around the planet as the attackers' "force point" total.

The attacking player may do this only at the end of the strategic turn in which he assaulted the planet, and only one Surrender Roll per strategic turn may be demanded. If the planet surrenders, it will stay surrendered only so long as the fleet strength used to compel its surrender remains within 5 tactical hexes of the planet. If the fleet withdraws (or is counter-attacked and dispersed or driven beyond a 5 tactical hex range of the planet) before the attacking player can bring in the required minimum garrison strength, the planetary population immediately rises in a General Insurrection (see 17.03.03.2) against whatever PCF strength the attacker has on the planet.

21.06 The Consequences of Genocide

Empires who go around annihilating planetary populations tend to be a tad unpopular. Even their allies may look at them a bit askance after such an action. To reflect this, any empire which carries out a planetary assault or bombardment particularly destructive in life will increase the Racial Chauvinism of any race with which it is in contact unless the other race has a Racial Militancy of at least 80%. This increase is directed only at the empire which carried out the attack, and word of the attack will spread along the shortest route between the site of the attack and the home world of any race in contact with the empire at a strategic speed of "4" (the same as that of the IFN). No empire can prevent the news from reaching all of its HT and IND-2 allies sooner or later, though IND-1 and Pre-Industrial races will find out only if an HT race with whom they have a treaty relationship actually tells them about it.

21.06.01 If a planetary population below the "Small" level is completely wiped out, the RC of races of Racial Militancy of 79% or less in contact with the empire responsible is increased by 05% towards the empire and all future negotiations with them lose all modifiers for pre-genocide political states.

21.06.02 If a "Small" population is completely wiped out, the RC of races of Racial Militancy of 79% or less in contact with the empire responsible is increased by 20% and all future negotiations lose all modifiers for pre-genocide political states.

21.06.03 If an indigenous population larger than "Small" is reduced in population level but not wiped out completely, the RC of races of Racial Militancy of 79% or less in contact with the empire responsible is increased by 10% per population level destroyed plus 05% per economic level of reduction. All future negotiations lose all modifiers for pre-genocide political states and all political relations below Partnership are severed and must be re-negotiated at the new RC.

21.06.04 Regardless of the deterioration in an empire's relations with other races caused by the destruction of planetary populations, no other race is ever compelled to go to war with the empire. NPRs won't go to war; player races may do so if they wish to. If, however, the empire is required to re-negotiate political relationships, an NPR or player race may end up in a Non-Intercourse relationship with the empire. Any result of "War" as the result of re-negotiation of political relationships following a genocidal attack becomes one of "Non-Intercourse" instead.

21.06.05 An empire which finds itself losing allies (or just ticking them off severely) because of casualties inflicted on a population in the course of a planetary assault can attempt to repair the damage. In practical terms, this constitutes a propaganda effort intended to convince the allies in question that it was all a big mistake, you didn't mean it, your commander on the spot exceeded his orders, and a nice fellow like you would never do such a thing again. This is reflected by spending funds like water on a massive PR campaign. For each 100 MC increment shipped to the home world of a player race or NPR who's gotten a mite upset with you, the modified RC of the race towards your empire is reduced by 0.5%, down to the level which existed prior to the unfortunate incident which upset it. Once the RC has been returned to its pre-incident level, each additional increment of 100 MC shipped in will "buy back" 01% of any modifiers for pre-existing political states. This can only be done, however, if the race in question has not gotten so upset with you that it reverts to a Non-Intercourse relationship upon learning of the incident.

21.06.05.1 If a deterioration in political relationships is anticipated, an empire can attempt to get in the first licks in the PR war. If the empire can get funds intended to offset increases in RC to the home world of an ally before news of a genocidal incident reaches that home world, the positive modifiers produced by those funds on the race's RC are applied in the same turn as the negative modifiers of the attack and may, in fact, offset them entirely. If the RC modifiers are entirely offset, all consequences for existing treaties and political acceptance modifiers are also negated.

22.00 Information Gathering

Information gathering and analysis is the job of an empire's intelligence services. Some intelligence activities are overt, using data obtained by open means; others are covert, using data obtained by secret means (espionage). Overt intelligence activities can be used in *STARFIRE* campaigns with or without an SM, but covert activities require an SM, since the whole point in covert actions is that they are secret, known (hopefully) only to the player launching them and God (in this case, in the person of the SM). An empire currently without an imperial capital (20.02.03) cannot launch offensive covert actions but may implement defensive covert actions.

22.01 Overt Intelligence

Information gathered by overt means includes intelligence data gathered from captured spacecraft and conquered populations or recorded by spacecraft long-range scanners or the scanner capability of high-tech populations and scanner buoys.

22.01.01 Overt intelligence data is normally evaluated (at the imperial capital or the ICC closest to the site at which the data was obtained) in the Information Phase of the Strategic Turn. Since this occurs before the movement phase, the command center which analyzes the data may write movement orders based upon its evaluation of the data. Overt intelligence may also, however, be obtained in the course of a strategic turn. When this happens, the data must be relayed to an ICC (or the imperial capital) for evaluation using the ICN. Once received, the receiving player rolls 1D10, the result being the number of system turns required to evaluate the data. Once data obtained in the course of a strategic turn has been evaluated, changes in orders or fresh orders may be sent from any command center in possession of that data to units controlled by the command center. Data evaluations may also be sent to other ICCs or to the imperial capital which, after receiving the information, may modify the orders of units they control.

22.01.02 Captured Data. Captured data may be obtained from captured courier drones (see 27.04.01.5), from a Conquered enemy population, or from spacecraft which have failed their Surrender Roll and been captured. Captured data may take the form of:

Astrogation Data (navigation records describing warp links, warp point grav stress patterns, and system bodies and populations);

Military Status Data (records describing the military forces available within star systems); or

Technological Data (information on the hardware of the race and/or empire from which the data was captured).

Captured courier drones always contain both the full text of any messages recorded in their memories plus astrogation data (including WP grav surge patterns) on all WPs they were to transit.

Note that under the provisions of 04.13.03 & 04.13.04, surrendered units and planetary populations have a percentage chance equal to their racial determination of destroying sensitive data before surrender. If they succeed in destroying data, no records can be captured, which means no astrogation or military data can be obtained. Technological data will still be obtainable in most cases, since no one can destroy all the tech manuals, spare parts, and actual weapon systems of their surrendered units.

22.01.02.1 Evaluating Data from Captured Spacecraft and PDCs. Spacecraft and PDCs captured from another race can never be used by the race which captured them until and unless they have been completely refitted, replacing all tech systems with systems built to fit the needs and tech base of the capturing race as per 15.09.05.1. The real value of captured enemy units, however, lies in what your own engineers can learn about the Other Side from an examination of its hardware and tech records and what your Office of Naval Intelligence can pry out of any intact computers aboard them.

22.01.02.2 Computers may be probed for Astrogation and Military Data "on site" (in the system in which the computers were captured) by any shipyard module or machine-shop module available to the capturing empire. Technological Data may be obtained only by dissection and careful study, which requires a shipyard capacity backed by the resources of a high-tech population of at least "Settlement" size, but systems may be removed from captured spacecraft and/or PDCs for shipment to a rear area for study. To remove systems, an "on site refit" using a mobile shipyard is performed as per 15.09.05.2 and the system(s) sent back for study are shipped in cargo holds as if they were prefabricated systems (15.09.03.3)

22.01.02.3 When intact captured spacecraft or PDC technical systems are examined, the examining shipyard spends one full month on each captured unit (or the tech systems sent back from any one captured unit as per 22.01.02.2). At the end of that month, the shipyard has obtained full information on any intact system aboard the unit, regardless of the system's TL. If the TL of the system is equal to or lower than that of the examining shipyard, the shipyard can put the system into immediate development using the crash development rule (15.08.02). If the TL of the system is no more than three TLs above that of the examining shipyard, the shipyard can begin immediate perceived threat development (15.08.03) of the system, exactly as if the data were obtained from scanner recordings. If the TL of the system is four or more TLs above that of the examining shipyard, the data may only be placed in storage for use at such time as the examining empire's TL comes within at least three TLs of the system TL.

Damaged systems may yield Technological Data, but unless the dice roll as per 22.01.02.4, below, indicates to the contrary, they are considered too badly damaged for meaningful study.

22.01.02.4 When a captured spacecraft or PDC or a conquered population is probed for data, roll percentage dice against the results listed below. Remember that a unit which has successfully wiped its records before surrender will yield only technological data, so any Astrogation or Military Data indicated by a roll is ignored in those cases.

If Die Roll is	Then…
01-20	No Astrogation Data or Military Data obtained; Technical Data obtained only on intact technical systems.
21-30	Astrogation Data obtained on last WP and star system transited by a spacecraft before capture. No military Data obtained. Technical Data obtained only on intact systems.
31-50	Astrogation Data obtained on last 2 star systems and WPs through which a spacecraft passed before capture. Military Data obtained on last star system through which spacecraft passed. Technological Data obtained on all intact systems and any damaged system up to one TL above that of the capturing empire
51-75	Astrogation Data obtained on last 3 star systems and WPs through which a spacecraft passed; Astrogation Data obtained on all WPs in same star system as conquered population/PDC. Military Data obtained on last 2 star systems through which a spacecraft passed. Technological Data obtained on all intact systems and any damaged system up to 2 TLs above that of the capturing empire.
76-90	Astrogation Data obtained on last 4 star systems and WPs through which a spacecraft passed before capture. Astrogation Data on all immediately adjacent star systems obtained from conquered population/PDC. Military Data obtained on last 3 star systems through which a spacecraft passed before capture. Complete Military Data on star system containing conquered population/PDC obtained from population/PDC. Technological Data obtained on all intact systems and any damaged systems up to 3 TLs above that of capturing empire.
91-95	Astrogation Data obtained on last 5 star systems and WPs through which a spacecraft passed prior to capture. Astrogation Data on all star systems within 2 warp transits obtained from conquered population/PDC. Military Data obtained on last 4 star systems through which the captured spacecraft passed prior to capture. Military Data on all adjacent star systems obtained from conquered population/PDC. Technological Data obtained on all intact and damaged systems, regardless of TL.
96-00	Astrogation Data obtained on last 6 star systems and WPs through which a spacecraft passed prior to capture. Astrogation Data on all star systems within 4 warp transits obtained from conquered population/PDC. Military Data obtained on last 5 star systems through which a captured spacecraft passed prior to capture. Military Data on all star systems within 3 warp transits obtained from conquered population/PDC plus copies of all military orders which passed through the ICN in the conquered star system within the last 3 strategic turns. Technological Data obtained on all intact and damaged systems, regardless of TL.

Because this is something of an embarrassment of riches, evaluating the data takes considerably longer. In the case of an ICC with intact records, the evaluation roll is made in the Information Phase of the 2nd month following the capture of the ICC; if the ICC is retaken by the enemy before that time, the maximum possible obtainable data is that specified in 22.01.02.4, above. In the case of an imperial capital with intact records, the evaluation roll is made in the Information Phase of the 4th month following the capture of the capital; if the capital is retaken by the enemy before that time, the maximum possible obtainable data is that specified in 22.01.02.4, above.

22.01.02.6 In addition to all specific data obtained from a conquered population, the empire which conquered the planet can emplace a population of at least Outpost size on the planet for purposes of studying its TL (if that TL is higher than the capturing empire's). In effect, this permits the capturing player to perform Assisted R&D (15.07.04.2) exactly as if the conquered population were an ally voluntarily assisting the capturing empire.

22.01.03 Observational (Scanner) Data. Data on observed tech systems may be used for Perceived Threat R&D and system development as per 15.07.04.3 & 15.08.03. To be used, the data must be returned (by starship or ICN) to a star system of the capturing empire capable of R&D.

22.01.04 Survey Data. Survey Data (obtained as per 19.00) is a special form of Overt Intelligence. The survey ship or ships which actually obtained the data may put it to immediate use within the exact limits of their orders in the same Military Phase as the information is obtained. Survey Data may also be transmitted back to any ICC or imperial capital and, upon its receipt and evaluation in an Information Phase, may be used in the same turn's Military Phase for writing orders and making decisions.

22.02 Covert Operations and Espionage

Covert activities may be of an offensive nature (espionage) or a defensive nature (counter-espionage). Espionage seeks to obtain information or damage an opponent in a covert manner; counter-espionage seeks to prevent espionage from succeeding and may, on occasion, actually succeed in using an enemy's espionage efforts against it.

Espionage may be employed only by player races, but NPRs may employ counter-espionage. When NPRs use counter-espionage, all funds invested in that activity are considered military expenditures for the purpose of NPR strategies (16.00).

Espionage and counter-espionage may be used only in games with Space Masters. No population whose imperial

capital has been captured, destroyed, or cut off from it can use offensive espionage, but it may use counter-espionage.

All espionage and counter-espionage activities are resolved as per 22.02.05, below.

22.02.01 Difficulty of Espionage. The political relationship between an empire and the object of its espionage have a great deal to do with the probability of success. (In other words, it's easier to spy on a "friend" than on someone who knows you're an enemy.)

For the purposes of this rule, political states are divided into four "Espionage Climates," each of which is assigned a difficulty modifier as below:

1. Hostility: War or Non-Intercourse; modifier = -25%
2. Non-Aggression: No modifier
3. Alliance: Trade Alliance, Military Alliance, Trade & Military Alliance; modifier = +30%
4. Partnership: Modifier = +50%.

In the event of a Hostile espionage climate, no espionage is possible unless both hostile empires have contact with a third empire or race which does not have a hostile relationship with either. In this instance, the spying empire works through the third party.

22.02.02 Paying for Espionage/Counter-Espionage. All espionage and counter-espionage activities are paid for in investment increments of 100 MC. If an espionage investment is modified (by investments in counter-espionage; 22.02.04), the modified investment is rounded to the nearest 100 MC. (That is, a modified investment of 50 MC would be reduced to "0"; a modified investment of 51 MC would be raised to 100 MC.)

All investments in espionage are made at the imperial capital or at the ICC closest to the nearest star system claimed by the target of the espionage attempt. Espionage orders are written in the Information Phase of the turn in which the investment is made and then transmitted to the nearest star system claimed by the target of the espionage attempt via starship or ICN. (This actually reflects orders to the agents one has in place in the other empire.) All espionage operations are executed as if the site of the operation were the nearest star system claimed by the target of the operation, whether this would actually be the case or not. They are executed in the first Information Phase following receipt of the espionage order and the results (if any) are immediately sent back to the ICC or imperial capital which ordered the attempt via starship or ICN. The results are evaluated in the Information Phase immediately following their receipt.

22.02.03 Types of Espionage. There are seven possible types of espionage activity. Some are easier to carry out than others and, to reflect this, each type is assigned an Effectiveness Modifier (EM):

1. General Espionage; EM = .05
2. R&D Espionage; EM = .02
3. Astrogation Espionage; EM = .04
4. Military Espionage; EM = .02
5. Political Espionage; EM = .04
6. Destabilization Espionage; EM = .03
7. Economic Espionage; EM = .03

22.02.03.1 General Espionage represents a broad attempt to obtain useful information of any type. If a General Espionage attempt succeeds, the SM rolls 1D6 to randomly determine which of the other six forms of espionage is actually pursued. The player launching the attempt may specifically exempt Destabilization or Economic Espionage from the possibilities, in which case any die roll which would indicate one of those results is ignored and re-rolled. In addition, neither Destabilization nor Economic Espionage may ever be randomly rolled unless the player launching the attempt already knows at least one treaty relationship or the location of at least one planet of the targeted empire, since he cannot attack relationships or economies he doesn't know how to find.

