

LORDS OF THE EARTH

The Modern Era



A Post-Medieval Rules Supplement

A Throne Enterprises LLC Production

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1. INTRODUCTION

1.1 THE MODERN PERIOD

This booklet is a supplement to the **Lords of the Earth** Basic Rulebook, which is required for play.

The title of this supplement uses the very broad definition of “modern” as applied by historians, who use it to describe a period from roughly the fifteenth to the nineteenth centuries. The main foci of these rules are two new culture types: Renaissance (**R**) and Industrial One (**I1**). There are references to more advanced Industrial cultures beyond I1 throughout these rules. This is intentional and represents the initial framework of simulating the highly advanced cultures of the post-modern period. In sum, this supplement should be seen as a work in progress and more material will be added to it as input from players and GMs accrue over time.

In **Lords of the Earth**, the ‘arrival’ of nations at Renaissance and Industrial culture status and the levels of Technology prevalent in these periods is governed by their accumulation of Tech Points during the previous periods. During the Renaissance it is very likely that there will be a mix of national types — Nomadic, Civilized, Barbarian, Renaissance, Seafaring, even pre-Columbian. As things progress, however, the nations less well endowed with technological prowess will find themselves facing a stiff struggle to survive in the face of nations that will gain the capability to span the seas, field armies of musket-armed infantry backed by artillery capable of bringing down the walls guarding the cities of the Medieval Age. This trend will be even more pronounced during the Industrial period, as nations with access to steam and internal combustion technology will have a dramatic advantage over their less advanced brethren.

These are times of tremendous change; of the birth of world-girdling trade empires, of the first vestiges and then the dramatic development of colonialism, of empires that initially span continents and then encounter difficulties in ruling over vast polyglot peoples. Warfare and economics change, banking changes — becoming international in scope. A worldwide web of interconnected economies form, develop and metastasize.

It is a time of new dreams, hopes and disasters. Of new philosophies, sciences and political thinking: the beginnings of revolutionary changes in how humanity both perceived and interacted with the world. Players will have the opportunity to exploit these changes or may fall victim to them.

1.2 GLOSSARY OF TERMS

The following terms are pertinent to this Supplement. A further list of more general terms and concepts is found at the beginning of the **Basic Rulebook**.

- ◆ **Aerial Trade:** A new Trade Route type available to Industrial Merchant Houses with airship technology.
- ◆ **Aircraft:** Flying Machines with a rigid-airframe and one or more fixed wings and gasoline-burning engines to drive propellers.
- ◆ **Airport:** a new Monolithic Construction that a Merchant House can use to support Aerial Trade.

- ◆ **Airships:** A class of units for Industrial nations, representing lighter-than-air craft. Airship units run the gamut from small scout craft to giant *Graf Zeppelin*-style aerial passenger ships.
- ◆ **‘Anchor’ Cities:** A controlled port city that forms one end of a Trade Conduit connecting it to one or more other controlled port cities.
- ◆ **Artillery:** A new unit type, composed of cannons, bombards and other field pieces firing shot or canister with gunpowder propellant.
- ◆ **Branch Office:** Represents a substantial economic interest in a given location (a city or region) by a Merchant House.
- ◆ **Cartel City:** A city that is under the direct economic domination of a Merchant House.
- ◆ **Combat Leader:** The Leader of an Army, a Fleet or Air Wing based on an Army Operations Point, a Naval Operations point or an Air Operations point.
- ◆ **Conduit Limit:** The maximum number of Trade Conduits that can comprise a single Sea Trade Route. Not a limit on the total number or length of Trade Routes a Nation may have, however.
- ◆ **Diesel Engines:** Advanced Internal Combustion Engines.
- ◆ **Engineering:** The ability of Industrialized nations to use Siege Engineer units to assist in the construction of various national projects.
- ◆ **Factories and Yards:** The facilities that enable Industrialized nations to build modern steam and diesel powered air, warship and submarine units.
- ◆ **Home Office:** The center of the trade empire controlled by a Merchant House. Usually in a very rich city.
- ◆ **Improved Engines:** Improved Internal Combustion (Diesel) Engines.
- ◆ **Industrial Capacities:** a limit on the number of certain units and projects that can be built by a nation in any given turn. There are two different types of Industrial Capacity: First, *Intrinsic*, which is based on cities and trade centers and represents the number of *Heavy*-type combat units that can be built at that location and apply to *all* culture types. Railroad Projects by industrial cultures are also counted against this capacity. Dockyards are required to utilize the intrinsic yard capacity of Port Cities to build certain types of Renaissance ships. Second, *Specific Yard Capacity* which is based on Factories and Yards built by Industrial cultures and apply to the construction of Steamship, Aircraft, Airship and Submarine units.
- ◆ **Line of Communication:** A series of contiguous, controlled land regions or Sea Zones reaching from the national Capital to an outlying province. If the LOC is traced by sea, then it must go through a controlled, un-blockaded Port City before it may enter/exit a Sea Zone.
- ◆ **Mercantile Construction:** The capability of Industrial Merchant Houses to build units outside their HBZ.
- ◆ **Merchant House:** A new kind of nation devoted to the discovery and economic exploitation of new markets, continents and trade routes.
- ◆ **Merchant Agent:** The initial level of business interest that a Merchant House can maintain in a city or region.

- ◆ **Merchant Factory:** The representative of a Merchant House in a specific location (usually a port city). Represents a degree of local interest and market control.
- ◆ **Merchant Shipping Points (MSPs):** Representation of the actual trade ships used to move goods. Created by each Nation and Merchant House to carry their trade.
- ◆ **Monopoly:** A trade concession or resource solely controlled by a Merchant House, usually at the expense of the nation that normally has access to it.
- ◆ **Navigation Rating:** A rating expressing the ability of the seamen of the Nation or House to handle seagoing merchant vessels and warships. Affects the movement capacity of ship units.
- ◆ **National Force Points (NFP):** A representation of the manpower. One NFP roughly equals 400 men.
- ◆ **Nuclear:** A new class of weapons deployed by ship, aircraft or rocket.
- ◆ **Nuclear Weapon:** a nuclear bomb delivered usually by aircraft or a nuclear warhead delivered by rocket.
- ◆ **Railroads:** A new Megalithic Construction Project for Renaissance (TL 11) and Industrial nations, allowing them to ship units and goods much more quickly.
- ◆ **Research Projects** A new form of investment for Industrial nations, allowing them to develop new kinds of units, factories and capabilities (once they have achieved certain pre-requisites, particularly minimum tech level). Research projects are measured in numbers of “Advances”, and are governed by an investment die roll, much like Quality Ratings.
- ◆ **Rocketplanes:** A primitive form of early spaceplane (the *X-15* for example) launched from another aircraft and returning to Earth and landing like an aircraft.
- ◆ **Rockets:** A new class of units – long range weapons propelled by the reaction of gases produced by a fast-burning fuel.
- ◆ **Sea Trade Route:** A sequence of Trade Conduits that allow two nations to trade with one another.
- ◆ **Spaceport:** A new Monolithic Construction that permits the launching of larger rockets.
- ◆ **‘Specialized’ NFP:** National Force Points that are “recruited” by Industrialized nations to assist in non-unit construction.
- ◆ **Steamships:** A new class of naval units for Industrial nations with the requisite technology. There are several different types of steamships, ranging from wooden steamships to Airship Carriers.
- ◆ **Submarines:** A new class of units for Industrial nations with the requisite technology. There are two types of submarine units: the petrol/electric *Submersible* (the *Holland*, for example), and early diesel/electric *Submarine* units themselves.
- ◆ **Tech Level:** A numeric rating, ranging from one to twenty-five, that expresses the level of technological sophistication and industrial development of a given nation.
- ◆ **Tech Points:** An accumulated value that expresses the technological advancement and sophistication of the nation.

- ◆ **Trade Conduit:** An established and regular route for the MSP of a nation traveling from one ‘anchor’ city to another ‘anchor’ city.
- ◆ **Trade Range:** The maximum number of regular Sea Zones that a Trade Conduit can extend from one ‘anchor’ city to another ‘anchor’ city.
- ◆ **Universal Weights and Measure (UW&M):** A new Societal Project representing the implementation of a set of international standards of weights, measurements and machine parts. Industrial nations that adopt UW&M will get a bonus to their tax rate.

1.3 THE NEW MAP

Concomitant with the introduction of steam-powered sailing vessels comes an overlay of sea hexes to regulate the movement of Airships and Steamships. Both types of unit may move using the hex-grid, though normal (wind-powered) shipping must continue to use the sea zones and current arrows as before.

2. THE STAT SHEET

2.1 THE MERCHANT HOUSE

The **Merchant House** nation can be added to any campaign currently in the Renaissance or beyond. Merchant Houses represent multi-national economic concerns (like the historical British East India Company) that involve themselves in trade, exploration, opening new markets and exploiting the natives of far-off lands. See section [7.] on page 44 for more details.

Note: In previous versions of these rules the Merchant House was called a *Mercantile Combine*.

2.2 TECH LEVELS

This statistic describes how advanced your nation is. At this point in time, pre-Colombians are (generally) at the lowest level of technology, Nomads and Barbarian are above that, Seafaring, Civilized, and Renaissance nations are at a middle level and Industrial nations are at the top of the heap.

As the game progresses, the level of technology will increase, and a nation will be able to exploit new opportunities. The advance of technology is the vehicle to change Culture Types and improve military capabilities.

Tech Level affects the following national statistics or ratings specific to the Renaissance and Industrial eras.

- ◆ It determines your maximum Trade Range and Conduit Limit ratings.
- ◆ It determines your maximum military Quality Ratings.
- ◆ It helps define the maximum number of Leaders that your nation can have.

2.2.1 Tech Level Bonus to Tax Rate (Optional)

This change adds the current Tech Level as a modifier to the Base Tax Rate for the nation according to the following formula

$$\begin{aligned} & (\text{Years per Turn } \% \times \\ & \text{TaxRateAdjustment} \times \text{AgroModifier} \times \\ & \text{InfraModifier} \times \text{UW\&M (if any)} \times \\ & (1.0 + \text{TechLevel}/100) = \text{Tax Rate} \end{aligned}$$

So for a nation with a TL of 11 the base rate will be multiplied by 1.11 to get the final rate.

Table 2-1. Technology Levels

Tech Level	Tech Level Title	Culture Types
001	Stone Working	Pre-Columbian / Seafaring
002	Iron Working	Pre-Columbian / Barbarian / Nomadic / Seafaring
003	Iron Working - Steel	Civilized / Pre-Columbian / Barbarian / Nomadic / Seafaring
004	Early Medieval	Civilized / Barbarian / Nomadic / Seafaring
005	Medieval - Medicine	
006	Medieval - Crossbow	Civilized / Seafaring

Tech Level	Tech Level Title	Culture Types
007	Late Medieval	
008	Renaissance - Gunpowder	
009	Renaissance - Printing	The Renaissance
010	Renaissance - Balloons	
011	Renaissance - Steam Engine	
012	Industrial 1 - Railroads	Industrial Stage One
013	Industrial 1 - Internal Combustion	
014	Industrial 1 - Electricity	
015	Industrial 1 - Vacuum Tubes	
016 - 019	Industrial 2	Industrial Stage Two
020 - 022	Industrial 3	Industrial Stage Three

2.3 ECONOMIC INFORMATION

2.3.1 International Trade Value

As in the Basic System, the ITV is calculated by totaling the City Trade Values of all of the cities in your nation. Each CTV is calculated according to the following formula:

$$\begin{aligned} \text{City Trade Value (CTV)} = & \\ & (\text{City GPv} / 3) \times \\ & \text{City Type Modifier} \times \\ & \text{City Status Modifier} \times \\ & \text{Regional Terrain Modifier} \times \\ & \text{Cultural Modifier} \end{aligned}$$

Note that Renaissance and Industrial nations have a different Cultural Modifier, as noted in the following table:

Table 2-2. National Culture Modifiers

Cultural Type	Modifier
Industrial Four	1.4
Industrial Three	1.3
Industrial Two	1.2
Industrial One	1.1
Renaissance	1.0
Seafaring	0.9
Civilized	0.8
Barbarian	0.7
Nomadic	0.6
Pre-Columbian	0.5

Example: The Frankish Commonwealth has a port city, Marseilles, which is worth 8 GPv. It is in an allied province, which is cultivated. The Commonwealth is Renaissance. The CTV of Marseilles, then, would be $(8/3) = 2.6 \times 1.5 \times 1.0 \times 1.0 \times 1.0 = 3.9$, rounded up to 4.