22.02.03.2 R&D Espionage represents an effort to steal technology. If the attempt succeeds, the SM randomly chooses one technical system belonging to the target of the attempt and reveals it to the player making the attempt. The data received is exactly the same as that which could be obtained from a captured, intact example of the system. In a normal R&D espionage effort, the system chosen by the SM must be unknown to the player making the attempt and must be available at or below the TL of the spying player.

A player may also attempt to learn about a specific tech system. This reduces the final chance of success by 50% (rounding all fractions down) but may be used to obtain systems from TLs above that of the spying player. In addition, any successful attempt against a specified tech system always provides data on the exact system specified.

22.02.03.3 Astrogation Espionage represents an effort to obtain astrogation information about the target empire. If the attempt succeeds, the spying player receives all astrogation information about one randomly selected star system of the target empire from the SM.

An attempt may also be made to obtain information on a specific star system of the target empire. In this instance, the chance of success is halved, but a successful attempt will provide information on the exact star system specified.

Astrogation Espionage data includes: system ID number, type of primary, locations of all warp points (but not the grav stress patterns or destination star systems of the warp points); location of all natural system bodies; locations and sizes of populations. (It may be thought of as a read-out of the "hazards of navigation" and basic navigational data on the system.)

22.02.03.4 Military Espionage represents an effort to learn about the target empire's military deployments and/or orders to its units. A general Military Espionage attempt, if successful, will reveal the exact composition and present

location of all mobile forces assigned to one randomly selected (by the SM) star system of the target empire. (Think of it as a "fleet list" for the star system.)

A player may also target a specific star system for Military Espionage. In this case, his chance of success is halved, but if it is successful he will learn the exact locations of all fixed military installations (including minefields, IDEW, ICN DSB-c, PCFs, PDCs, BS, SS, etc.) in the targeted star system plus the total mobile fleet strength assigned to that system.

Finally, a player may target a specific ICC of the target empire. In this case, his chance of success is only 1/4 that for General Military Espionage, but if he succeeds he will receive copies of all purely military orders transmitted from that ICC or through the ICN in the star system within the last month plus all the information in the preceding paragraph for the star system containing the ICC.

22.02.03.5 Political Espionage represents an attempt to discover just what alliances the target empire may enjoy. In a general Political Espionage attempt, the spying player (if successful) will learn all of the treaties and agreements (if any), plus the state of any current negotiations, between the target empire and any one of the other empires or NPRs (randomly selected by the SM) with which it is in contact.

The spying player may also choose to spy on the treaties and agreements between the target empire and one specific ally. In this instance, the chance of success is halved but, if successful, the spying player gains the information above in relation to the other empire or NPR he specified.

22.02.03.6 Destabilization Espionage represents an attempt to break up a specific treaty relationship closer than Non-Intercourse between the targeted empire and an ally. Before this may be done, the attacking empire must know that the relationship he wishes to destabilize exists, either through previous negotiations of its own with the target and its ally, or by means of Political Espionage as in 22.02.03.5, above.

Destabilization Espionage must be directed against a specific treaty relationship, but the relationship may be between an empire and another empire or a single planet. If the attempt succeeds, the targeted treaty is overturned and the targeted empire must establish a new relationship with its treaty partner, but with a +10% modifier to the Racial Chauvinism of the treaty partner.

Destabilization Espionage may also take the form of propaganda and bribery intended to increase the probability of revolt on a conquered planet. In this case, the chance of success is halved, but if the attempt succeeds, the probability of a rebellion by the conquered population is increased by +25% for two months, beginning in the month following the espionage attempt.

22.02.03.7 Economic Espionage might actually be called industrial sabotage. The object of an Economic Espionage attempt is to reduce the GPV of a specific planet or population. The player making the attempt specifies the planet whose economy he will attack and, if his attempt succeeds, reduces the current EVM of the targeted planet or population by 10%. The reduction in EVM is permanent, but the damage may be repaired by industrial expansion investment on the part of the controlling empire. The target's total EVM may never be reduced below 33% of the initial EVM value of the population at its current tech level.

22.02.04 Counter-Espionage represents the efforts of an NPR or player empire to defeat espionage directed against it. Counter-Espionage may be purely defensive or offensive. Defensive counter-espionage has no Effectiveness Modifier, but offensive counter-espionage does.

1. Defensive Counter-Espionage: This is simple denial of information and protection of secrets; No EM.
2. Offensive Counter-Espionage: This attempts to identify spies and may attempt to plant false information; EM = .03

22.02.04.1 Defensive Counter-Espionage. When an empire invests in general defensive counter-espionage, the funds invested are divided equally between all espionage attempts against the empire. Prior to calculating the odds of success for each espionage effort directed at the empire, the funds invested in counter-espionage are subtracted from the funds allocated to the offensive activity. All remaining hostile espionage investments are rounded to the nearest increment of 100 MC.

Defensive counter-espionage funds may also be allocated to offset a specific type of offensive espionage. Any funds allocated against specific types of espionage are applied only to attempts of the specified type and may not be used against any other type of espionage. Funds allocated against specific types of espionage are simply lost if no attempt of the specified type is made in the month the funds are allocated.

22.02.04.2 Offensive Counter-Espionage is a more aggressive proposition than defensive counter-espionage. In effect, an offensive counter-espionage effort attempts to compromise and "turn" (or take over) hostile secret agents within one's empire.

Players may invest in offensive counter-espionage in a specific star system, against a specific form of espionage, or against a specific player empire they may suspect of spying upon them.

If a player invests in offensive counter-espionage in a specific star system and succeeds in his attempt, the SM selects one espionage attempt launched against that system, informs the player that it was launched and by whom, and allows the player to provide selective false information to the spying player through the SM as below.

If a player invests in offensive counter-espionage against a specific form of espionage and succeeds, the SM selects one espionage attempt of the specified type launched against the player in that turn and informs him who launched it and where. As in the case of offensive counter-espionage in a specific star system, the successful player is allowed to provide selective false information. The information provided must relate to the

type of espionage attempt which has been foiled. In the case of R&D espionage, the player may provide "blind alley" technical data, in which case the SM secretly applies a negative modifier rather than a positive one to all R&D attempts made on the basis of the falsified data. In the case of astrogation or military espionage, the player concocts a false system data file or military deployment which the SM then passes on as the "result" of the hostile spies' efforts. In the case of political espionage, the player provides a false description of the actual treaty relationship through the SM. In the case of destabilization or economic sabotage espionage, the SM reports that the destabilization or sabotage attempt succeeded when, in fact, it has failed.

If a player invests in offensive counter-espionage against a specific player and succeeds, he "breaks" one of his opponent's spy rings. A spy ring can be broken only if the specified player is, in fact, launching an espionage effort against the player whose counter-espionage has succeeded; if no effort is being made by the other player in that turn, the funds are simply lost. If his attempt succeeds, he breaks one spy ring ordered to conduct one type of espionage (randomly selected by the SM if there was more than one type) against him by the specified player. When a spy ring is broken, the player who has broken it "becomes" the spy ring in question; all orders for future espionage of the same type against him (at any point in his empire) from the ICC or imperial capital which launched the attempt he has defeated are handed to him by the SM, and he concocts whatever response he likes for the SM to deliver to the player. To stay on top of the spy ring, the player must pay a monthly fee of 100 MC; in any month in which the fee is not paid, the empire whose spy ring he has broken discovers that its spies have been turned (though it does not learn when they were turned) and is free to set up a new ring. It is possible for a player to break all of an opponent's spy rings, one by one, and effectively control all information reported to the opponent.

22.02.05 Resolving Covert Activities. All covert activities are resolved secretly by the Space Master as the third step of the Information Phase. The SM notes all funds allocated to offensive espionage against a particular empire or NPR and subtracts from those funds any funds allocated to defensive counter-espionage. He then adds (or subtracts) any "Espionage Climate" modifier to the net funds invested in any espionage attempt and multiplies the result by the Effectiveness Modifier of the type of espionage attempted. The result of his calculations is the percentage chance that the espionage attempt will succeed.

The maximum possible chance of success is 90%; if the modified result would be higher than 90%, it is reduced to 90% and any additional investment is lost.

If the roll is equal to or less than the chance of success, the attempt succeeds; if the roll is greater than the chance of success, the attempt fails and, if it was sufficiently greater, may result in the spying player receiving false information even if there were no offensive counter-espionage efforts against him.

Example: *Empire A invests 3,000 MC in Astrogation Espionage directed against System 0001 of Empire B. Empire A is currently a Trade & Military Ally of Empire B, providing an Espionage Climate of "Alliance" (+30%), and the Effectiveness Modifier for Astrogation Espionage is .04. Since Empire A is targeting a specific star system, his final chance of success will be halved. Finally, Empire B has invested 400 MC in defensive counter-espionage, specifically aimed against Astrogation Espionage in System 0001.*

The SM first subtracts Empire B's counter-espionage investment from Empire A's offensive espionage investment. 3,000-400=2,600, so the investment becomes 2,600 MC. Because of the Alliance espionage climate, the SM adds a bonus of 30% to that amount. 2,600X1.30=3,380, so Empire A's net espionage investment becomes 3,380. The EM is .04, and 3,380X.04=135.2, which would round to 135%. Had Empire A invested in General Astrogation Espionage, this would reduce to 90%, since 90% is the maximum possible chance for any espionage attempt. As it is, however, Empire A has targeted a specific star system, so its chance of success is halved. 135%/2=67.5%, which rounds to 68%, so Empire A's chance of success becomes 68%.

Had Empire A and Empire B been in a "Non-Aggression" Espionage Climate (no modifier), the calculation would have been [(3,000- 400)X.04]/2 = (2,600X.04)/2=104/2=52%. Had Empire A and Empire B been in a "Hostile" Espionage climate (-25% modifier), the espionage investment would have been reduced by 25% to (3,000-400)X.75=1,950 MC and the final chance of success would have been (1,950X.04)/2=78/2=39%.

22.02.05.1 If an attempt at destabilization or economic espionage succeeds, the SM informs the target of the attempt that it succeeded (but not who is responsible) and calculates the new political relationship or EVM.

22.02.05.2 If the margin by which an espionage attempt fails is 01-25%, the SM simply informs the player who made the attempt that it has failed. If the margin of failure is 26-60%, the SM informs the spying player he has succeeded but supplies him with false information. If the margin of failure is 61-85%, the SM informs the spying player he succeeded, provides him with false information, and informs the target that the attempt was made but not who made it. If the margin of failure is greater than 85%, the SM informs the spying player he has succeeded, provides him false information, and informs the target that the attempt was made and who made it.

22.02.05.3 If an offensive counter-espionage attempt succeeds, the SM informs the player who succeeded, who then provides the false information to be passed to the spying player by the SM as per 22.02.04.2. If a hostile spy ring of a specific player is broken, the SM not only passes along the false information concocted by the player who broke it but hands all future orders to that spy ring directly to him for him to do with as he will.

23.00 Commerce Raiding

Commerce raiding is an activity which can pay heavy dividends in time of war; it is also one which can achieve absolutely nothing. It is discussed under a separate rule heading because commerce raiding is neither strictly military, strictly economical, nor strictly intelligence gathering in nature, yet partakes of all three of those types of operation.

23.01 Raiding Imperial Freighters

Raiding an opponent's Imperial Freighters is relatively simple--it just requires more luck than a player can reasonably expect. If a player is fortunate enough to encounter a hostile Imperial Freighter with one of his warships, he may engage the freighter using the normal combat rules.

23.01.01 Whenever a freighter is attacked, the Break Off and Surrender Roll rules (04.13) are always used. In addition to the usual force point calculations for 04.13, the Racial Militancy of the freighter's crew is modified by -25%. In addition, their Racial Determination is also modified by -25% when it comes to checking for destroyed records. (These are merchant spacers, not regular naval crews).

23.01.02 When a freighter is captured, its computers may be probed for astrogation data but not military data (22.01.02)--it has no military data. Technological data on tech systems actually mounted by the freighter may be acquired; no other technological data is available.

23.01.03 When an Imperial Freighter is captured, the original owner loses any resources which were aboard the ship (obviously), and the capturing player gains them. Whether or not he can do anything with them is something else again.

23.01.03.1 If the freighter surrendered intact and the capturing player has marines (PCF) available in his raiding fleet, he may post guards aboard each freighter and send them home, manned by their original crews who navigate more-or-less at gun-point. This is possible only if the freighter crews and PCF come from the same type of habitable planet, but the habitability differential is ignored for the purposes of this rule. In addition, it would take considerably less than a full PCF worth of troops to keep an eye on a single freighter's crew, so one PCF may be split between as many as ten captured freighters and the life-support of the PCFs is assumed to be covered by the life support of the crews.

23.01.03.2 If the raiding player has no marines to hand, he cannot take a captured freighter home with him, since he can neither guard the original crew nor crew it with his own personnel until it has been refitted as per 15.09.05.1. (Of course, if he has a mobile shipyard with sufficient resources handy--and the time to use it--he can refit freighters on site in order to take them home. But unless he's really desperate to add freighter tonnage to his own fleet, it hardly seems worthwhile.) He may, however, transship a captured freighter's cargo into holds aboard his warships or freighters of his own. (See 08.06: Loading and Unloading Cargo.)

23.01.03.3 A raiding fleet cannot support itself on resources captured from freighters belonging to another Imperium. While it is probable that some of an enemy's resources could be used, it is unlikely that the freighters actually encountered would be loaded with fleet maintenance supplies--much less maintenance supplies for an enemy fleet. Given language differences, differences in scientific notation, design philosophy, etc., converting captured resources to your needs would be virtually impossible.

Note, however, that in the case of a civil war in which a part of an Imperium's imperial race or an amalgamated NPR has revolted against the central government, the raiders aren't from another Imperium. Their basic technology will be the same, and thus either side of a civil war can live off the other's Imperial Freighters or (for that matter) intercepted IFN shipments.