2.3.2 Regional Income

As in the Basic System, the formula for figuring out the regional income is as follows:

$$\begin{aligned} \text{Regional Value} = & \\ & \text{Region's GPv} \times \text{Status Multiple} \times \\ & \text{Terrain Multiple} \end{aligned}$$

$$\begin{aligned} \text{Regional Income (in GP)} = & \\ & \text{The Sum of Regional Values} + \end{aligned}$$

- 1 (for each Silk Road region controlled) +
- 2 (for each Fur Line region controlled)

Table 2-3. Terrain Type Tax Multiples

Terrain	Culture						
	I1	R	C	B	N	S	P
c2	1.0	1.0	1.0	1.5	2.0	1.0	1.0
C	1.0	1.0	1.0	1.0	1.5	1.0	1.0
W	0.5	0.5	0.5	1.0	0.3	0.5	1.0
M	0.5	0.3	0.3	0.5	0.2	0.2	0.5
S	0.5	0.3	0.3	0.2	1.0	0.0	0.2
D	0.2	0.2	0.2	0.2	0.5	0.0	0.2
T	0.2	0.2	0.2	0.3	0.0	0.0	0.2
I	0.5	1.0	1.0	1.0	1.0	1.5	1.0
j	0.2	0.3	0.3	0.5	0.2	1.0	1.0
o	0.0	0.0	0.0	0.0	0.0	0.0	0.0

2.3.3 Monetary Troop Support

This expenditure covers the minimum expenses required for the maintenance of the armed forces of the nation. If less is paid, then those units that are not supported disappear. The Troop Support cost is an easy calculation. Each unit type has a troop support cost defined for it. This much gold must be paid per unit that you have in your armies and garrisons at the *beginning* of the turn, *before* builds. This cost is further modified by the terrain of the region that the units ended the previous turn in, and whether they fought in a battle in the previous turn.

Units that were ‘On Campaign’ in the previous turn cost double to support. The effects of terrain upon troop support depend on the Society Type of the owning nation and the terrain type that the units ended the turn in.

Generally, Troop support is one-tenth the GPv purchase cost of the unit per turn.

$$\text{Troop Support} = \text{TSC} \times \text{TSM} \times \text{ASM}$$

TSC is the Troop Support Cost (from the Unit Build Charts, see Table 8-2. Renaissance Unit Construction Chart on page 61 and Table 8-3 on page 62).

ASM is the Army Status modifier, from the following table.

Table 2-4. Army Status Troop Support Modifiers

Status	Description	Modifier
A	Administering	1.0
B	Being Besieged	2.0
C	On Campaign	2.0
E	Sneaking Around...	0.0
G	In Garrison	1.5
M	Mutinous!	0.0
N	Normal	1.0
P	Prisoner	0.0
R	Ruling	1.0
S	Besieging A City	2.0

Notes

- ◆ A Leader (and his army) has a Status of *On Campaign* if they have fought in **any** battle during the previous turn.
- ◆ A Leader (and his army) have a status of *In Garrison* if they are the sole units in a Pacified region, and are thus serving as its garrison.

- ◆ Leaders on Evade or in Prison cannot command troops. A Mutinous Leader is not counted for Troop Support.

TSM is the Terrain Support modifier, from the following table:

Table 2-5. Terrain Troop Support Modifiers

Terr.	I1	R	C	B	N	S	P
M	1.5	1.75	2.0	1.0	2.0	2.0	1.5
S	2.0	1.5	2.0	1.5	0.0	2.0	1.5
T	2.0	2.0	2.0	1.5	2.0	2.0	1.0
D	2.0	1.75	1.5	1.5	1.0	1.5	1.5
J	1.5	1.5	1.5	1.0	1.5	1.0	1.0
W	1.25	1.0	1.5	1.0	1.5	1.5	1.0
C	1.0	1.0	1.0	1.0	0.1	1.0	1.0
C2	1.0	1.0	1.0	0.5	0.1	1.0	1.0
I	1.0	1.0	1.0	1.0	1.0	0.5	1.0
O	2.0	2.0	2.0	2.0	1.0	2.0	1.5

2.4 REGIONS AND CITIES

2.4.1 Regional Garrisons

As in the Basic System, the size of a regional garrison must equal or exceed the Modified Resistance Value of the region. The Modified Resistance Value can be calculated using the following equation:

$$\begin{aligned} \text{Modified Resistance Value} = \\ \text{Regional Resistance} \times \\ \text{Terrain Multiple} \times \\ \text{Religion Modifier} \end{aligned}$$

Note that new Renaissance and Industrial nation terrain multiples have been added to the following table:

Table 2-6. Garrison Terrain Modifiers

Culture	c	c2	w	s	j	i	d	m	t	o
PreColumbian	1	1	1	2 ^c	1	1	2 ^c	1	2	1
Seafaring	1	1	2	2 ^c	2	1	2 ^c	2	2	1
Civilized	1	1	2	2 ^c	2	1	2 ^c	2	2	1
Barbarian	2	2	1	2 ^c	1	1	2 ^c	1	2	2
Nomadic	1	2	2	1 ^c	2	1	1 ^c	2	2	1
Rena./Indust1	1	1	2	2 ^c	1	1	1.5 ^c	1	2	1

Notes

- ◆ All regions requiring a cavalry garrison (those marked with a ^c) can be garrisoned with infantry or field forts in twice the cavalry amount. An exception to this applies in the case of regions where there is no Cavalry in use (pre-Cav Count America, or South Africa).
- ◆ All listed numbers are factors that are multiplied by the Region Resistance Value.

2.4.2 Maximum Status For A Region

The maximum control status a nation can achieve in a region through diplomacy or conquest will be the lower of the two statuses as determined from the following tables.

Note that a higher status is possible if a region or city is colonized.

Table 2-7. Maximum Region Status by Religion

National RS	Regional Religion.		
	Same	Tolerant	Hostile
1	F	F	A
2-3	F	F	EA
4-5	F	A	EA
6-7	F	EA	T
8-9	F	EA	NT
10	F	T	P/PT

Table 2-8. Maximum Region Status by Terrain

Regional Terrain	Controlling Culture.					
	R/I	C	B	N	S	P
C2 (Intns Cult.)	Hm	Hm	Hm	Hm	F	Hm
C (Cultivated)	Hm	Hm	Hm	Hm	F	Hm
W (Wilderness)	F	F	Hm	EA	FA	Hm
M (Mountain)	EA	FA	F	T	EA	FA
S (Steppe)	EA	FA	T	F	NT	FA
D (Desert)	EA	FA	T	F	NT	EA
T (Tundra)	F	F	F	NT	T	F
I (Island)	Hm	F	F	T	Hm	F
J (Jungle)	F	F	EA	NT	EA	F
O (Oasis)	EA	T	NT	A	NT	NT

Note: Seafaring, Renaissance, and Industrial nations may have a Port City as their Homeland.

2.4.3 Building Facilities and PWB

Open Nations, Merchant Houses, Religious Primacies, Religious Orders and Secret Empires may build Public Works or Projects in regions and cities where they maintain a control status which yields some amount of tax revenue.

In addition, Public Works can be built in an uncontrolled region if the GP / NFP required to build the PWB are moved to the region by a Leader. Presumably this will be done as part of a diplomatic overture.

2.4.4 City Types List

This list replaces that found in the Base Rulebook, as it includes a number of Modern-Era-specific items. In addition, the codes are formatted along the following pattern:

<Capital?><Transport?><Special?>

Table 2-9. Base City Types

Type Base	Code	Notes
Capital	C	
Road	R	Must be connected to the capital by Royal Road.
Railroad	T	Must be connected to the capital by Railroad.
Port City	P	
Silk Route	S	Silk Route must be "working". Overridden by Road or Railroad.
University	U	Only if the University is not in the Capital.
Sacred City	H	
Treasury	\$	

Table 2-10. Meta-City Types

Meta-Type	Code
Road and Port	%
Road and Railroad	=
Road, Railroad and Port	#
Silk-Route and Sacred	!

Meta-Type	Code
City	
Sacred City and University	*

Table 2-11. Master City Type List

Description	Code	Agro	ITV	Road?	Port?	+RV
Normal	/	1.0	0.5	No	No	+0
Capital	C	1.0	1.25	No	No	+1
Road	R	1.0	1.0	Yes	No	+0
Railroad	T	1.0	1.5	Yes	No	+0
Port City	P	0.8	1.5	No	Yes	+1
Silk Route	S	1.0	1.0	No	No	+0
University	U	1.0	0.75	No	No	+1
Sacred City	H	1.2	0.75	No	No	+1
Treasury	\$	1.0	0.75	No	No	+1
Road, Port	%	0.8	1.5	Yes	Yes	+1
Road, Railroad	=	0.8	1.5	Yes	No	+0
Road, Railroad, Port	#	0.8	1.5	Yes	Yes	+1
Railroad, Port	+	0.8	1.5	Yes	Yes	+1
Silk-Route, Sacred City	!	1.2	1.0	No	No	+1
Sacred City, University	*	1.2	0.75	No	No	+2
Capital, Road	CR	1.0	1.25	Yes	No	+1
Capital, Port	CP	0.8	1.5	No	Yes	+2
Capital, Railroad	CT	0.8	1.5	Yes	No	+1
Capital, Road, Port	C%	0.8	1.5	Yes	Yes	+2
Capital, Road, Railroad	C=	0.8	1.5	Yes	No	+1
Capital, Road, Railroad, Port	C#	0.8	1.5	Yes	Yes	+2
Capital, Railroad, Port	C+	0.8	1.5	Yes	Yes	+2
Capital, Silk-Route, Sacred City	C!	1.0	1.25	No	No	+2
Capital, Sacred City	CH	1.2	1.25	No	No	+2
Sacred City, Road	RH	1.2	1.0	Yes	No	+1
Sacred City, Railroad	TH	1.0	1.5	Yes	No	+1
Sacred City, Port	PH	1.0	1.5	No	Yes	+1
Sacred City, Road, Port	%H	1.2	1.5	Yes	Yes	+2
Sacred City, Road, Railroad	=H	1.0	1.5	Yes	No	+1
Sacred City, Road, Railroad, Port	#H	1.0	1.5	Yes	Yes	+2
Sacred City, University, Road, Port	+H	1.0	1.5	Yes	Yes	+3
Sacred City, University, Road, Railroad	=*	1.0	1.5	Yes	No	+2
Sacred City, University, Road, Railroad, Port	#*	1.0	1.5	Yes	Yes	+3
Sacred City, University, Railroad, Port	+	1.0	1.5	Yes	Yes	+3
Capital, Sacred City, Road, Port	C%H	1.0	1.5	Yes	Yes	+2
Capital, Sacred City, Road, Railroad	C=H	1.0	1.5	Yes	No	+2

Description	Code	Agro	ITV	Road?	Port?	+RV
Capital, Sacred City, Road, Railroad, Port	C#H	1.0	1.5	Yes	Yes	+3
Road, University	RU	1.0	1.0	Yes	No	+1
Railroad, University	TU	0.8	1.5	Yes	No	+1
Port City, University	PU	0.8	1.5	No	Yes	+1
Silk Route, University	SU	1.0	1.0	No	No	+1
Capital, Silk Route	CS	1.0	1.25	No	No	+1
Port City, Silk Route	PS	0.8	1.5	No	Yes	+1

2.4.5 City Description Layout

The description of a City includes the **Industrial Capacity** (i), which is noted immediately following the PWB value of the city. This is the Generic Industrial Capacity of the city, as per [3.6] on page 17.

2.5 NEW MILITARY RATINGS

A new Military Quality Rating is added with the advent of gunpowder and the Renaissance: the **Artillery QR**. This represents the efficacy and tactical skill of field artillery units attached to your armies in the form of Artillery units.

The actual effects of Artillery units are two-fold: first, they fight as units with a combat strength and second, they give your army a Combat bonus. This bonus is calculated from the number of units and their QR, so as QR's increase, each level of bonus requires fewer units to reach.

Note that the Artillery QR only affects your Artillery units in field battles. In sieges the Siege QR represents their effectiveness.

2.5.1 Industrial Era Quality Ratings

With the advent of the first Industrial Age, other AQR's such as Aircraft (which includes Airships and Aeroplanes) and Rockets will be added, as technology improves. These ratings are handled just like other QR's for investment and improvement.

2.5.1.1 Naval AQR

The Warship AQR is replaced by the **Naval AQR** which covers both surface and submarine capabilities. In addition, the improvements in technology introduce new factors into naval warfare:

- The Armor rating of a ship unit represents the combination of armor, structural strength, compartmentalization, damage control, etc., as it applies to gunnery, torpedoes and bombing.
- The Torpedo Attack Factor gained with the completion of the **R&D: Torpedoes** project
- The Scouting Factor, which in the Modern Era is a function of shipboard aviation (scout planes) which all ships of cruiser class and above are assumed to possess. Aircraft Carriers are assumed to possess one or more scout planes or to devote one or more of their attack plane compliment to scouting duties. It does not include the effects of radar if present.

The ratings for all types of naval units are shown in Table 8-7. Ship Unit Capabilities which starts on page 66.

2.5.1.2 Aircraft QR

Completion of the **R&D: Airships** or **R&D: Flying Machines: Biplane** project gains the **Aircraft QR**. All aircraft and airships fight using the Aircraft QR.

2.5.1.3 Mechanized QR

Completion of the **R&D: Motorized Transport** project gains the **Mechanized QR**. All motorized, mechanized and AFV units fight using the Mechanized QR.