(And, of course, if the SM is a particularly rotten individual and wants to introduce homegrown pirates, well…)

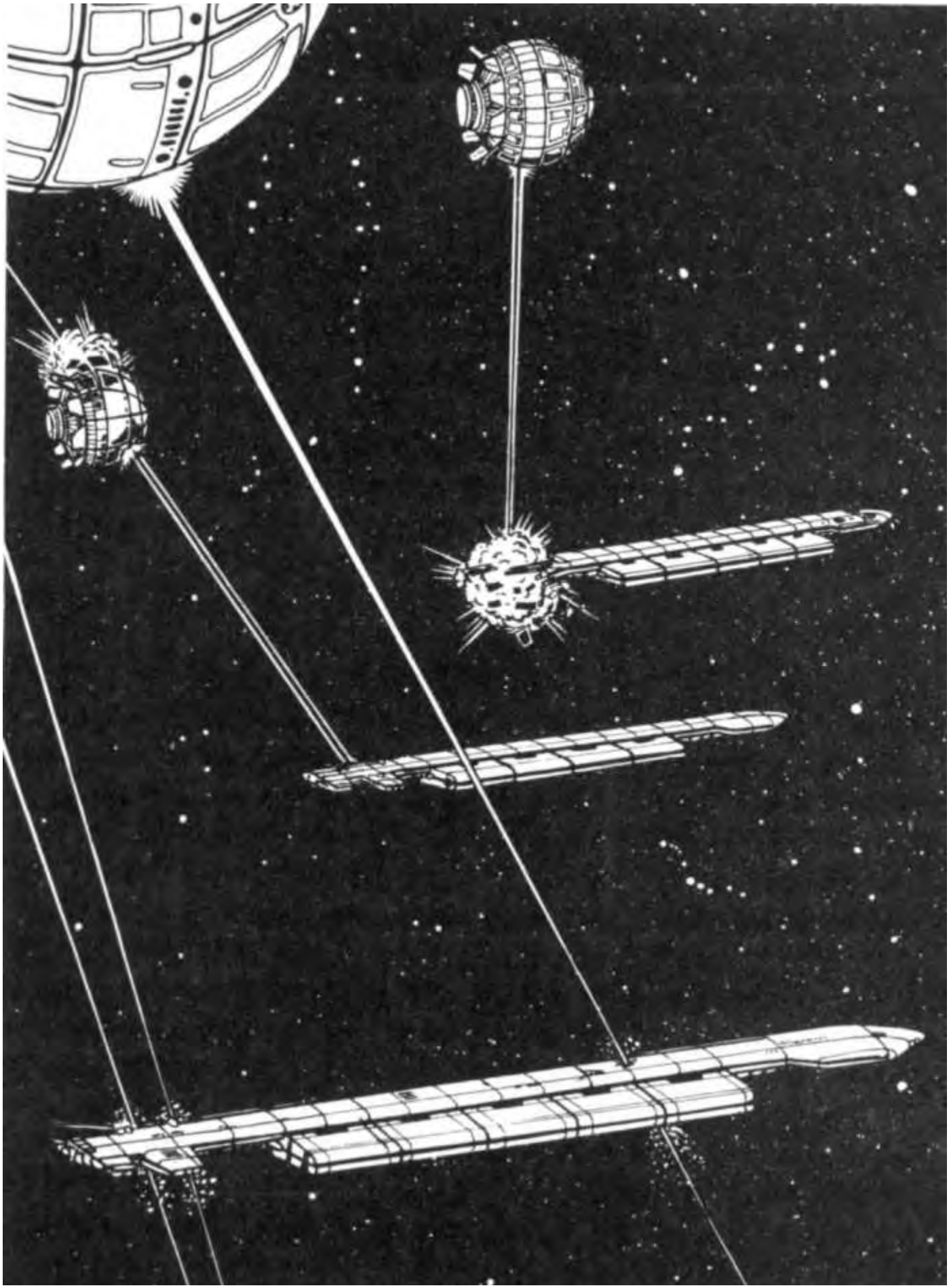
23.01.03.4 Freighters and/or resources which cannot be taken home or used by the raiding squadron can, of course, be destroyed, and that probably will be the fate of most Imperial Freighters encountered by commerce raiders in a war between empires.

23.02 Raiding The Imperial Freight Network

Raiding an enemy's IFN is more complicated, since the IFN's individual freighters exist only in an abstract sense. It is, however, possible, and is handled as below.

23.02.01 Whenever a military starship invades the explored space of another Imperium, the player controlling the starship may elect to raid his opponent's IFN-carried commerce (assuming, of course, that his opponent has any IFN-carried commerce in the area).

23.02.02 In order to raid another Imperium's IFN, the raiding player must determine the percentage of a strategic turn (month) his raiders spent on his opponent's warp lines. (That is, a player whose warships remained on his opponent's warp lines for 10 days would have been on those warp lines for 33% of a strategic turn.)



23.02.03 When a player begins raiding his opponent's IFN, the opponent (or the SM, if there is one) must determine from his economic orders the total value, in MC, of all IFN-carried commerce passing through the raided system(s) in the entire month in which the raid takes place. He need not tell the raiding player what that value is until the raid is entirely resolved, but he must be able to demonstrate the accuracy of his calculated value at the end of the raid. If there is a Space Master, the SM is responsible for these calculations and there is no direct contact between the raiding player and his victim.

23.02.04 The raiding player rolls percentage dice for his raiding force, modifying the dice roll by adding 0.5% for each raiding warship which mounts primary beams, 01% for each raider which mounts energy beams or needle beams, and a total of 01.5% for each ship which mounts both tractors and primary, energy, or needle beams. If more than 50% of his raiding squadron has a maximum speed of "4" or less, he divides his modified percentage roll in half.

23.02.04.1 To determine the amount of resources lost by the raided player, the total value of the resources moved through the system aboard the IFN is first multiplied by the time the raiders spent in the raided system (expressed as a percentage of a month as in 23.02.02). The result is then multiplied by the value obtained in 23.02.04 to determine the raided player's losses (captured and/or destroyed) in MC. Any resources not lost are aboard ships which have turned back and so escaped the raiders. Such resources are always returned (at the IFN speed of "4") to the star system from which they originally came or to the nearest ICC or to the imperial capital, whichever is closest.

23.02.04.2 The raiding player then makes a second percentage dice roll, exactly as in 23.02.04, and multiplies the total of the resources his opponent lost by the result. This value represents the total amount of resources he has captured (as opposed to the amount of resources which were destroyed), assuming he has sufficient cargo holds in his raiding force to hold them. Those resources are treated as per resources captured from Imperial Freighters as above.

23.02.05 Rather than using detailed information-gathering rules to determine what, if any, data a raiding player may capture from the IFN, make a normal roll against the raided empire's unmodified imperial Racial Determination to check for destruction of records once every 5 full days (i.e., once every 10th system turn) for the period of the raid. If the records were successfully destroyed, the raiding player captures no data at all. If the records were not successfully destroyed, the raiding player captures astrogation data on every surveyed star system of the raided empire within four warp transits of the system in which the raiders spent the 5 days in which the record-destroying checking roll was failed. No military or technological data will ever be captured from a raid on the IFN, and no data of any sort will ever be captured if the raid "comes up dry" because there was no IFN traffic through the system in the turn(s) of the raid. You cannot obtain data from ships that aren't there.

23.02.06 If the empire whose commerce has been raided is HT2 or above, his IFN freighters have courier drones and will immediately fire them off to report the raiders. For the purposes of this rule, the drones are fired in such numbers that the raiders cannot destroy them all, regardless of the weapon systems the raiders may carry. The IFN drones use the ICN (20.01) of the raided empire to report the attack to the nearest ICC, which may then issue orders to fleet units under its control to intercept the raiders. Note that if the ICN passes word of the raid through any system containing units commanded by a graded admiral (07.02), that admiral can take his units out to intercept the raiders without orders from an ICC to do so.

23.02.07 Any military starships of the raided empire which have already been ordered to move to or through a star system in which a raid on the IFN is launched but have not yet passed through the system when the raiders arrive may engage the raiders as they reach the scene of the raid, at the raided player's discretion. If they have already passed through the system, they may not be ordered to turn around and come back after the raiders unless they are on the same side of the raided system as an ICC.

23.02.08 If there is no ICC on a military force's side of a raided system, no message will be passed through the ICN (if any) and so not even a graded admiral can turn back, since he won't know there's any reason to turn back. Further, any raider force CO with smarts will take out the enemy's ICN before he starts raiding, creating breaks in the ICN which would prevent an alerted ICC from sending a message across the system to units on its far side, anyway.

23.02.08.1 In line with 23.02.08, the raiding player's percentage roll for commerce destruction from 23.02.04.1, above, is applied to any ICN elements in a star system in which commerce is raided. Any BS with Communication Modules (27.04.06) covering the WP through which the raiders entered the star system will probably (though not certainly) have been destroyed in action with the raiders when they arrived.The total number of system hexes containing DSB-c (27.06.02) is multiplied by the time the raiders spent in the system plus the percentage roll from 23.02.04.1 (exactly as the value of the IFN cargoes passing through the system were), and all DSB-c are destroyed in a number of system hexes equal to the result. Raiders will seek to wreck as much of the ICN as possible and will attack all the "chains" of buoys linking their warp point of entry with other warp points or inhabited planets. For this reason, the system hexes which lose their DSB-c should be divided as evenly as possible between all the communication links spreading out from the raiders' WP of entry.

IFN Commerce-Raiding and ICN-Coordinated Response Example:

A raiding squadron of 3 BC, 12 CL, 9 DD, and 2 F7 freighters (with commercial engines) launch a commerce raid on an opposing Imperium. Each DD carries 1 E, 6 CLs mount 1 N each, the other 6 CLs each mount 1 P, and the BCs each mount 1 T and 2 P. The raiding squadron enters Star System 1021 on Day 3 of the current strategic turn and remains there until Day 22.

As per 23.02.02, the raiding player determines the percentage of the strategic turn which he has spent in 1021, which he does by dividing the days spent there by the total number of days in the month. 22-3=19 (the total number of days spent there) and 19/30=.633, which rounds to .63, so he has spent 63% of the month raiding commerce in 1021.

Meanwhile, informed that a raid is underway, the raided player, as per 23.02.03, calculates the total MC being shipped through the system via IFN and discovers that the total is 1,279 MC. He does not reveal this value to the raiding player, but passes it to the Space Master.

The raiding player now rolls percentage dice and rolls a 23%, which is modified as stipulated under 23.02.04. He has 6 ships with P, 6 with N, 9 with E, and 3 with P and T. Two of his ships have a speed of four or less, but this is less than 50% of his total force, so there is no modifier for speed. The cumulative modified percentage roll is thus: .23+ (.005X6)+[.01X(6+9)]+(3X.015), or .23+.03+.15+.045=.455, which rounds to 46%.

To determine the resources lost by the raided player, the Space Master multiplies the resources shipped through the system by the time the raiders spent in the system and then by the modified percentage above. The calculation is thus 1,279X.63X.46=370.6542, which he rounds to the nearest MC, or 371 MC.

The raiding player then makes his second percentage roll as per 23.02.04.2, and this time he rolls a 75%, which is modified exactly as his earlier percentage roll, or to .75+.03+.15+.045=.975, which rounds to 98%, indicating that he has captured 98% of the value his opponent lost. 371X.98=363.58, which rounds to 364, so the raiding player has captured 364 MC worth of resources from his opponent. His two F7 freighters have more than sufficient capacity to carry that amount of captured resources, and so he is able to take them away. (Had he been unable to carry his swag away, he would simply have destroyed it. As far as the loss to his opponent is concerned, the result would have been the same either way.)

In addition to the economic effects of the raid, the raiding player must check for captured astrogation data. The Racial Determination of the empire he is raiding is 63% (which is not modified downward since this is a raid on the IFN and not on Imperial Freighters), so any roll of 63% or less will indicate that the IFN skippers managed to destroy their records. As per 23.02.05, the raiding player checks once every complete 5-day period spent in System 1021. 19/5=3.8, which rounds down to 3, so he makes a total of 3 checking rolls, rolling a 19%, a 61%, and a 42%. All are lower than 63%, so all data was destroyed before capture. Had any one of the 3 rolls been 64% or more, the raiding player would have captured astrogation data on all systems within four transits of System 1021.

In the meantime, what has the raided empire been doing? The empire is HT6, so it has both courier drones and interstellar communication buoys and has built an ICN. The raid began at 12:00:00 on Day 3 of the current month, so a courier drone was fired off by an IFN freighter at that time. System 1021 is a relatively newly discovered system, and the ICN has not yet been extended to it, so the nearest WP connected to the ICN is 18.3 light hours (1,098 light-minutes) away. The CD is launched at its maximum speed of "12" (20% of light-speed), so it will take 1,098/.2=5,490 minutes (91.5 hours, or roughly 3.8 days) for the message to reach the ICN. This means it will arrive there at 19:12:00 on Day 6 of the current month. From there, the message must travel another 50 light-hours (2.08 light-days) to reach the nearest interstellar command center, but it travels at light-speed, arriving there 50 hours after it first entered the ICN, or at 21:12:00 on Day 8. The nearest friendly fleet units are a carrier task force located 23.9 light-hours (1,434 light-minutes) from the ICC and 36.5 light-hours (2,190 light-minutes) from System 1021 in a star system which is connected to the ICN. The raided player rolls a "3" on 1D10 as per 20.02.04.3 to determine how long it takes his ICC to formulate orders for the carriers, so it requires 3 hours and the message goes out to the carriers at 00:12:00 on Day 9.

Moving at light-speed via the ICN, the carriers' orders take 23.9 hours to reach them, arriving 23 hours and 54 minutes after they were dispatched, or at 00:06:00 on Day 10, and the admiral commanding the carriers immediately puts them in motion to intercept the raiders. He has to cover 36.5 light-hours to reach System 1021, so his orders are to move at his maximum possible speed of "6," or 10% of light-speed. At speed "6" it will take him 36.5/.1=365 hours (15.2 days, or 30.4 system turns) to arrive, and he will have to check once every 14 system turns for engine system failures (as per 27.03.07.6) along the way. 30.4/14=2.8, which for engine checking purposes rounds up to 3, so he will have to check 3 times. Since he is traveling at a speed 3 greater than half speed, he will roll 3 dice for each check, and (since all of his crews are average) any result of "3" or less will indicate the failure of an engine system. In the course of his voyage, 4 of his 12 carriers suffer engine failure, so he will arrive in System 0121 with 8 carriers 365 hours after he got his orders to move out. By the clock, this means he will arrive at 04:54:00 on Day 25. Since, however, the strategic movement rules stipulate that ships moving strategically begin system movement at the start of the system movement pulse immediately following their arrival unless there are hostile or unknown units in range to trigger the interception or tactical scale immediately upon arrival (see 18.01.04 & 18.01.05), he will begin system scale movement in System 0121 at 06:00:01 on Day 26. As the raiding player has already withdrawn on Day 22, he is unable to interrupt the raid. If, however, he knows where the raiders came from, he may take his carriers in pursuit if his orders from the ICC told him to or if he is a graded admiral (see 07.00) and exercises his own discretion to do so. Since the raiders' F7 freighters have commercial engines (and thus a maximum speed of "4") the faster carriers with their long-ranged fighters may still be able to overhaul and attack the raiders, but it is unlikely, given the head start they have attained.

24.00 Campaign Rules

IMPERIAL STARFIRE offers three major campaign variants: New Empires, the Barbarian Wars, and The Mardukan Incident (which includes two sub-variants). The New Empires Campaign can be played with or without a Space Master, although the presence of an SM will greatly enhance player enjoyment. The Barbarian Wars and the Mardukan Incident, on the other hand, cannot be played without an SM.

STARFIRE players should note that all of these campaigns are intended as patterns and suggestions. SMs should feel free to customize them as they go along, and the designers hope that they will suggest other, completely original campaign ideas to you.

24.01 New Empires Campaign

A new galactic era has dawned. Several technologically advanced races have discovered warp travel and are poised to erupt from their isolation. Along the way, they will contact less advanced races, create new empires, and forge mighty navies to control the stars. But danger lurks in the stars--the danger of other, equally-advanced races bent upon stellar conquests of their own!

24.01.01 Each player in the game takes the role of one of the races who have achieved warp travel. Obviously, their races have created a technical and economic presence in their home star systems, so the first order of business is to create their home worlds and beginning infrastructure.

24.01.01.1 System Generation. Each player makes the necessary rolls to generate a star system. Since this is to be his home system, he discards and re-rolls any which do not have at least one Type T or ST planet. Once he has a system with at least one T or ST world, it becomes his home world, with a large population at HT1. If there are multiple habitable planets, he makes a random die roll to determine which is his home world and then makes a system exploitation roll as per 14.03, adding an additional "+20%" modifier to the die roll.