2.5.1.4 Rocketry QR

Completion of the **R&D: Rocketry: Single-Stage Rocket** project gains the **Rocketry QR**. All long-range rockets and spaceplanes are launched using the **Rocketry QR**.

2.5.1.5 Nuclear QR

Completion of the **R&D: Nuclear Theoretical Physics** project gains the **Nuclear QR**. All fission and fusion bombs are detonated using the Nuclear QR. Note that these bombs must be delivered to their target by ship, aircraft or rocket, and so are dependent on the relevant QR to reach their target.

2.6 NEW OPERATIONS CAPACITIES

With the Renaissance and the Industrial Era and the completion of the appropriate Research and Development projects, a Nation may acquire **Army, Aircraft** and **Naval Operations** capacities and the concomitant Bonus points.

Investment in improving these Ops/Bonus points are handled just like Intel or Religious Operations/Bonus points. Each Op point allows Army, Aircraft or Naval units to attempt one of a variety of different kinds of Actions, without the intervention of a Leader.

See section [5.0] for the Army, Aircraft and Naval action codes, modifiers and descriptions.

Airship (zeppelin) units may either be moved/used by Leaders, *or* via an Aircraft Operations point.

2.7 YEAR LENGTH CHANGE

As a campaign progresses, the number of years per turn is reduced to reflect the increasing tempo of events driven by the highest open position Tech Level in play. As the turn length decreases, so too does the Base Tax Rate as well as the costs for support. For example, If your nation is paying 100gp for its various support costs (Government, Troop and so on), then when the turn becomes four years long, you would only pay (100 × 0.80 = 80gp) in support.

The costs to purchase discrete units (infantry points, Public Works, and so on) remain constant, however.

Table 2-12. Years per Turn

Tech Level	Years per Turn	Base Tax Rate
1-7	5	100%
8-9	4	80%
10-11	3	60%
12-13	2	40%
14-15	1	20%

Tech Level	Years per Turn	Base Tax Rate
16-17	6 months	10%
18-19	3 months	6%
20+	1 month	2%

2.8 MERCHANT SHIPPING LIMITS BY PORT SIZE

Each Port City has a limit on the amount of merchant shipping that can be based in it by one or more Nations. This limit is:

$$((20 \times \text{GPv of City}) + \text{BuiltCap}) \times \text{Tax Status} \\ = \text{Maximum MSP based at port}$$

For example, if the Port City is shared by two nations (being Tributary to each of them) then the basing capacity is also split, with each nation getting 50% of the total capacity.

As a result, only cities which yield a MSP Capacity can be used for basing MSP. For Open Nations, this means Tributary or better, but for (example) Merchant Houses, even a Mercantile Agent status (their lowest) will accrue some basing capacity.

2.8.1 Building More Capacity

Additional MSP capacity (warehouses, docks, lading facilities, workers) can be built at a city by paying 2GP or 1 NFP per additional point of Capacity. This 'extra' capacity cannot exceed $20 \times \text{City GPv}$, so at most you can double the Port MSP capacity.

The capability to build more MSP Capacity is gained at Tech Level 8.

2.9 SEA RATINGS AND TRADE

All three of these Ratings (**Navigation**, **Trade Range** and **Conduit Limit**) are concerned with the effective utilization and exploitation of the oceans of the world.

- ◆ Navigation aids your fleets with faster movement and the ability to explore and map sea zones or ocean arrows that were previously unknown.
- ◆ Trade Range lets your Merchant Shipping reach farther from your home ports.
- ◆ Conduit Limit lets you establish a far-flung network of trade outposts that will carry the riches of China, the Americas and Europe home to swell your coffers.

All three of these ratings can be invested in, and improve as do your military QR, Intel or Religious ratings. Your current Tech Level limits each rating's maximum value.

Table 2-13. Sea Ratings Maximum Values

Rating	Maximum Value
Navigation	Tech Level / 2
Trade Range	Tech Level - 2
Conduit Limit	Tech Level / 2

2.9.1 Navigation Rating

As nations put forth feelers into the great ocean, they begin to acquire the ability to transverse hostile seas and move

farther than before possible. Each nation, then, is assigned a *Navigation Rating*. The higher a nation's rating, the less likely that the nation's ships will be swallowed up by Hostile Sea Zones or Open Ocean Arrows. The Navigation Rating also improves the movement capability of ship units (warships, transports).

With the acquisition of a Navigation Rating, nations can also begin mapping Hostile Sea Zones and Open Ocean Current Arrows. Renaissance nations do not receive any enhanced Navigation Rating benefit when mapping the *Straits of Magellan*; Industrial nations do, however.

Navigation also denotes the attainment of ship building technology necessary for the sailing ships of the late Renaissance.

2.9.1.1 Ship Movement Effects

The Transport and Warship units of Renaissance and Industrial nations base their number of actions per **year** on the national Navigation Rating, with the number of actions being equal to:

Table 2-14. Ship Movement Rates

Culture	Actions per Year
Renaissance	7 + Nav. Rating + other AP modifiers
Industrial One	8 + Nav. Rating + other AP modifiers

This applies to both wind- and steam and diesel powered ships and submarines. Steam and Improved Engines provide the ships of the Modern Era vastly greater movement than sailing ships but their range is limited by the provision of suitable coaling stations and bases.

Note that a new Action Point Impulse Chart is in use once nations begin achieving Modern Era Tech Levels. The new chart is included in the Charts and Tables section on page 69.

2.9.1.2 Effect on Mapping Unknown Sea Zones

Mapping an unknown Sea Zone or Arrow is accomplished by a fleet of ships (at least 5-7 units and a Leader are recommended) being sent into an unknown sea zone with orders to conduct an **Explore** action. See Section [5.3.2].

The *ruttiers* (navigational books) produced by Mapping can, of course, be stolen, sold, swapped or lost. Fleets that are engaged in Mapping suffer attrition if they fail their mapping rolls. This is a dangerous mission and ships, Leaders and men may be killed by hostile natives, great white whales and what-not...

2.9.2 Initial Trade Range(s)

Upon achieving Renaissance status, each nation has its trade range modified, based upon the previous Culture.

Table 2-15. New Trade Ranges

Original Culture Type	New Trade Range
Civilized	4
Seafaring	5

2.9.2.1 Tracing Trade Ranges

Normally, a nation may trace a Trade Route through a number of known Sea Zones, Open Ocean or Inter-Island Arrows equal to or less than its Trade Range. However, tracing into a Sea Zone *against* a Sea Zone Border Arrow costs two (2) points of Trade Range for each such Sea Zone. Renaissance and Industrial nations may establish Trade Conduits allowing those nations to increase their Trade ranges dramatically (see section [2.9] on page 7). Neither normal Trade Routes nor Conduits may be traced through **unknown** Sea Zones, Inter-Island or Open Ocean Arrows, blockaded Sea Zones, or into Cities under Siege or Blockade.