After determining the number and location of populations as per his exploitation roll, he makes an REI roll for each populated planet, adding "7" (not "5" as per 15.03.01) to the D10 roll, so that he may calculate its GPV. The total of all GPVs in his system will be used to determine his balance for the Pre-Game Economic Turn.

No player race home system ever contains more than one race. There are no starting-turn NPRs in player race systems.

24.01.01.2 Racial Outlook Determination. After generating systems and populations, the player makes one roll each for Racial Chauvinism, Racial Militancy, and Racial Determination and uses those values to generate a Racial Outlook. These racial attributes will be those of his empire.

24.01.01.3 Pre-Game Economic Turn. After making all of the rolls above, each player is given a sum equal to four turns of income from the GPVs of all of his inhabited planets. These resources are used to expand and establish his empire's beginning infrastructure in addition to any infrastructure generated by his system exploitation roll, above. Additional populations may be emplaced, shipyards may be built, military units may be purchased, etc. No mass production bonus for spacecraft construction is allowed in this phase, and none of a player's "starting balance" may be carried forward, but no cost multipliers for spacecraft construction on planetary surfaces or Habitability Differentials for habitable worlds apply and personnel points are effectively unlimited. Players may buy up to a three-month reserve of manpower points (see 15.01.02.6) out of their "starting balances."

24.01.01.4 Once the beginning infrastructure has been created, play begins at 00:00:01 on Day One of Turn One of the new galactic era.

24.01.01.5 Campaign Length. New Empires campaigns may be of any length, but the parameters need to be established before play begins. Normally this is done in terms of strategic turns to be played, but any convenient and mutually agreeable length can be set.

24.01.01.6 Victory Conditions. For most New Empires campaigns, the victor will be he whose empire attains the greatest wealth by the end of the agreed length of the campaign. In this case, wealth is defined as the total of all GPVs of controlled planets plus the MC value of all trade allies and the purchase cost (without mass production bonus) of all existing spacecraft (including space stations) and ground bases. Players who wish to may include the cost of strikefighters but not small craft. Units which are in mothballs in the final strategic turn of the campaign count only 1/2 their purchase price for the purposes of this calculation.

More bloodthirsty players, may prefer a "last man standing" victory condition. In this instance, the length of the campaign is determined by how long it takes one player to conquer/eliminate all of his competitors. Obviously, the player who survives wins (as does anyone who has voluntarily amalgamated with him).

24.01.02 Numbers of Star Systems and Players.

One problem any SM faces is deciding exactly how many star systems should be allowed for in a New Empires campaign. There is no hard and fast answer to the question, since so much depends on the quality of his players, his own experience, and exactly what it is the gamers want out of the campaign.

As a general rule, lower numbers of star systems will result in fewer NPRs, fewer choice pieces of real estate (habitable planets), and earlier contact between player races. If the

objective is for the players to come to grips with one another and enjoy a brisk war or two at the earliest possible moment, a low number of systems is probably desirable, but this will also mean the empires will be fairly small and probably fairly low-tech when they meet one another.

If the object is to produce a longer game (say 120-180 turns) or to allow for the creation of large, highly-advanced player empires, then larger numbers of systems should be allowed for. The designers have seen very enjoyable games with as few as 15 systems per player or as many as 100.

As a rule of thumb, the designers suggest that the SM should allow a total of 50 to 60 systems per player for a game intended to last 120 strategic turns. Bear in mind, however, that this is only a suggestion. As gamers and their SM gain experience with *IMPERIAL STARFIRE*, they will develop a "feel" for the "right" number of systems for their own games.

24.02 Barbarian Wars Campaign

The Galactic Imperium has met many challenges as it reached out to the stars. Hostile aborigines, civil war, unknown plagues--none have defeated it. But though the Imperium has met the test of time, it may be about to become time's victim, as well. It has grown old and lost the vital spark of aggressive expansion and growth. Complacency, a belief in its own invincibility, has blinded the Imperial Fleet to dangerous internal weakness. Perhaps that might not have mattered so much, but there is peril in the stars. Just beyond the Imperial borders, hidden in the Long Dark beyond the outermost Imperial star systems, new races have discovered the secret of warp travel. Young and aggressive, more innovative and quicker to respond to new ideas and technology than the old, established Imperium, they are eager to expand--at the expense of the Imperium, if they must.

The New Barbarians are about to make their move, yet they must be cautious. The Imperium is old, true, but it is also vast and powerful. If they push too hard, they may awaken the sleeping giant…

24.02.01 Setting Up the Imperium. The SM must create the Galactic Imperium (including all of its warp links) before the game begins. As a rough rule of thumb, the Imperium should have surveyed and claimed six to eight systems with habitable planets for each player race in the campaign. In the course of creating the Imperium, the SM should roll normally for the presence of NPR civilizations within the Imperium's systems, then incorporate them into the political system by making political negotiation rolls for each NPR civilization. The Imperium will attempt to achieve at least Partnership and preferably Amalgamation with any NPR; if the negotiation process breaks down, however, the Imperium will conquer the NPR, and any conquered NPRs remain conquered NPRs at the time play begins. Negotiations should continue with all unconquered NPRs until Amalgamation is reached. If Amalgamation is not possible because of differences in Racial Outlook or Racial Militancy, negotiations stop with Partnership.

24.02.01.1 Imperial Population Enclaves. All habitable planets without indigenous populations within the Imperium should support at least a colony of the imperial race and may support larger populations. Planets of allied and partner races may also support imperial populations. To determine population size, roll percentage dice against the following table:

Uninhabited Planet Die Roll	Allied/Partner Home World Die Roll	Imperial Race Population Size
01-15	NA	Medium Pop.
16-35	NA	Small Pop.
36-60	01-10	Settlement
61-00	11-25	Colony
NA	26-66	Outpost

Modifiers: +02% per Habitability Differential point.
+05% per warp transit (cumulative) from imperial home world.
-10% per additional habitable planet in same system.
-10% per asteroid belt in same system.

Any conquered planet habitable by the imperial race will always support an imperial Settlement as well as an imperial garrison. Conquered planets not habitable by the imperial race will support an imperial garrison but no additional population.

24.02.01.2 The Imperium's Tech Level. There are two schools of thought on the subject of the Imperium's Tech Level. One school says the Imperium should have the technological advantage but preferably only by one and certainly by no more than two tech levels. The other school says the Imperium's TL should be generated using the rules for determining the TLs of high-tech NPR civilizations. Either is acceptable, but if the second option is used, an Imperium with too high a tech level may result, requiring the SM to be fairly inventive in creating Imperial handicaps to offset its advantage.

24.02.01.3 The Imperial Infrastructure. The Imperium has been around a long time. To reflect this, the SM uses six months of income to create the Imperial infrastructure in the Pre-Game Economic Turn.

24.02.01.4 The Imperial ICN. The Empire has established an ICN using the most efficient ICN technology available to it. In addition, the Imperium should be divided into Sectors, each with a sector capital (ICC) which holds authority only over units assigned to its sector. All orders to units in other sectors may come only from the Imperial Capital. Preferably, there should be about twice as many sectors as there are barbarians.

24.02.02 Enter the Barbarians. The players (obviously) are the barbarians. Their empires are created precisely as for a New Empires Campaign but the SM, at his discretion, may allow each barbarian empire to have explored up to five warp transits in all directions from its home world before it encounters the Imperium. All exploration is conducted before the barbarians' Pre-Game Economic Turn and political relationships are established as for the Imperium as per 24.02.01, above, except that the players may choose what relationships they wish to extend to each NPR.

24.02.02.1 Barbarian Infrastructure. Each barbarian receives four turns worth of income from the GPVs of all planets in his empire. These funds are spent in the Pre-Game Economic Turn as in a New Empires Campaign. Populations (up to colonies) may be emplaced in distant star systems at the cost stipulated for the populations (including any pre-requisite population emplacements), but Imperial Freighters need not be built and used to transport them. In this instance, funds may also be spent on R&D, as in 24.02.02.2, below.

24.02.02.2 Barbarian Tech Levels. All the barbarians begin play at HT1, but since they're the "young, aggressive, innovative" races, each is assumed to have made the start-up investment in R&D for HT2 up to 3 turns before play begins. Each barbarian may, if he desires, deduct up to 3 turns worth of R&D from his starting balance and spend it on R&D. He need not do so if he would prefer to spend the funds on other things, but he has the option to do so. If he has not spent any of his starting balance on R&D, he begins R&D on Turn One of the game with the start-up fee already credited.

24.02.03 The Imperium's Weaknesses. If the barbarians are to have a chance, the Imperium must have weaknesses. The following weaknesses are suggestions, not requirements. The SM may adopt all, some, or none of them, but if he chooses not to use them he must cook up weaknesses of his own to replace them.

1. The Imperium is sluggish in R&D. It may not use Crash R&D and takes twice the normal time to develop specific weapons and technical systems. No Imperial R&D is permitted until the first barbarian is encountered in combat. (But see 24.02.04.1, below.)
2. The Imperium is not interested in further expansion. It does not send out exploration ships except as part of counter-attacking fleets pursuing barbarian attackers back to their point of origin.
3. The Imperium faces additional threats which require its forces to be spread thinly. The SM should split the Imperial Fleet into a number of smaller fleets equal to the number of sectors in the Imperium. No sector may call on forces from any other sector without release from the imperial capital, and the imperial capital won't release them until (a) the barbarians conquer a planet of the Imperium with a population of the imperial race that is at least "Small" in size or (b) the SM rolls percentage dice and obtains a result equal to or less than 1/3 of the imperial race's Racial Militancy.
4. The Imperium's subjects are restless. Conquered worlds and, less frequently, off-world populations of the imperial race tend to revolt against the central government, which requires some of the Imperium's military forces to stay home bashing rebels, not barbarians. In addition, the barbarians should be allowed to negotiate with and possibly ally with any imperial planet which has revolted successfully.
5. The imperial governors are ambitious. This can take one of two forms.
   a. First, the local governors are afraid their careers will suffer if they report trouble they can't handle on their own, so they cover up any intrusions into their sectors and attempt to deal with the barbarians themselves. Only the resources and shipyards of their own sectors are available to support their military efforts. They will report their problems and ask for help only if the barbarians inflict a heavy defeat on their naval forces (i.e., reduce their available military forces by at least 50% after all replacements they can build from their own resources from their pre-game level) or succeed in conquering at least one planet with a population of "Medium" or above.
   b. Second, the governor of a sector invaded by barbarians has a chance equal to 1/2 his Racial Determination, checked once every four strategic turns, of trying to take personal advantage of the situation to carve out his own empire. In this instance, an entire sector rebels against the Imperium and sets up as an independent NPR or actually allies with the barbarians against the imperial capital. If this happens, 1/2 of the sector's military forces of all types and 1/2 of its shipyards should be marked off as destroyed in fighting between the rebelling imperials and their loyal compatriots.

24.02.04 Points of Contact. Each barbarian empire should have a single initial WP point of contact with the Imperium. The barbarians need not impinge on the Imperium unless they wish to, but are free to expand through other open warp points they may possess, instead. The SM should create a total number of system ID numbers equal to those of the Galactic Imperium plus fifty per barbarian race, blocking a sufficient number of them to provide for all of the Imperial systems. The barbarians are free to expand and explore and even to fight one another rather than come up against the Imperium immediately. On the other hand, pickings will be richest in the Imperium.

24.02.04.1 This is really an R&D point, but it relates to contact between the Imperium and the barbarians, so it is listed here. If the players adopt a policy of avoiding confrontations with the Imperium, then, obviously, the Imperium won't be fighting any wars with them. If the "weaknesses" in 24.02.03 are used, this could result in a situation in which the barbarians are free to go away and work their tech levels clear up to HT10 or HT11 before they jump on the Imperium, while the Imperium (not having met any of the barbarians in combat) stooges along at HT2 or HT3. If, therefore, none of the barbarians are obliging enough to move against the Imperium at once, the SM should allow the Imperium to begin normal R&D in the sixth strategic turn of the game.

24.02.07 Campaign Length. As for a New Empires Campaign, the length of a Barbarian Wars Campaign should

be agreed to by all before play begins. The designers suggest a length of 20 years (240 strategic turns), but gamers should choose any length with which they are comfortable.

24.02.06 Victory. There can be more than one victor in this campaign. Since the SM is playing the part of the Galactic Imperium, he "wins" if the Imperium wins. At the same time, one of the players may fulfill the player victory conditions, thus winning over all the other players.

24.02.06.1 The Imperium wins if, at the end of the campaign, the total GPVs of the Imperium are at least equal to those with which the Imperium began play and that total is greater than that of any single barbarian empire.

24.02.06.2 For the barbarians, the player empire with the greatest total GPV value at the end of the campaign wins. If that total is also greater than that of the Imperium, the player wins outright; if it is lower than that of the Imperium, the player defeats all other players but is defeated by the Imperium.

24.03 The Mardukan Incident

(Variant One: Conquest Of The Ruins.)

Venturesome species have discovered warp travel and expanded, meeting other, equally expansionist empires along the way. Some races, less fortunate than others, have fallen prey to their fellows and been digested by more successful competitors, but most of those who remain are big and tough enough to deter aggression from their surviving neighbors. A period of relative peace--albeit somewhat uneasy at times--has settled over the known galaxy, but more than one imperial government is prey to an uncomfortable suspicion that its competitors are eyeing it hungrily…or doing the eyeing itself.

Yet not even the most suspicious of them is prepared for the new discovery which suddenly upsets all of their calculations. Survey ships of virtually every empire simultaneously discover a cluster of interconnected star systems which have been ravaged by an interstellar civil war. All the evidence suggests that the war must have been fought very recently, but no survivors are discovered on any of the ruined planets the wondering explorers survey.

No survivors, no, but something of vital importance remains--the remnants of a technology far advanced over that of any known race's. Automated defensive systems and pockets of biological warfare contamination pose potentially deadly traps, but the prize of successful exploration may be a decisive technical advantage. One which can make the Imperium which obtains it supreme over its fellows…or make another supreme over it.

The prospects are dazzling, yet the risks are terrifying, and as the empires gather to pick the bones of the smashed civilization, each government has the same frightening thought.

Will its bones be picked clean, as well?

24.03.01 The MARDUKAN INCIDENT may be played by itself or as an extension of a standard New Empires campaign, particularly if the players in the New Empires campaign have reached a deadlock. As a stand-alone campaign, the SM will have a lot of pre-game system generation to do; as a carry-on from a New Empires campaign, he will have much less to do, since the player empires will already have been generated. If the Mardukan Incident is played as a stand-alone, the player empires will also have to be generated by the SM or by the players. The designers suggest that in this case the player empires should be handled as in the Barbarian Wars but that each player be allowed to explore outward for at least eight transits in all directions before beginning play. In addition, the SM must establish at least one point of contact between every player empire and each of its neighbors if these have not been generated naturally.

24.03.02 Numbers of Star Systems. What the players have actually encountered are the ruins of the Star Kingdom of Marduk, a moderate-sized but very advanced (and warlike) empire. The SM should decide how many systems the Mardukans had claimed and explored on the basis of the number of players in his campaign. The actual number is completely up to him, but the designers suggest that there should be a total of no less than four or five once-populated systems for each player-empire in the game. When following on from a New Empires campaign, the player empires involved may well be pretty good sized, so a larger number of Mardukan systems may be called for, but only the SM can make that decision.

When generating the Star Kingdom, the SM should roll each system ID number normally but ignore all warp point destination results which would connect the Star Kingdom to any player empire. The number of star systems without habitable planets is immaterial, though some SMs may prefer a larger number of them to provide depth for any player-versus-player campaigns which may result.