Example

The sea zones off the western coast of Africa were historically some of the worst in the world in terms of ships swallowed by dangerous seas. The *Gambian Sea* therefore, is a Hostile Sea Zone. Until your pilots have mapped it, you cannot trace trade through it. Similarly the *Cape of Good Hope* is prey to ferocious Antarctic storms that litter the beaches of Cape province with smashed ships. Worse, the borders of *Grand Bassam / Bight of Benin*, *Bight of Benin / Kongo Sea*, *Kongo Sea / Cape Fria*, and *Cape Fria / Nambian Sea* have directional arrows, pointing north. When trade is being traced across these sea zone borders, each one counts as 2 SZ for trade range purposes.

2.9.2.2 Effect on Effective Merchant Shipping

In the Middle Ages, the base Trade Range was assumed to be three (3) for most nations. Now, however, it will be four for previously Civilized nations and five for previously Seafaring nations. As a result the formula for calculating the number of effective Merchant Shipping points on a given Sea Trade route changes to take the varying Trade Range into account. This formula replaces the one shown in **Basic Rulebook** 6.0.0 [12.1] Step 2a.

$$eMSP = m \left(\frac{r}{l} \right)$$

eMSP is the resulting, effective, **MSP** on the Route.
M is the initial, unmodified, MSP assigned to the Route.
R is the Trade Range of the Nation.
L is the Length (in Sea Zones) of the Route.

2.9.3 Sea Trade Routes & Trade Conduits

An important aspect of the Modern Era is the ability of nations to conquer the seas and send their merchants and colonists to the far corners of the world. To reflect this, the concept of the Sea Trade Route formed of Trade Conduits is introduced.

A Trade Conduit consists of two controlled Port Cities, connected by a number of known Sea Zones, Inter-Island or Open Ocean Arrows no greater than the Trade Range of the Nation. The two port cities are called Conduit Anchors, as they form the “ends” of the Conduit.

Example:

The English control the port city of London and a port city at Gibraltar. They have a Trade Range of 4, allowing them to form a Conduit between **London**, via *English Channel*, *Bay of Biscay*, *Sea of Portugal*, *Gates of Hercules* (4 Sea Zones) to **Gibraltar**. This is one (1) Conduit.

A Sea Trade Route is comprised of one or more Trade Conduits. More than one Sea Trade Route may use a single Trade Conduit. Each Sea Trade Route can be composed of a number of Conduits equal to the nation’s **Conduit Limit**. A nation can have any number of Conduits, as long as no single Sea Trade Route is formed of more Trade Conduits than allowed by the Conduit Limit.

In general, this allows the nation to extend its trade by multiples (up to the conduit limit) — but only so long as it controls Port Cities at the Conduit ‘anchors’. This also means that sea-borne trade will increase dramatically in importance to aspiring world powers, as will the sea power required to establish and protect these trade routes.

2.9.3.1 Requirements for Establishing a Conduit

A Trade Conduit consists of:

- 1) An origination port, which is a controlled Port City in the home nation, of **at least** the minimum status (as indicated by the following table) connected to the Capital or Homeland by contiguous controlled land regions.
- 2) A certain number of contiguous sea zones from that controlled port to another controlled Port City of at least **minimum** status.

A Capital that is also a Port City may, of course, act as the first conduit anchor. Port Fortresses and Port Areas *cannot* act as trade conduit anchors.

Trade Conduits can branch out from one another to form myriad Sea Trade Routes as well. It is not necessary to construct completely separate sequences of Trade Conduits for each Trade Route.

Table 2-16. Conduit City Minimum Status

Nation Type	Minimum Status for Conduit City
Open Nation	Economic Ally
Religious Primacy	Holy City or Economic Ally
Merchant Combine	Branch Office or Economic Ally
Religious Order	Order Fortress or Economic Ally

Example

The Swedish player has a Renaissance nation with a Capital (Stockholm) in Uppsala. Sweden’s Trade Range is 5 and its Conduit Limit is 3. Assume that Sweden possesses the region of Norway and has a port city (Oslo) therein. Since Oslo is connected to Uppsala by Swedish controlled regions, it can be used for Inter-Nation Trade. Oslo, therefore, is the first ‘anchor’ in the Conduit chain. Sweden can trace a Trade Conduit through the sea zones of *Skaggerak*, *Viking Bank*, *North Sea*, *English Channel*, and *Bay of Biscay* to Gascony where it controls the port city of Bordeaux (as an Economic Ally).

Bordeaux is the second ‘anchor’ and allows the Swedes to establish a Trade Conduit between Oslo and Bordeaux. The second Trade Conduit can be traced a further five sea zones (through the *Bay of Biscay*, *Sea of Portugal*, *Gates of Hercules*, *Sea of Dogs*, and *Ifriqan Coast*) to Gambia. Here, the Swedes control a friendly port city (Sunderholm) to serve as an ‘anchor’; this is the second Trade Conduit of their maximum of 3 in this particular direction.

Unlike Bordeaux, Sunderholm straddles both Sea Zones. So the third, and final, Trade Conduit can be traced through the sea zones of *Gambian Sea*, *Grand Bassam*, and into the *Bight of Benin*.

Note that the Arrow Sea Zone Border between *Bight of Benin* and *Grand Bassam* costs TWO Trade Range points to traverse.

Assuming that the Swedes have a Port City in a coastal region adjoining the *Bight of Benin*, say in Teke, the ‘anchor’ of the third Trade Conduit is established. Then, from this final Conduit ‘anchor’,

the Swedes can trade normally with any nation within 2 sea zones (their Trade Range from a region on *Bight of Benin* considering that there are Arrow Sea Zone borders on both exits from the Zone), which in this case could be as far south as the region of Ovambo on the coast of the *Nambian Sea*.

Effectively then, the Swedes have a Trade Range of 15 Sea Zones, from Oslo to Ovambo.

If the 'anchor city' of a Trade Conduit borders on only one Sea Zone, that Sea Zone must be counted as the last Sea Zone of the first Trade Conduit *and* as the first Sea Zone of the second Trade Conduit.

Example

Ming China's first trade conduit can reach to *Mallaca Strait*, where they control Kadaram (in Perak) as the 'anchor' city. Kadaram borders only one Sea Zone. When counting the second trade conduit, *Mallaca Strait* is counted as that conduit's first Sea Zone.

Which is one reason why cities straddling Sea Zones are so valuable.