24.03.02 Tech Levels. The tech level of the Star Kingdom should be at least four tech levels higher than that of the highest TL attained by the players. The SM may achieve this in a stand-alone campaign by simply informing the players what their starting TL is and then assigning the Mardukans one sufficiently higher. In a carry-on from a standard New Empires campaign, the SM may allow the players to retain whatever TL they have attained in the course of play so long as the highest player TL is low enough for the Mardukans to have an advantage of at least four tech levels. If this is not possible, the SM should require the highest-tech player empire to reduce its tech level to a maximum of "7" with every other player empire reducing its tech level by the same total number of tech levels (to a minimum of HT 1). This will mean that the GPVs of all player empires will have to be adjusted and that the players must redesign their warships and other installations to delete any systems which their "new" tech level does not contain. If this happens, each player should be allowed to "cash in" his entire existing infrastructure by discarding the control sheets for it and receiving a "starting balance" equal to the original purchase cost of everything he has built at his previous, unreduced tech level.

24.03.03.1 Whatever the TL of the players or the Mardukans, the Mardukans have one non-standard technical system: CyberComp.

CyberComp is a system of cybernetic control systems which requires 3 hull spaces and costs 200 MC to build and 8,000 MC to develop. A unit so equipped can devise battle plans and maneuvers and execute them even without a crew on board. Although CyberComp "thinks" very quickly, it is not particularly imaginative, so any CyberComp unit fighting without a command crew is at "-2" to all initiative rolls. In addition, no uncrewed CyberComp units can ever have a flagship, so all CyberComp units without crews fight at the "no flagship" penalty.

If a CyberComp unit does have a command crew, all initiative rolls are made at plus 2 after all other modifiers. In addition, CyberComp automatically provides any ship which mounts it with the equivalent of Improved Multiplex Tracking 10, and its efficiency in combat increases the effective grade of any unit which mounts it by one grade level. In addition, any CyberComp unit can go from Stand-By readiness to full General Quarters readiness in a number of tactical turns equal to 1/2 the roll of 1D10, rounding fractions down.

Whatever the basic Mardukan tech level assigned by the SM, CyberComp should be one tech level higher--it is the first system of the next tech level which they have attained.

24.03.04 The Mardukans. The Mardukans were a handsome race (well, they thought so, anyway), and stood approximately 2.5 meters tall. They were warm-blooded, saurian-looking bipeds with slick, slightly slimy gray skins, and "hands" consisting of clusters of twelve strong, agile tentacles each. They also boasted prehensile tails tipped with flexible clusters of razor-edged spikes which could, at need, be clenched into the equivalent of a spiked mace. Mardukans were carnivorous with an unfortunate tendency to dine upon captured enemies on special occasions. In addition, they came from a "border-line ST" home world; that is, both Type T and ST planets were benign environments for them.

The Mardukan Racial Outlook was 85%, based on a Racial Militancy of 97%, a Racial Determination of 78%, and a Racial Chauvinism of 80%. These values should be used when building the original Mardukan infrastructure as per the NPR strategies described under 16.00. When building the Mardukan infrastructure, treat the Star Kingdom as an NPR at war to determine its building strategy.

Every T or ST planet in the Star Kingdom was once the site of a thriving Mardukan population. Although all inhab-itants are now dead, the SM still rolls for population size (bearing in mind that all populations were high-tech ones) to determine the total of the Star Kingdom's GPVs and thus its starting balance. The actual starting balance is calculated as if the planets were still inhabited, and the SM uses that balance to build a complete infrastructure. This is the pre-war infrastructure of the Star Kingdom, but once the SM has built it, he must tear holes in it to reflect the terrible battles which were fought throughout the Star Kingdom.

When building the infrastructure, remember that any system without habitable worlds would still have been connected to the ICN, so communication systems should be installed linking all warp points within the Star Kingdom. (No DSB-c remain, however; without maintenance since the war, all have been lost.) All warp points of all inhabited systems were once heavily fortified (BS, asteroid fortresses, and/or minefields may be used), but battle has passed through all of these systems, and most of the orbital bases have been badly damaged or destroyed. Every inhabited planet will have been protected by SS or ground bases on moons, and 50% of all inhabited worlds will also have had at least one major PDC.

24.03.04.1 The SM must build the original Mardukan infrastructure, then determine how much damage it has taken by rolling percentage dice and adding 15% for each installation, then marking off that percentage of its systems (starting with armor, if any). If this results in total destruction of the installation, then all systems should be marked off. BS and SS destroyed in this fashion are simply dropped from consideration; installations on planets or moons are retained as "destroyed installations" for intelligence gathering functions.

24.03.04.2 Thirty percent of all warp points in the Star King-dom were the scene of warp point assaults. The SM should roll percentage dice for each fortified warp point. A roll of 01-15% indicates that all defenses (including any minefields and/or IDEW) were destroyed in the fighting; a roll of 16-30% indicates that minefields and IDEW remain but that all BS and asteroid fortresses were destroyed. If minefields or IDEW remain, the SM rolls percentage dice as in 24.03.04.1 for each tactical hex which contained a minefield or IDEW and reduces the originally deployed patterns or IDEW by that percentage.

At least one warp point in every inhabited system must have been the site of a warp point assault. If the checking dice roll indicates that none were, the SM must recheck each WP, rerolling until he rolls a 30% or lower result for at least one WP in the system.

24.03.04.3 In addition to the "fixed" infrastructure, the SM should build a powerful mobile fleet, then roll percentage dice and add 35% to the result, subject to a maximum value of 90%. This is the percentage of the Mardukan fleet which was destroyed outright in the fighting, and the same percentage should be destroyed in every class.

For each surviving unit of the fleet, roll percentage dice as in 24.03.04.1 but without adding 15% and mark off the indicated number of systems as destroyed. These derelict units should be distributed about the Star Kingdom. The SM may do so randomly or in any pattern he chooses.

As an alternate distribution method, the SM may assign the fleet in task forces to the various inhabited systems of the Star Kingdom before making the percentage roll to determine how many units survive. Under this alternate, the SM should assign an exactly proportionate number of units of each class to each task force before determining how many survived and marking off the survivors' damage.

Once every surviving unit has been located in a star system, the SM should decide how they are distributed about the system. As a general rule of thumb, the fiercest fighting would have been in the vicinity of inhabited planets or WPs which were the site of warp point assaults. The SM should use his own judgment, however, and should try to create different distributions in each system.

As a final step, the SM should go back and roll percentage dice for each surviving capital ship (BB or larger), asteroid fortress, SS, PDC, lunar ground base, and BS4-BS6 of the Star Kingdom. Any roll of 01-15% indicates that the CyberComp installation of the unit checked for remains active and will consider any non-Mardukan vessel which approaches it to be an enemy. Any surviving Mardukan CyberComp unit which has at least one intact engine room still has power and is considered to be at Stand-By readiness. In addition, any CyberComp spacecraft in a given interception hex which have intact command datalink will automatically form themselves into command battlegroups of like types, linking the least damaged units of each type first and then working their way down.

All magazines aboard surviving CyberComp units are at 50% capacity.

24.03.05 Player Access. It is important that all players have access to the Star Kingdom. The SM may accomplish this in any way he chooses, but one way is to assume that each of the player empires has "happened" to send a survey force down an open warp point which "happens" to link to the same non-Mardukan system simultaneously. This newly discovered system connects to one or more of the Mardukan systems. When this method is used, the common access system should be a blue giant system with no planets and lots of warp points. This has the advantage of simplicity and ensuring that all players have equal access, but it also tends to provoke massive wars before the Star Kingdom has even been explored. On the other hand, a system with no planets is hard to hold, and even if one player succeeds in kicking all the others out, he will remain subject to counter attacks by other individual players or hasty alliances of them.

Another approach is for the SM to locate a closed warp point in one of the Mardukan systems for each player empire. When this method is used, the SM may wish to roll randomly against the Mardukan system list numbers (which may mean some players have access to inhabited Mardukan systems while others do not or even that multiple players may have access to the same Mardukan system) or he may choose to assign locations. In the latter case, he may, if he chooses, assign them in such a way that all players have access only to uninhabited Mardukan systems and none have access to the same system. The advantage to this approach is that it tends to avoid the "massive war from the start" effect, but it may also mean that the players ignore one another while each races to explore whatever goodies lie in the system(s) he has access to.

24.03.06 Pandora's Box. In addition to competition with his opponents, each player will find that the Star Kingdom itself is a veritable Pandora's Box of potential disaster.

First, any Mardukan unit with an active CyberComp installation will attack any player-empire units which come into range. CyberComp carriers cannot operate fighters, but CyberComp units can do anything else a crewed unit could do…and will. Note also that uncrewed CyberComp units never surrender. Spacecraft will continue to fight as long as they have weapons, then attempt to ram. If they are immobile units or lose their drive fields and no longer retain weapons, they will attempt to scuttle. Since all CyberComp installations contain a 200 megaton "suicide charge," they will successfully scuttle before being boarded unless the SM rolls 08% or less on percentage dice. If, however, the SM rolls an 01% on his checking roll, the CyberComp unit will, in fact, scuttle…but only after the first boarders have entered its hull. CyberComp PDCs on what were inhabited worlds will not blow up their entire facility if all weapons are lost (since the CyberComp doesn't know all the Mardukans are already dead and is programmed to avoid inflicting collateral casualties on its own people), but they will continue to fight back with any fixed emplacement weapons even against ground forces until those weapons are destroyed. At that point, the CyberComp itself will "suicide" with a very small nuclear weapon unless the SM rolls 08% or less on percentage dice. CyberComp PDCs on moons, asteroids, or uninhabited worlds will "scuttle" exactly as if they were spacecraft.

In addition, the Mardukans employed particularly lethal biological weapons which may remain viable. These weapons were designed for broad-based attacks even on races with widely varying biochemistries, and the IEPP rule (19.03.05) must be used when exploring any Mardukan world. In this instance, the IEPP for any exploring race is 25%.

24.03.07 The Spoils of Victory. Obviously, players will be able to probe the wreckage of the Star Kingdom for technical data using the intelligence gathering rules and the assisted R&D and system development rules (assuming, of course, that they survive the various perils involved in poking their noses into the wreckage in the first place). In addition, the various non-military goodies scattered about the Mardukan planets will permit them to enhance their own economic capabilities. To reflect this, each player is allowed to increase the EVM of each of his planets by 50 for each Mardukan planet he successfully surveys up to 1.5 times the normally maximum allowable EVM for industrial expansion at each tech level, up to the TL of the Star Kingdom prior to its destruction.

24.03.08 Victory Conditions. The SM may wish to establish particular victory conditions for the campaign as a whole. He might, for example, rule that any player who can gain access to the Star Kingdom for himself while denying it to any other player for a period of 12 strategic turns wins the campaign. On the other hand, he might incorporate the Mardukan Incident within the bounds of a larger New Empires campaign and

simply let the New Empires campaign continue to its originally specified victory conditions with each player drawing whatever advantages he or she can from access to the Star Kingdom.

24.04 The Mardukan Incident (Variant Two)

Get Your Tentacle Clusters Out Of My Cookie Jar!

In this variant, something new is added. The campaign begins exactly as for 24.03 above, and, in fact, the players are informed that it is a "Conquest of the Ruins" campaign. In this case, however, the SM has told his players a little white lie.

As a rule, this variant works best when the SM has an accomplice among the players. This individual (whom the SM should select on the basis of his duplicity and low cunning) knows what is actually going on but doesn't tell anyone else. Instead, the accomplice goes right along with the other players, creating his player empire, struggling for access to the Star Kingdom, etc.

What he knows that the others don't, however, is that the Star Kingdom isn't really dead. What the players have found is only a single sector of the original and far larger Star Kingdom--a sector whose only access is via a closed warp point (which the SM will have to tuck away in one star system of the sector) from the rest of the Star Kingdom. In fact, the Mardukans haven't fought a civil war, but rather a long and bloody conflict with yet another advanced race (the Haynsurkians). In the course of the fighting, the Mardukans lost the system connecting to the closed warp point in this sector, and the Haynsurkians, using that warp point, crushed the isolated sector and killed all of its inhabitants.

Since that time, however, the Mardukans have fought back from the verge of defeat, smashed the Haynsurkian fleet, and won the war. Now, at last, they are able to send their own units back into their lost sector under the command of one of their greatest admirals, Deshofek, to reclaim it for the Star Kingdom…and Deshofek (who Is Not A Nice Person) is not pleased to find Someone Else desecrating the dead worlds of his fellow Mardukans!

24.04.01 Deshofek's Return. The SM hasn't warned any of his players (except his accomplice) that the Mardukans may return. Instead, he secretly rolls percentage dice once each strategic turn, and the Mardukan Navy appears through the closed warp point on the strategic turn in which he rolls 01%. In addition, he modifies the die roll by a cumulative "-01%" per checking roll until the Mardukans do return. At that point, his accomplice abandons his original player empire (which becomes an NPR empire run by the SM) and becomes Deshofek (an elite admiral), as well as His Royal and Imperial Majesty Davu the Gross, head of the Royal Mardukan government, with the express intent of exterminating (or, if they're very polite and humble, simply conquering) all of his erstwhile fellows.

The returning Mardukans are run by someone other than the SM in order to give the other players a fighting chance. Since the SM knows all there is to know about all of them, as well as all there is to know about the Mardukans, it would be very difficult for him not to take advantage of that knowledge, even unintentionally, in dealing with his victims.

24.04.02 Obviously, the SM has to do a lot of additional system generating and infrastructure building for all those nasty Mardukans in the undamaged portion of the Star Kingdom beyond the closed warp point, which should be twice as large as that which has been discovered by the players. While this will give the Star Kingdom a massive advantage in wealth and technology (unless, of course, the players have managed to learn quite a bit from the ruins before Deshofek turns up), the Mardukan advantage will be somewhat offset by the fact that they have only one access warp point to the area of the players' empires, confronting them with a "choke point" approach which competent players should to be able to use to advantage.

24.04.03 The Mardukans have one other major advantage: experience. They have been at war with the Haynsurkians for decades, and while Deshofek is their best CO, he is certainly not their only graded admiral. In fact, the Mardukans should have a total of one additional elite admiral plus two crack admirals for each player in the game. All other Mardukan admirals are average, but further graded admirals may be produced using rule 07.00.

24.04.04 As a general rule, the players are in a world of hurt. Unless they band together, the Mardukan juggernaut will roll over them one by one, but it may be a tad difficult for empires which were at one another's throats last week to fight shoulder-to-shoulder this week. (Of course, the feeling that they've been betrayed--or, at least, grievously deceived--by the SM and his accomplice should help them bury their own hatchets to get even.)

Particularly in large games, there frequently will be one or two players who, having signed on as brothers in blood and allies to the death in this struggle for survival, are actually prepared to stab their allies in the back the instant the Mardukan threat is neutralized. These wicked individuals normally make things very interesting, particularly if they slightly misjudge the moment to turn on their allies. If they only thought the Mardukans were on the ropes while, in fact, Deshofek was simply back home organizing a new offensive, well…

24.04.05 Victory Conditions. As always, the parameters of victory should be chosen ahead of time. The SM may stick to his original victory conditions (assuming they were those for a standard New Empires campaign, for example) or he may produce a secret set of victory conditions which he reveals to his players only when the Mardukan threat is suddenly revealed. The simplest of these is that the players, as a group, win if they can defeat the Mardukans, while one player wins, as an individual, if his empire is the wealthiest and most powerful after the Mardukans are defeated. Whatever the conditions are, the SM should make them clear to his players the instant Deshofek's armada comes into sight … and this time he must mean them.

25.00 Mapping Conventions

Every *STARFIRE* player has his own idea about how best to map his empire and its possessions, and players who prefer their own system of notation should feel free to use it. The following conventions are suggestions, only, worked out over several years of *STARFIRE* campaign play.

25.01 Strategic Scale Mapping

Strategic scale mapping works best on a large sheet of graph paper with a grid of about 1/4-inch squares. The vertical and horizontal lines help keep things fairly neat if you use them to align star systems. The important thing is to keep the systems spaced out so that you have room to work around them with other notations, and using the graph grid for this works quite well, though the way warp lines lay out can still make your map look like a bunch of crazed, amorous earthworms.

A drafting template should be used to make a nice, neat circle to represent each surveyed star system. A 1/4 inch or 6.5 mm circle works nicely. The system ID number should be entered beside each circle.

Warp connections are indicated by lines connecting the star systems. It isn't necessary to indicate which warp point within a system a given warp line connects to--that's what the System Data Form is for--but warp lines ending in open and closed warp points should be distinguished between, and a dotted or broken line may be used to indicate a closed WP link, ending in an arrow head pointing to the system containing the closed warp point.

The hull-space capacity of the warp line (i.e., that of the warp point with the lowest hull space limitation) should be written on the warp line itself to help players quickly pick out navigable routes for their units, and it's a good idea to make that notation at each of the systems the warp line connects, in the case of "longer" warp lines. While it is, of course, true that one of the two warp points defining the warp link may have a larger capacity, that hardly matters, now does it? A starship still has to fit through the smaller one, as well, or be destroyed.

Outbound warp lines you have not yet surveyed should be indicated in pencil with short lines capped with a question mark. With all this data available on your map, the path to be followed on any strategic move can be plotted without having to dig out every possible System Data Form. Once you know where you're going, you can pick out just the ones you need.

ICN connections can be indicated in several different ways. One handy way is to use different colored lines to differentiate between warp links outfitted with ICN DSB-c and those without, but this can run into trouble when the ICN is built into systems you've surveyed and mapped before DSB-c became available to you. My own preference is to use a double line for warp lines fitted with DSB-c.

It is also extremely useful to indicate imperial capitals, ICC, and major fleet bases, and this can be done with the same trusty template you used to make the star system circles. My own template has several useful symbols, and I use a star for the imperial capital, small triangles for ICCs, and small squares for fleet bases/shipyards, placing each symbol inside the star system circle. I also have a habit of using a colored pencil to fill in any inhabited star system's circle in green. SMs will find it very useful to assign each player empire a different color of pencil and shade the systems that empire has surveyed and claimed in its "national color" on the master map.

For those who are interested in mapping such things, star types can also be noted, but this is generally superfluous. I do use an infinity symbol (∞) for starless warp nexuses, and a tiny skull-and-crossbones for warp links I know (or think I know) end in black holes.

25.02 System-Scale Mapping

There's no real need to map star systems on anything smaller than the system scale, and the System Data Form gives you a map to put everything you need on. Remember that the rules consider that the central hex of the map is either filled up by the system primary or the central warp point of a starless warp nexus, so anything from 01-12 LM from the primary would be in the first hex out from the primary, not in the central hex itself.

In a great many systems with planets, more than one system body will lie in a single system hex, which can make things a bit crowded but isn't an insurmountable problem. If you are one of those hardy, confident souls who does all of his mapping in ink, secure in the knowledge that, unlike lesser mortals, you never make mistakes, it is wise to use very small dots for planets when you first generate the star system so that you can leave yourself room for more than one planet or what have you.

You can be as plain or as fancy as you like in using color codes to indicate planet types. If you are using colors, one simple method is to use black dots for the uncolonizable planets (V, G, and I), red dots for Type 01 planets, small open circles for Type 02 planets, and green dots for Type T or "ST" planets. If you want to get a bit fancier, you can put a small red ring around "ST" planets if your own race comes from a T home world or vice-versa. On the other hand, you don't really need to use colors at all. You can use a plain dot for any world without worrying about type, though it can be handy to be able to spot the habitable ones at a glance.

Asteroid belts form hexagonal rings at their orbital radius from the primary. These can be represented by placing a small capital A in each corner of the asteroid belt's hexagon and, if desired, connecting them with dotted lines. System hexes in the asteroid belt which contain asteroid-based populations can be indicated by inserting additional dots, somewhat smaller than you're using for planets, in that hex.

Chains of ICN DSB-c should also be indicated on the map, and, again, dotted lines work well for these. In many cases,

players will find that the distribution of warp points in a system gives them an opportunity to use the same DSB-c to link more than one of them, using "shunt" or "feeder" lines of buoys that branch off from a shared central axis. This is cheaper than assigning each pair of WPs its own unique line of DSB-c, but it also slows message transmission somewhat, since you're no longer dealing with straight line distances. If shared DSB-c are used, players will have to make additional distance calculations not provided for in the Warp Point Data Block on the System Data Form by counting the actual distance a message would have to travel. Obviously, there is no need to calculate an IFN distance for those links, since freighters will still have to cross the straight line distance to get from WP to WP.

32.00 Timeline of Major Historical Events

[All dates in Terran Standard Reckoning]

3,000 BC: Rigelian race crosses one of its arid home world's small oceans and encounters the saurian Rozhark. Since these two races evolved on separate continents, they had no prior knowledge of one another. Contact leads to immediate hostility, and the five millennia of the Rigelian Ages of Conflict begin.

3,000 BC - 500 AD: First Rigelian Age of Conflict. During this period, the primitive Rozhark and Rigelians develop agrarian societies. Each race dominates one continent, but each has also decided it alone will rule the combined planetary land masses. Bitter warfare continues.

700 BC: Destruction of "Golden Kingdom of Hiarnow" on planet Valkha (Khanae III). Hiarnow was an Orion combination of Alexander the Great and King Arthur, but his "Golden Kingdom" lasted over eight hundred years after his death. More importantly, the Golden Kingdom validated the concept of a world empire held by a warrior ruler (or khan'a'khanaee) which came to dominate Orion culture and politics.

500 AD: Start of Second Rigelian Age of Conflict. Though there were no clear-cut interludes in the Ages of Conflict, Rigelian dating establishes 500 AD as the start of the Second Age of Conflict, the largely decisive period in which Rigelian technology pulled well ahead of the Rozhark. The year 500 was chosen because it was the year in which a Rigelian demonstrated the first practical firearm, the first of several major technical advantages the Rigelians were to enjoy over the remaining twelve hundred years of the conflict.

1700 AD: By this date, the Rigelians control over 75% of the surface of their home world. Since this includes all of the most desirable and habitable portions of an increasingly arid world, the Rigelians feel they have effectively defeated the Rozhark. The Rozhark disagree and launch a tremendous counter offensive from their bases in the Mountains of Arzhno, the stupendous mountains forming the spine of Arzhno, the smaller of the two continents.

1756 AD: Battle of Karzhnoz on the continent of Arzhno on the Rigelian home world. The Rigelian general Tomufur defeats the last organized Rozhark army, whose battered survivors flee into the Mountains of Arzhno and begin approximately two centuries of guerrilla warfare.

1800 AD: Edict of Arzhno. Although industrialization is proceeding rapidly among the Rigelians, the need for labor is acute, particularly in agriculture as a deteriorating ecology becomes increasingly barren, and the zarfhod relaxes the decree that all Rozhark must perish in order to make use of Rozhark slave labor. The Church of Tarwix opposes his decision, but the zarfhod wins the approval of the general populace by arguing that the Edict is a purely temporary accommodation to solve the labor shortage.

1856 AD: Two-thirds of Valkha unite under Khanak Mizarloww'do'tanak, a charismatic ruler who later becomes decadent and guilty of gross misrule. In an effort to save the crumbling kingdom, the khanak's best general, Tinarhak'kritanuk, challenges him to personal combat and kills him. Mizarloww's death does not save his empire, but is the precedent upon which the later Orion Caste of Assassins rests.

1843 AD: Rigelian government adopts the unstated policy of relaxing efforts to penetrate the Mountains of Arzhno to destroy the last Rozhark. This is because the enslaved Rozhark have a very low birth rate, which means that either slave labor must be abandoned or that the labor force must be augmented with frequent infusions of "wild" Rozhark. The "temporary" nature of the Edict of Arzhno is quietly forgotten.

1900 AD - 1964 AD: Valkha's rapid industrialization leads to the introduction of technological weapon systems and a series of small-scale but almost continual wars as various small khanakae subdue their fellows to increase their own power. By the end of this period, three major power blocs of allied khanakae emerge, each dominating one of Khanae III's major land masses. Weapons of mass destruction are now available, and only that holds a true world war at bay.

1900 AD: First Rigelian space flight. Given their inhospitable planetary environment, the Rigelian government moves into space quite early. Their world is practically destitute of fissionables but rich in fossil fuels, which have been used extensively for centuries, resulting in a high atmospheric concentration of ketones and other complex hydrocarbons. This has the dual effect of further damaging an already damaged environment and simultaneously spurring space development to acquire lunar and asteroidal resources.

1931 AD: Great Ophiuchi philosopher/political leader Saamaandaan accomplishes the first merger of several national governments into a single democratic entity governing an entire continent of the Ophiuchi home world. It will be many years before his race completes his dream of true world unity, but his example points the way.

1934 AD: First successful Rigelian asteroid mining operation. Continuing shortage of fissionables (despite limited quantities found in asteroid belts) leaves planetary technology dependent on fossil fuels. In the absence of both fissionables and worthwhile hydro-electric possibilities, constantly growing Rigelian industry burns more and more fuels, polluting the atmosphere still further.

1941 AD: Church of Tarwix begins agitation to revoke Edict of Arzhno to counter the increasing practice of keeping Rozhark as body servants and personal slaves. To the Church's consternation, the revocation meets strong resistance, for Rozhark have become prestige symbols and "whipping boys" as well as living trophies underscoring Rigelian puissance. The Church denounces these practices as failures of sharfax and ozhmord: and probably of homtet, as well: but to no avail. Tarfwa Culamba III pronounces Rigelian society decadent, and a period of intense religious turbulence sets in.

1945 AD: First large, geosynchronous Rigelian space habitat placed in orbit. No Rozhark are permitted in space, and this makes the habitats particularly attractive to the more fanatical members of the Church as well as to conservatives who deplore the government's "soft" Rozhark policy in general.

1948 AD: Last 1st generation Rigelian space habitat completed and occupied. Second generation habitat construction begins.

1952 AD: Last 2nd generation Rigelian space habitats completed. Space-going Rigelian population is now over four million.

1954 AD: First genetically-altered bio-weapons produced on Khanae III.

1958 AD: The Great Rebellion (also known as The Punishment of Tarwix) on Rigelian home world. Free Rozhark break out of Mountains of Arzhno, using slaves as a fifth column to stage a world-wide revolt after years of careful conspiracy. The planners have paid great attention to early seizures of arsenals and heavy weapons. Power supplies and industry are systematically sabotaged. The zarfhod and 90% of his top bureaucratic and military chiefs are assassinated by their "own" Rozhark. Within three months, tightly organized, constantly growing bands of Rozhark (now equipped with the best in Rigelian weaponry) smash organized Rigelian society in a frenzy of retaliatory slaughter. Desperate but disorganized Rigelians continue to resist amid the ruins of their civilization, but they are clearly doomed.

1959 AD: Election of Ozho Fwari (later called "the Great") as zarfhod of the space-dwelling Rigelians. The space colonists have been able only to watch helplessly as their civilization is overwhelmed. Though they have secured control of virtually all spacecraft (thus keeping them out of Rozhark hands), they are too few in number to intervene effectively. Fission power is now used in Rigelian space projects, but known reserves of fissionables are too limited to meet minimum power needs and produce a powerful nuclear arsenal. Yet Ozho Fwari is elected largely because he is the one Rigelian with a plan. He declares that sharfax means all surviving members of the planetary Rigelian population are expendable in the interest of racial victory. The old tarwal has died on the planet, but the new tarwal elected by the Rigelian survivors in space agrees, and the space colonists begin a great project to move asteroids into orbit around their home planet.

1964 AD: The Hiamaarch Incident sets off the Orion Wars of Unification on Valkha, ending the decades-long arms race in a one-week nuclear, chemical, and biological holocaust. Eleven more years of violent, broken-backed warfare follow.

1965 AD: The Hammers of Tarwix. Ozho Fwari unleashes a systematic asteroid bombardment, designed to annihilate the Rozhark on the Rigelian home world. Dust and water vapor from land and ocean strikes produce an ecological catastrophe, completing the long-term degeneration of the planetary environment. Most higher animals die as food chains are broken and a minor ice age envelops the planet. The Church declares that this drastic action has redeemed the Rigelian race in the eyes of Tarwix by simultaneously destroying the Rozhark and expiating the Rigelians' sins of pride and arrogance. Ozho Fwari adopts the same public position; privately, he comments that the Rigelian race has expiated its stupidity, not its sins. If Tarwix wanted his people humbled, he could certainly have found a less draconian chastisement!

1974 AD: General Zhiarnofus'krizinjki emerges as the planetary dictator of a Valkha reduced to semi-feudalism and patchy technology surrounded by vast areas of desolation and radioactive, chemical, and biological contamination. In 1976, he takes the title of khan'a'khanaee (the ancient title of Hiarnow the Golden) as a sign of his determination to triumph over the ruin his race has wrought upon its own world. He forms a new aristocracy, largely composed of other military leaders, thus insuring their support, and dedicates himself to the mammoth task of reconstruction.

1974 AD - 2020 AD: Valkha's wrecked society is slowly rebuilt into the Khanate of Khanae. Caste of Assassins established in 1983 by Zhiarnofus. Scientific communities rebuild around remaining network of fission and fusion power. Valkha's ruined nature makes space flight an early and urgent priority.

1984 AD: Rigelians land on home planet after extensive study from orbit and reclaim it, beginning a long period

of intensive repair. Population growth in the orbital habitats, coupled with a drive to prove their renewed claim to their home world, pushes recolonization along rapidly.

2001 AD: The Ophiuchi, after years of steadily increasing cosmopolitanism, complete Saamaandaan's dream by creating a world government, which immediately begins plans to make space the Ophiuchi "new frontier." World planning for space flight proceeds with deliberate speed.

2010 AD: Terrans begin construction of first space city as private joint venture by Western Europeans and US corporations.

2012 AD: Russian Republic begins construction of base at Copernicus Central.

2013 AD: US begins construction of matching facility at Tycho.

2015 AD: First successful manned Mars Mission completed by joint US-Russian space efforts. This is seen as the capping achievement of twenty-five years of growing cooperation and peaceful competition. Nuclear arsenals, though still sufficient to destroy Terran civilization, are at an all-time low. The major threat to world peace is believed to be the rapidly industrializing Asian nations, particularly China.

2017 AD: The Great Eastern War. All Terran geo-political calculations are upset by the sudden eruption of a major war, precipitated by religious uprisings, which soon engulfs the entire Middle East and southern Eurasia, including Israel and the new Islamic states created by the withdrawal of Russian political control. The conventional war begins a deadly escalation as the combatants use chemical and small nuclear weapons, drawing the US and Russia, against their will, into the fighting.