2.9.3.2 Sharing Trade Conduit Cities

The control of strategically placed port cities becomes critical with the Trade Conduit rules in effect. It quickly becomes apparent that there are a number of crucial seaways or straits scattered around the world. Further, since there is a limit of one city per province, the acquisition or seizure of controlled cities is vital.

Note, however, that for a city to qualify as an 'anchor' it must be at least **Economic Ally** status.

2.9.3.3 Opening a Sea Trade Route via Conduits

To open a Sea Trade Route through a series of Trade Conduits at least one Merchant Shipping Point must be allocated to the Trade Route. This MSP must be able to 'move' through a series of connected Trade Conduits controlled by the nation opening the Trade Route from the origination port in the home nation to a viable port in the target nation. If this can be accomplished, then trade can be opened.

To allocate shipping to a Sea Trade Route, your Nation **must** be able to open that Route through its **own** set of Trade Conduits. Trade is initiated at the *beginning* of the turn, therefore all conditions must be set at that time, for the route to be opened.

Note, therefore, that you **cannot** use another nation's Trade Conduits to open a Sea Trade Route or to allocate your nation's Merchant Shipping to an existing route. This means that if another nation with a superior trade range or conduit configuration opens a Route to your nation where you cannot match the connection, then your nation cannot allocate merchant shipping to the route. This will place your Nation at a significant economic disadvantage on that Trade Route.

Example

The Nisei have acquired 'anchor' cities in the Great Lakes area and on Newfoundland, Greenland and the Shetland Islands. These cities form a set of Trade Conduits reaching from the Nisei heartland in the American North-West and Great Plains to Europe. From their final 'anchor' city of Ukiuo-ye on the Shetlands, the Nisei merchants can reach England, the Netherlands, Sweden, Russia and many more nations. Due to the progression of events, however, none of the European nations have Trade Conduits in place to return the favor. Since none of the Europeans could theoretically open a Sea Trade Route to the Nisei realm, none of them are allowed to allocate Merchant Shipping to the Sea Trade Routes opened by the Nisei.

Effectively, the Nisei control all of the trade between themselves

and the Europeans and will make the lion's share of profits from the routes. The Nisei are happy. The Europeans are sad.

2.9.3.4 Closing Trade Conduits

A Trade Conduit is closed down if one or both of the 'anchor' cities that the Nation controlled to form it are lost to hostile action, blockade or rebellion. If a Conduit closes down then all Sea Trade Routes being traced through it are also shut down if there is no other way for them to be traced from the originating nation to the target nation.

Note that a Sea Trade Route *may* remain open even if one Nation loses a crucial 'anchor' city if the other Nation in the trade route can replace the Conduit chain with one of its own.

However, if this occurs, then the Nation that can no longer trace the route cannot allocate any MSP to the route.

2.9.3.5 Handling Trade Route Distance via Disparate Paths

As mercantile nations establish global trading networks, situations will arise where (due to the varying locations of Conduit Cities), nation A will be able to establish a Trade Route of distance X, while nation B will be able to establish a trade route of distance Y.

When this situation develops the Distance of the Route is the *average* of the two route lengths, rounded up.

If for some reason one Nation (either A or B) loses their ability to maintain the trade route, then the Distance of the Route reverts to the partner able to maintain trade, and the losing partner's MSP are removed from the route.

2.10 NEW TYPES OF TRADE ROUTE

2.10.1 Railroad Trade

Two nations whose *Capital* Cities are connected by a railroad may conduct Rail Trade (at a level of efficiency slightly superior to sea trade). Railroad Trade supercedes (or replaces) any existing trade route between the two nations.

2.10.2 Aerial Trade

Merchant Houses who possess Airship Transports (requiring, therefore, the completion of the appropriate R&D Project and construction of at least one ZT unit) may open *Aerial Trade* routes. An Aerial trade route is traced from the Home Office of the Merchant House to the Capital of the nation to trade with. Aerial Trade is considered to be in small, valuable cargoes, passengers, mail and other items where speed of delivery surcharges make up the difference in volume profits.

Merchant Shipping Points for Aerial Trade routes can only be acquired by converting Airship Transport (ZT) units to Aerial MSP (aMSP). Airship Transports are converted to aMSP at the usual MSP conversion rate of 1 MSP per Cargo point.

The Range of Aerial Trade is equal to the Current National Trade Range (up to a maximum of **twice** the Operational Range of the Transport Airship).

Conduits may be established for Aerial trade with the first anchor city being the city containing the Merchant House's Home Office. Successive anchor cities are may be established at intervals of the Aerial Trade Range provided that the Merchant House has at least a Branch Office or better at each anchor city. The Conduit Limit for aerial trade is equal to one-

half the Merchant House's Conduit Limit, rounded down, with a minimum of one.

Aerial Trade may be established between the Merchant house and its Trade Partners in **addition** to regular Sea Trade. A Merchant House trading by a common land border may not establish Aerial Trade in addition to their land trade. Finally, Aerial Trade Routes may **not** be used for Cartel Trade (see section [7.2.3] on page 45).

2.10.2.1 Airports

An Airport may be built at any city where the Merchant House has an ordinary status at Tributary or above; or a Branch Office or above as a Project. See [3.12.1].

2.10.2.2 Conversion to Wartime Duty

At the beginning of any turn, each 1 MSP on an aerial trade route may be turned into a national *Transport Zeppelin* (z̄t) unit at the cost of 4 GP. (It would require 10 MSP to be converted into 10 z̄t to obtain the equivalent of 1 NFP.)

Only Transport Zeppelins may be created in this way. These units appear at the Base Port of the Route they were converted from.

2.10.3 Trade Route Status

Each Trade Route has a status attached to it, as per the following table. Each status modifies the amount of trade that can flow through the route each turn.

Table 2-17. Trade Route Status

RouteStatus	Description	Throughput
AIR	Aerial Trade	25%
BST	Blockaded Sea Trade	50%
LTC	Land along the Silk Route	30%
LTD	Land by Difficult Terrain	80%
LTH	Land by Hostile Terrain	70%
LTO	Land by Open Terrain	85%
LRR	Land by Rail Road	110%
LTR	Land by Road	90%
LTS	Land across the Sahara	50%
INI	Trade Under Interdict	50%
NST	Normal Sea Trade	1-100%
WAR	Blocked by Warfare	10%

The various Route Statuses' are set by the GM as per their assessment of the kind of route and the terrain over which it must travel, in the case of land trade.