2018 AD: On February 12, 2018, the US and Russia stun a frightened world by the sudden proclamation of a superpower cease-fire and replacement of the UN by something called "the Federated Government of Earth." The united superpowers disarm their own warring allies and compel all other nations to join the FGE, despite baleful Third World charges of "neo-imperialism." On the whole, however, doomsday has drawn too near for there to be much argument. Only Switzerland and the People's Republic of China flatly refuse to join, although the Swiss are willing to accept a "special relationship" with the new FGE. The PRC is not, but is finally forced to accept "associate status" in July under threat of nuclear attack from both the US and Russia.

2023 AD: First manned probe of Jupiter by FGE survey ship Terra. Terra takes heavy damage from freak meteor collision but returns home safely.

2023 AD: First manned Ophiuchi space flight ends in disaster. The main mission succeeds, but the spacecraft breaks up on re-entry.

2025 AD: First fully successful manned Ophiuchi space mission.

2026 AD: Second Terran mission to Jupiter by probe ship Prometheus, using a crude, early-generation reactionless drive, is fully successful.

2029 AD: First manned Ophiuchi landing on Asmofar, inner moon of home world.

2032 AD: First Khanae landing on another planet as survey ship Valkha lands on planet Doltech (Khanae IV). Carefully planned colonization arrangements are set in motion, and the first small hostile environment colony is placed by the end of the year.

2037 AD: Federated Government of Earth opens US/Russian bases at Tycho and Copernicus as joint space research facility. The first regular Terra-Luna freight service begins.

2039 AD: Brilliant Khanae astrophysicist Seemannow'hhisril (developer of his race's own reactionless drive) collates and analyzes gravitational anomalies observed within the Khanae system. On the basis of his data, he hypothesizes the existence of warp points. Despite his high reputation, his theory is ridiculed at first, but other scientists soon confirm his observations and calculations. The Khan decrees a major research program to evaluate the new phenomenon, and the Khanate Space Navy is formed.

2041 AD - 2043 AD: The China War. The PRC attempts to break free of the FGE. The war is limited to conventional forces, at first, but when the Chinese begin employing tactical nuclear weapons and their small space fleet, the FGE nukes Lop Nol and the city of Hanin. Confronted by the FGE's clear determination to use its overwhelming nuclear strength, the PRC folds and is forcibly disarmed. The FGE secures a nuclear monopoly, and all national military forces are rapidly scaled back to symbolic levels. Many of the suddenly unemployed Western and Russian military personnel find new jobs in the FGE's own peacekeeping military.

2041 AD: First warp point located and penetrated by a Khanae survey ship.

2042 AD: Rigelian scientists finally perfect fusion power, freeing their race at last from dependence on their system's slender reserves of fissionables.

2043 AD: Khanae survey ships encounter the Likrinish, a pre-industrial sentient race. The Likrinish Conquest takes barely three months (though Likrinish casualties from demonstration nuclear strikes are heavy), and the Khanate begins a tradition of expansion by conquest.

2043 AD: Khanae survey ships enter a system on the outskirts of the Great Nebula in Orion and discover a cluster of three star systems which possess a combined total of no less than fourteen warp points. The importance of this major warp nexus is recognized immediately, and the Khan quickly establishes a fleet base in the sector. Late in the year, the Khanate completes plans to shift its government and economic center from still recovering Khanae III ("Old Valkha") to the planet of Valkha'zeeranda ("New Valkha") in the so-called "Orion systems." This transfer of government eventually leads the Terrans to coin the term "Orion" in place of the thoroughly unpronounceable "Zheeerlikou'valkhannaieee" which the Orions apply to themselves.

2046 AD: The Terran survey ship FGE Hermes completes first-stage testing. She and her sister, Galacia, are a new departure in Terran research vessels, designed for indefinite operation on-station. They are promptly used to establish Europa Station on Jupiter's moon, for outer-system exploration. Terran Space Command shifts headquarters to Europa Station in 2048.

2047 AD - 2049 AD: The Khan decrees a massive colonization program for the Orion Systems, relocating no less than 25,000,000 of his subjects to New Valkha in barely two years. His government officially becomes the Khanhaeetha doii Zheeerlikou'valkhannaieee'zeeranda (rendered: inaccurately: by Terrans as the Khanate of Orion).

2048 AD - 2049 AD: FGE Hermes and Galacia begin extended probes of Uranus.

2052 AD: First Ophiuchi manned interplanetary flight reaches Mattar. The first Ophiuchi space city is begun.

2053 AD: FGE Hermes departs Europa Station on a mission to Neptune but never arrives. Instead, she makes the first (unplanned) Terran warp transit. Galacia is immediately dispatched to investigate Hermes' disappearance, and warp travel is discovered by Terra.

2054 AD: Ophiuchi government constructs mass-driver on Asmofar, extracting lunar resources and hurling them into space for use by first deep- space manufacturing facilities, speeding establishment of additional extra-planetary colonies.

2059 AD: First Terran colony ship, FGE Ark, laid down in Earth orbit.

2062 AD: First Ophiuchi colonists land on Mattar.

2067 AD: FGE establishes first extra-solar colony, Nova Terra in Alpha Centauris System.

2068 AD - 2069 AD: Khanate of Orion encounters Drolian Federation, a very small interstellar empire. The Orion commander on the spot provokes the famous Drolian Incident by deliberately crowding a Drolian vessel.

2070 AD: Orions carry out Drolian Conquest, adding the entire Drolian Federation to the expanding Khanate.

2075 AD: Rigelian system-wide population tops two billion mark.

2075 AD: Second Terran extra-solar colony established at Epsilon Eridani.

2079 AD: Ophiuchi colony population on Mattar passes 10,000 mark.

2080 AD: FGE reorganizes as Terran Federation Government and creates legal framework for extra-solar representation on a proportional basis.

2092 AD: Terran Federation Bureau of Colonization ("BuCol") established to coordinate and promote extra-solar migration.

2093 AD: Ophiuchi establish mining colony on fissionable-rich planet Alraad. Hostile environment requires a largely automated presence, and the Ophiuchi become extremely adept at colonization of hostile worlds.

2093 AD: Terran Survey Command Main Base moved to Epsilon Eridani to take advantage of favorable configuration of warp points. After some spirited discussion, the Earth-like planet in the system retains the name "New Annapolis" bestowed by its US-born discoverer. To appease certain other elements, New Annapolis's moons are renamed "Frunze," "Sandhurst," and "St. Cyr."

2097 AD: First non-human sentients encountered by Terran Federation at Cottman's Star. The Hochutuli are a late-Neolithic culture, and the Federation quickly establishes a "hands off" protectorate to prevent their exploitation. Office of Xenology also established this year. Survey Command, confronted with proof of extra-terrestrial intelligence, begins giving serious (if very quiet) thought to what becomes known as "The Other Fellow Scenario."

2099 AD: Unmanned Rigelian outer-system probe encounters a warp point and disappears in mid-transmission. A manned expedition is dispatched to find out what happened.

2100 AD: Khanate encounters industrial-age Harshak and quickly conquers them with use of superior space technology.

2101 AD: Rigelian manned follow-up expedition locates and determines nature of the warp point which ate their probe.

2102 AD: Well-armed Rigelian exploration ship transits the warp point and suddenly finds itself near Rigel, a planetless blue giant with eleven additional warp points. Survey of these begins immediately, but the Rigelians (well-adjusted to their space-going habitats and with their population drastically reduced by the Great Rebellion) feel less population pressure to expand than

many other races. Coupled with their extreme xenophobia and the fact that they know other sentient races can exist, this leads them to adopt a slow and surreptitious exploration policy with the idea of "doing unto others first."

2107 AD: Ophiuchi perfect fusion-powered reactionless drive, making true deep-system exploitation possible.

2112 AD: Federation celebrates admission of fifth extra-solar planet to colony status, increasing the list of federated planets to eight, even as a strong sense of ethnicity revives on Old Terra. The sociologists' consensus is that the new, very pronounced resurgence of ethnic culture and language is an attempt to declare humans' pride in their diversity in the face of an increasingly monolithic "mainstream" culture. Whatever its origins, the resurgence takes on a life of its own and "ethnic" colonial expeditions begin applying for emigration permits. Before this "Ethnic Renaissance" fades into a less militant affectation among the Inner Worlds, scores of extremely traditional "ethnic" cultures are planted on colony worlds.

2115 AD: BuCol establishes additional colonization incentives and quotas to encourage placement of smaller colonies on numerous planets rather than concentrating on a few large population centers (a policy well-suited to the ends of "ethnic" colonizers). Terran Federation Marine Corps established as an interstellar peace-keeping force following this year's Food Riots on Christophon.

2119 AD: Rigelian explorers encounter the Lapracu. Although mammalian, the Iron Age Lapracu are vaguely similar in form to the extinct Rozhark. The Rigelians exterminate them with maniacal thoroughness, apparently because of their real or imagined resemblance to the Rozhark. This act of genocidal destruction establishes the pattern for Rigelian dealings with all other races.

2123 AD: Liharnit'zofasuk is removed as Khan by the Caste of Assassins for his refusal to liberalize out-planet slaving policies. A slow "humanist" reform begins within the Orion legal system.

2124 AD: Ophiuchi survey vessel Mendaneb vanishes in outer reaches of the Ophiuchi home system. Nothing further is heard of her.

2126 AD: The Rigelians encounter the inoffensive Shalassha, an industrial age culture, which shares the fate of the Lapracu.

2129 AD: Ophiuchi population on Mattar passes 1,000,000 mark.

2130 AD: Federation charters Mobius Corporation as Federation-wide mail carrier. In return for subsidized freight rates, Mobius sets up Ad Astra, Ltd., the first true trans-stellar corporation, to operate a large fleet of colony ships on permanent charter to BuCol in support of the colonization policy of 2115.

2137 AD: Ophiuchi survey ship Tannamak disappears in the same general vicinity as Mendaneb. A search fleet of five vessels is dispatched.

2138 AD: Ophiuchi vessels Alhabam, Shikar, Bossam, Dibuwa, and Zhofar encounter and pass through the warp point which claimed Mendaneb and Tannamak. Science officers realize what happened almost immediately, but not before encountering three Losoti destroyers. The Losoti have moved into space only recently: a process greatly accelerated by their capture and analysis of the unarmed Mendaneb, which landed on Losot after involuntarily making transit. Only the damaged Zhofar manages to return and transmit a warning to base. . . just before her destruction by two Losoti pursuers.

2139 AD - 2143 AD: Ophiuchi Association hastily cobbles together a war fleet, relying heavily on missiles, which meets a Losoti invasion of FG and DD class vessels. The invasion is thrown back, despite heavy casualties, and a genuine battle fleet is built, with units up to CL class. A counter invasion defeats the Losoti home defense fleet and compels Losot's surrender. The Association disarms the Losoti and establishes a fleet base to keep an eye on them, then turns its attention to warp point exploration.

2142 AD: Terran New Luddite movement produces anti-automation riots and sabotage, coupled with demands for increased welfare payments. The Federation suppresses the New Luddites vigorously and rejects their demands, in part as a deliberate policy to force increased emigration from a resource-depleted and over-crowded Terra.

2143 AD: Nova Terra population passes 4,000,000 mark.

2144 AD: Ophiuchi Association Survey Command formed. In the wake of the Losoti experience, OASC survey ships are of CL size and heavily armed but have standing instructions to use weaponry only in self-defense.

2145 AD: Planet Corellius revolts against Khanate of Orion. This is particularly serious because the Corellian rebels are themselves Orions. The revolt is bloodily suppressed over an eleven-month period.

2146 AD: Ophiuchi Association begins interstellar expansion at a slow, careful pace, moving with methodical precision to establish forward bases in each new system before exploring the next. The Association has no intention of suffering another Losoti episode.

2149 AD: The Rigelians encounter the M'hriku, whose entire race joins the Lapracu and Shalassha in extinction.

2157 AD: Prohibition of Howmarsi. The Caste of Assassins removes Khan Semperow'defarnoo, replacing him with Howmarsi'hritalkin. Disturbed by the increasing instability of the Khanate, which has expanded at tremendous speed and become rather ramshackle (as

typified by the Corellian Revolt), Howmarsi prohibits further expansion. The Khanate already boasts over ninety systems, and he dedicates himself to the creation of a bureaucracy to manage them smoothly before the whole Imperium falls apart. He is particularly wary of the Orion tendency towards militarism and deliberately encourages the racial preference for larger numbers of quite small warships. The Orions have no known external enemies, and he wants to limit the size of the weapons they can turn upon themselves.

2157 AD: The Consolidation of Howmarsi begins and continues until its unexpected interruption in 2205.

2158 AD: The Terran Federation government announces that humanity now has populations of at least 40,000 (the legal "colony" level for representation in the Legislative Assembly) on eighteen planets.

2159 AD: Ophiuchi Association encounters the Creposh, at a pre-aviation stage of industrialization, who eagerly accept Association membership.

2164 AD: The Rigelians encounter and annihilate the U'otok'hi, an industrial-age species.

2165 AD: The Losoti Revolt. A planet-wide Losoti conspiracy almost succeeds in seizing the Ophiuchi base in the Losoti system. It is narrowly defeated, and the Losoti are prohibited all spacecraft. The first Ophiuchi CA is built, partly in reaction to the revolt.

2179 AD: The Rigelians add the Mekranis, a bronze-age race, to their victims.

2175 AD: The Terran Federation encounters its fifth sentient race. All have been primitive, and their worlds have been declared off limits to general contact, but Survey Command decides it's been lucky so far. It begins arming its survey frigates and quietly issues "Omega Contingency" orders to govern the use of their armament.

2177 AD: Nova Terra celebrates its centennial.

2184 AD: BuCol announces that thirty systems now have populations at the "old" federated colony level and the Assembly passes reapportionment legislation to push federated status up to 100,000. This lowers the number of legislators and also sparks renewed recruiting drives by colonies which wish representation, furthering BuCol's 2115 policy.

2187 AD: Rigelian physicists and designers, with a skill in miniaturization born of long-time habitation in artificial space environments, begin the development of increasingly efficient small craft which will eventually become the first strikefighters.

2194 AD: The fifth federated planet is admitted to the Legislative Assembly under the Federation's new apportionment plan.

2195 AD: Ophiuchi Association overhauls its fleet and government organization, creating the Ophiuchi Association Defense Command, with its own service academy, and providing greater integration of alien races in the Association's governing organs.

2199 AD: The Rigelians encounter the small star empire of the Andaloni. War breaks out immediately. For the first time, the Rigelians have encountered a race with its own space-going technology.

2200 AD - 2203 AD: The Andaloni War speeds Rigelian development of the 1st generation strikefighter, which gives Rigel a major advantage. Andaloni colony worlds are attacked in succession, with the survivors crowded aboard captured freighters and sent along to the next colony systems up the line. The tremendous influx of dispirited refugees, with their horror stories of massacre and mass death, produces a snowballing organizational collapse, greatly easing the Rigelians' advance. The war ends in Rigelian triumph (and Andaloni extermination) in 2203. That same year, the Lingfu, a harmless race in the early steam age, is annihilated by the Rigelian space navy, the Kontaio shardazhru, or "Sword and Shield of the People."

2203 AD: Population of Hardy's Planet decimated by first extra-solar virus. A major Federation health control effort is too late to prevent its spread to other planets. Before the medical combines of Christophon come up with a cure and the epidemic is controlled, the virus claims over 17,000,000 lives, leading to much stricter quarantine laws.

2205 AD: Terran survey frigate Discovery enters System VX-134, which is part of the Khanate. War breaks out, bringing an end to the Consolidation of Howmarsi (which his dynasty has not yet quite completed) in the first truly major interstellar war.

2207 AD: The Federation's industry is superior to that of the Khanate; its size is much inferior. To accelerate colonization and simultaneously fund the creation and massive expansion of the Terran Federation Navy, the Assembly passes the Chartered Colony Act, providing huge economic incentives for corporate formation of colonies as profit-making enterprises. The CCA succeeds beautifully in its short-term goals, but eventually produces a fabulously wealthy "Corporate World" oligarchy which comes to dominate Federation politics.

2211 AD: Ophiuchi discover the Zhitmar System, which has been almost sterilized by a vicious interplanetary war. Unfortunately, much of the extinct combatants' automated weaponry remains functional, and the survey squadron takes very heavy losses before it can retreat.

2212 AD: Treaty of Tycho ends the First Interstellar War in Terra's favor. In this same year, the Rigelians eradicate

the Bahanni, an avian race which has just achieved space flight.

2214 AD: Ophiuchi Association decides to occupy Zhitmar despite its weaponry, regarding this as a golden opportunity to examine a high order of alien technology, and builds its first true capital ships to beat down the surviving defenses.

2217 AD: Ophiuchi SD Al-Montasaur is commissioned.

2218 AD: Ophiuchi Association returns to Zhitmar in strength and methodically knocks out its automated weapons. Intensive research begins.

2219 AD: The Rigelians encounter the planet Loran, inhabited by a particularly resilient race in the early stages of space flight but with some "wildcard" technology. Using nuclear weapons, crude orbital bases, and an unexpectedly advanced development of point defense, the Loranish beat off all attacks for six Terran months. In frustration, the Kontaio shardazhru launches a bombardment of such intensity that the geologically unstable planet is destroyed.

2224 AD: Ophiuchi survey ships enter System Z-132, with two additional warp points, and, following established procedures, the OADC delays exploration of the new warp points while planning construction of a forward base. Within three months, however, rival Orion and Terran survey fleets arrive in the system. Combat breaks out almost immediately, with neither combatant aware of the interested (and horrified) Ophiuchi presence. In the end, the Ophiuchi commander decides to intervene, and the Second Interstellar War begins in the system which comes to be known as Ophiuchi Junction.

2225 AD: The war quickly spreads out along the Terran-Orion frontier as Khan Liharnousik'hirtalkin seeks revenge for his defeat in ISW-1. The Terrans, however, persevere in attempts to establish communication with the unknown third party and succeed within a few months. While the Ophiuchi are not immediately prepared to formally ally with the Terrans, they do feel humanity seems more reasonable than the Orions and agree to a provisional truce so long as the Federation does not attack them. After the Terran victory in the Second Battle of Ophiuchi Junction, however, the Treaty of Ophiuchi Junction, signed on June 9, 2226, begins a centuries-long tradition of alliance between the Association and Federation.

2227 AD: The Terran-Ophiuchi Alliance presents a united front to the Khanate. Liharnousik briefly attempts to resume hostilities following Second Ophiuchi Junction, but he is clearly out-numbered and is badly handled in several engagements. Belated and rather fumbling efforts to break up the new alliance fail, and the Orion Caste of Assassins removes Liharnousik, replacing him with his younger brother, Liharnoww'hirtalkin, then only 16 Terran years of age.

2228 AD - 2230 AD: The new Khan is forced to accept the Treaty of Mattar on January 19, 2227, ending the Second Interstellar War even more disastrously than the first, and almost immediately faces the new threat of the "Gorm Incident." His astute political leadership and careful choice of military advisors allows Liharnoww to achieve victory, however, restoring badly shaken Orion confidence and beginning the string of triumphs which will earn him the appellation of "the Great." Perhaps more importantly, he grants the Gorm the same status as Orion citizens after the war, marking a new, more cosmopolitan Orion approach to galactic real politik.

2241 AD: Rigelian survey ships become aware of the Terran Federation and Khanate of Orion, each an Imperium far larger and much more populous than their own. The discovery arouses something close to hysteria, but cooler heads prevail. The Terrans and Orions are hostile to one another, neither possesses the strikefighter, and neither seems aware of the Rigelian Protectorate's existence. A massive military build-up begins while cautious exploration goes forward.

2244 AD: The Khanate finally detects Rigelian survey ships, but the Rigelians adopt a policy of guile to keep their enemies unaware of their intent, as "Plan Tarwix" (the blueprint for their military expansion) is less than half completed. The Orions are cautious, but the Rigelians' apparent peacefulness blunts their suspicions.

Later that same year, the Terran Federation Navy, prompted by an abnormal number of ship losses and rumors of shadowy, unknown vessels in the vicinity of MXL-23, dispatches a task force to investigate. A portion of this force stumbles into direct contact with a local Rigelian commander, who panics and opens fire, beginning the Third Interstellar War two years before the Rigelians complete their preparations.

2245 AD: Initial Rigelian victories are encouraging to the Protectorate but lead to great strain. Although both the TFN and the KON are momentarily crippled, the Kontaio shardazhru is operating at ruinous overload. It has less than half the ships "Plan Tarwix" had envisioned, and fighter losses are far heavier than projected. With its ships so tightly stretched, the Fleet is hard put to meet normal maintenance schedules, much less expansion, and it has no equivalent of its enemies' heavy capital ships. In desperate need of a period of rest and recovery, Zharfod Shara Gorzhi III, with the tarwal's approval, offers a "conqueror's peace" which (if accepted) will gain both time and access to the resources needed to build the capacity to annihilate their foes. The Federation rejects the offer out of hand, however, and Khan Liharnoww clearly has no

intention of accepting, despite his official offer to negotiate. The Kontaio shardazhru girds for its sternest test, beginning a massive fighter construction program with the clear understanding that many of them will, of necessity, be manned by suicide pilots. Unknown to the Rigelians, the situation is even worse than they believe; both the Terrans and Orions have allies, and both are rapidly putting their own crude fighters and carriers into production. Worse, Liharnoww the Great has proved his true stature by offering President Howard Anderson a formal alliance against the new threat.

2246 AD: The Treaty of Valkha is signed on June 30, formally binding the Federation and Khanate together, and the war resumes with new and terrible fury. The Rigelians are able to hold out for little more than a single year against the massive industrial and numerical superiority of their foes, and ISW-3 ends with an orgy of destruction which beggars the devastation of the Hammers of Tarwix. The Rigelian Protectorate is utterly defeated; when it refuses to surrender, its planetary populations are systematically destroyed under Directive 18 of the Grand Alliance (the joint Terran-Orion decision that genocidal warfare is the only solution) and, for over a century, it is believed the entire Rigelian race has been eliminated. When two "lost worlds" of Rigelians are discovered by Alliance warships in 2348, both planets are immediately placed under quarantine while the Alliance agonizes over what to do with them. Though they have lost all space technology, both worlds' citizens are clearly as fanatically xenophobic as ever.

33.00 Notes to the Space Master and Grateful Acknowledgements

The extent to which an *IMPERIAL STARFIRE* campaign works well or poorly depends almost entirely upon YOU. It is your responsibility to create the galaxy within which your players encounter one another; to devise entertaining and rational "alien" societies for them to interact with; to arbitrate fairly between them, minimizing bloodshed, when they have disputes (as even the most cheerful gamers inevitably do from time to time); to keep track of time and events, etc. It is also your responsibility to make your campaign a challenge. Players may moan and complain if they take heavy losses, but the truth of the matter is that gamers are cunning, devious-minded souls, quite capable of dissembling to convince an unsuspecting, good-hearted, and kindly SM to go easy on them. In fact, most players would prefer a campaign they survive by the skin of their teeth to one in which the NPRs are straw men they vanquish without even working up a sweat. Where, after all, is the sense of accomplishment in triumphing over an opponent you utterly outclassed? Where are the bragging rights of a TL-11 empire which trashes a TL-2 NPR? Besides, *STARFIRE* campaigns should separate the iron-nerved Conquerors of the Universe from the quiche-eaters, right? Right!

All of this requires forethought and organization on your part. Before beginning play, you should lay down firm ground rules on how and in what order events will be resolved, and you must enforce those ground rules uniformly. You may, for example, wish to rule that whenever a player's survey forces enter an unknown star system, that player must leave the room while you determine what happens, since the player in question would not actually know until (and unless) his survey force gets a message off to home base. Conversely, you may wish for the surveying player to be present and to know exactly what is happening to his survey force at all times. The decision is yours, but always remember that uncertainty directly contributes to greater player challenge and hence enjoyment.

Once play begins, you must organize your paperwork carefully. All players in a full-fledged *STARFIRE* campaign will have quite enough record keeping to do, but you will eventually have more than any of them. It is your responsibility to oversee all of their records and to make spot checks to be sure errors have not crept in. It is also your responsibility to coordinate all of the operations and transactions which involve more than one player, and, of course, if any NPRs not under player control are running about the galaxy, it is up to you to handle all of their paperwork. From personal experience, I suspect you'll find those pesky NPRs the most time-consuming of your various duties, but they are very important to player enjoyment. Almost every SM I know evolves his own way of dealing with them, and it is important for you to remember that this is your galaxy; you can (and certainly should) adopt any technique you feel comfortable with.

As a rule, it is a good idea to require your players to formulate the general policies their empires will follow ahead of time, allowing them to revise those policies between strategic turns. In my own games, I require each player to formulate and write out "Survey Instructions" (governing the manner in which his survey forces will act in any unknown system) and "Fighting Instructions" (which define the general strategy and tactics of his military units, telling me how I should run his forces in any engagement in which, for whatever reason, he is unable to exercise direct control). You may feel that these are not required in your campaign or, conversely, that instructions covering still more areas are desirable. In either case, you should be certain that all of your players are aware of (and meet) your requirements.

One very good idea is to make as much as possible of your own and your players' paperwork "routine." That is, wherever possible steps which must be repeated every turn should be combined into single steps (as, for example, calculation of maintenance payments for the infrastructure of a given star system), and the supply, maintenance, and logistic requirements of fleet units should be standardized. As an example of the latter, it is generally wise to require players to decide upon a standard ammunition load for all members of the same missile-armed class. When fresh munitions are shipped out, all magazines aboard units of the same class would thus be brought up to their "establishment" or normal load, which never leaves a question as to what ammunition a ship actually has on board at any given time. If this is done, the SM must, of course, allow players to alter their standard loads for specific operations and to make alterations in them as newer missiles of higher capabilities become available. Wherever standard operating procedures can be adopted, they should be, as this will make things easier on all concerned and (just incidentally) will be more reflective of the way in which "real" empires would organize their affairs.

Time-keeping and the coordination of strategic movement can rapidly assume nightmare proportions unless you are firm with your players and require them to adhere closely to the strategic movement order forms and rules. When ICN message transmission occurs within a strategic turn (as, for example, when messages concerning invasions, commerce raiders, etc., are transmitted to an ICC or imperial capital), it is usually a good idea to have the player sending the message make the time calculations while you get on with the rest of the game, but you should glance over the calculations and check any questionable portions of them. When play drops to a scale lower than the strategic, be very careful to note the passage

of each turn on any scale on the Space Time Clock. This may seem a bit tedious at first, but once it becomes automatic it is tremendously helpful in complex situations.

You will also find your task is greatly eased if you make innovative use of all available player aids. Each *STARFIRE* form is intended for a specific purpose, but a little forethought will almost certainly suggest many other ways in which they can be used. The small system map on the System Data Form, for example, can be used for a multitude of purposes. Perhaps the most important of these is the use of blank maps for hidden movement of fleets beyond scanner range of one another. If each player plots his fleet's movement track on a separate map, you can compare them and keep tabs on their movement without ever setting up the system map at all, but this is only one of several ways the map can be used, and you will probably find your own, unique uses for other information forms and player aids as you become more familiar with the rules and your responsibilities. In addition, do not hesitate to devise your own forms if you discover one we've missed or come up with a better way to handle things. Indeed, if a really neat form occurs to you, send it to Task Force Games for consideration for future *STARFIRE* products. (We would, of course, appreciate it if you spend a while testing them in play just to make sure they work first. Mind you, we know you wouldn't send us anything less than perfection itself, but you never can tell about those other SMs out there.)

Combat resolution can take up a lot of your time and slow play if you accept the full burden for coordination, particularly if more than one battle is raging simultaneously within a single star system. Once your players are thoroughly conversant with the rules, you may find it useful to employ the counters and maps of more than one tactical *STARFIRE* game and allow players to fight out more than one battle at a time while you exercise an oversight role and manage the time coordination of them all. If this is done, it may even be possible for you to deal with battles in more than one star system at a time, speeding the completion of the strategic turn as a whole.

Because so much of your players' enjoyment will depend on how thoroughly you can keep them in the dark about events they ought not to know about, you should do all you can to contribute to their uncertainty. You should never, for example, tell a player the result of an R&D roll or a negotiation roll that doesn't result in acceptance of the political offer which has been made. It may also mean that if a player's survey forces intrude into a system which has a powerful local defense force of its own, you may want to select another player to run the defenders (if they are NPRs) while you run the survey force (in accordance with the owning player's Fighting Instructions) and game the situation out without the knowledge of the surveying player. This will deprive the surveying player of any input into the battle, but unless his survey ships manage to get off a courier drone he wouldn't really know what had happened anyway. You can also handle an entire battle yourself, without involving another player, if you choose, operating within the "Fighting Instructions" of the surveying player, but you may feel that fighting the battle solitaire deprives the survey force of advantages it should enjoy. Battles which result from deliberate invasions of a system known to be controlled by a hostile race or empire, however, should never be gamed out without the participation of any player directly involved, even if you feel the destruction of one side (probably without any message getting home to base to tell of it) is inevitable. Battles are what most of your gamers have come to fight, and depriving them of participation in them may lead the ungrateful hounds to lynch their noble, hard-working SM.

Most importantly of all, you should remember at all times that the campaign is yours to control and guide. If you and/or your gamers see the need for a "house rule" which differs from the "official" rules, by all means feel free to adopt that rule. In such a case, of course, you ought to consider all the implications of the modification, and you must be certain you have located all the points at which other rules may require modification as a result. You may also choose to allow additional tech systems, individually developed by a given player. In such a case, you should attempt to avoid "god weapons," be certain its inventor has worked out all relevant details for application and employment, and give careful consideration to the system's general capabilities when assigning it a tech level and (where relevant) hull-space requirement. You may wish to rule that the sneaky fellow who first thought it up has a monopoly on it until someone else encounters it and discovers that the system is possible, but you should never allow a weapon which only one player can build and use. The same laws of physics apply to everyone, from which it follows that if one race can figure out how to build something, then so can any other race of the same basic technical capabilities, even if they didn't think of it on their own.

Finally, always remember that, in the final analysis, the rules are for your own enjoyment and that of your players. In that sense, any *IMPERIAL STARFIRE* rule should be seen as a guide and not as absolute, unalterable holy writ.

Grateful Acknowledgements

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David Weber

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"The Destiny of Empire is ours!"

Great Fang Charnik'earnow, KON, general order to his crews before retaking the Orphichon System, July 10, 2224.

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Please Note: You must have *STARFIRE* to use the concepts introduced in *IMPERIAL STARFIRE*.

Number of players:	Two or more
Recommended Age:	12 years or older
Playing Time:	Variable
Complexity Level:	Advanced

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