- ◆ A *Land Trade by Dangerous Terrain* route contains one or more desert or tundra regions, a type-two mountain range or a Hostile or Unsettled region.
 - ◆ A *Land by Open Terrain* route is composed of a string of continuous cultivated or steppe land regions between the two capitals, with no ferry points used.
 - ◆ A Trade Route can be operated via *Land by Rail Road* between the *Capital* Cities of two nations connected by a railroad. Railroad Trade supercedes (or replaces) any existing trade route between the two nations.
 - ◆ A Trade Route can be operated via *Land by Road* if the majority (75% or more) of the cities in each nation are connected by Royal Roads and the two nations share a Royal Road network that connects both Capitals.
 - ◆ A Trade Route can be operated via *Land Across The Sahara* if you can trace a caravan route via Oases (controlled either by your Nation or that are Uncontrolled by any Nation) to a land region in the other Nation.
 - ◆ A Trade Route is *Under Interdict* if a nation is trading with a partner of the same religion which is under Interdict from a Primate Authority of the same religion.
 - ◆ A Trade Route is *Blocked by Warfare* if the two nations that had been trading (and had established a route) are now at war with one another.
- ◆ An *Aerial Trade Route* can only be used by a Merchant House for trade by air carried by airships or aircraft.
 - ◆ A *Blockaded Sea Trade Route* is one that the Trade Route traced is Blockaded by a hostile fleet.
 - ◆ A Trade Route can be operated via *Land Along The Silk Route* if a contiguous series of controlled land regions can be traced from the Capital of your nation to a Silk Route region (which you control), then via Silk Route regions (uncontrolled by any player, save yourself and the Nation that you are trading with) to a region that is controlled by the other Nation, and thence, by controlled land regions to their Capital.
 - ◆ A *Land Trade by Difficult Terrain* route contains one or more wilderness or jungle regions, a type-one mountain range, or a ferry arrow.

3. THE ORDER FORM

3.1 EXPENSES: INVESTMENTS

The new Artillery QR is limited like the other Military Quality Ratings by the Tech Level of your Nation. The previous caps placed on QR advancement are also raised by the acquisition of new Tech Levels.

Table 3-1. Max. QRs per Culture and Tech Level

Civilized

Tech	Cavalry	Infantry	Warship	Siege	Artillery
3	5	5	4	5	--
4	7	6	5	7	--
5	8	7	6	8	--
6	9	8	7	10	--
7	10	10	10	12	4

If a Civilized Tech 7 Nation purchases one or more Artillery units from a Renaissance nation they can then begin building Artillery units and investing in their own QR, which starts at one (1).

Seafaring

Tech Level	Cavalry	Infantry	Warship	Siege
1	0	3	4	2
2	1	4	6	4
3	3	5	6	5
4	5	6	7	7
5	6	7	8	8
6	7	8	9	10
7	8	10	12	12

Barbarian

Tech Level	Cavalry	Infantry	Warship	Siege
2	3	4	4	4
3	5	5	4	5
4	7	6	5	7

Nomadic

Tech Level	Cavalry	Infantry	Warship	Siege
2	5	3	2	2
3	7	4	3	3
4	9	5	4	5

Pre-Columbian

Tech Level	Cavalry	Infantry	Warship	Siege
1	0 (1)	3	2	2
2	0 (2)	4	4	4
3	0 (3)	5	4	5

Note: Cavalry is available to Pre-Columbian cultures only after the expiration of the Cavalry Count in that geographic area.

Renaissance

Tech	Cavalry	Infantry	Warship	Siege	Artillery
8	11	12	12	15	6
9	11	14	15	17	9
10	12	15	17	20	11
11	13	16	20	23	13

Industrial One

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air	Rock
12	14	18	27	26	20	--	--	--
13	14	20	30	29	22	5	5	--
14	14	22	34	32	24	10	10	1
15	15	24	37	35	26	15	15	3

Industrial Two

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air
16	15	26	40	38	30	20	25
17	15	28	42	41	32	25	30
18	15	30	46	44	35	30	35
19	15	32	48	47	40	35	40

Tech	Rocket	Nuclear
16	6	2
17	9	4
18	12	6
19	15	8

Industrial Three

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air
20	15	34	50	50	42	40	45
21	15	40	54	53	45	45	50
22	15	50	57	57	50	50	55

Tech	Rocket	Nuclear
20	20	10
21	25	15
22	30	21

3.2 CONSTRUCTION: BUILDING ARMIES

3.2.1 Fractional NFP

Sailing ships and Industrial Era airships and warships can now be manned with fractions of NFP to denote the relative sizes of crew needed by these vessels.

If a full unit of NFP is not used in the construction of ships or airships then the fractional amount can be saved to be used in the next turn.

3.2.2 New Unit Types

With widespread gunpowder use and the evolving science of gunnery, a new unit type is introduced. **Artillery** becomes available for purchase and deployment with the armies of your Nation. In field battles, Artillery units are governed by the Artillery QR. In sieges, by the Siege QR.

With the Industrial Era and the advent of steam and internal combustion power, **Steamships, Airships, and Submarines, Motorized, Mechanized, Aircraft, Rocket and Nuclear** units become available.

3.2.3 Artillery

The *Artillery (g)* unit represents from five to ten field pieces and their crews and support personnel, numbering about 200 men.

Artillery units have a new Artillery QR that ranges from one (1) to fifty (50). In normal combat Artillery units provide a bonus to the effective QR of the army, depending upon their QR and the number of them present.

Expenditure to raise the Artillery QR is handled just like the other Military QRs.

Note, however, that artillery cannot win battles by itself. There must be Infantry or Cavalry to carry the brunt of the fighting. Proportions of Field Artillery in excess of a third of an army will not be useful. Artillery units are not counted as elite.

Artillery in the Renaissance Period comes as Bombards (**bg**), Siege (**sg**) and Field (**g**). There is no inexperienced or elite artillery.

In the Industrial Period, Renaissance Artillery is effectively relegated to the status of light artillery. Technological developments produce Super Heavy (**shg**), Motorized (**tfg**) and (**tsg**) Artillery units. The advent of

Airships and Aeroplanes also necessitates the use of artillery in an Anti-Aircraft role.

The optional **R&D: Balloons** project allows the use of hot-air balloons, which provide a bonus in field combat (for scouting and artillery spotting) and in siege (for being able to view over enemy walls).

3.2.4 Armored Fighting Vehicles and Motorized Units

Armored Fighting Vehicle (tank) units come in four types – *Light Tanks (afx)*, *Medium Tanks (afv)*, and *Heavy Tanks (afh)*, and then the Industrial Two *Battle Tank (afb)*.

Like Artillery, AFV units need to be supported by Infantry or Cavalry to screen their units, protect them when they're refueling, etc. As a rough guide, you'll want to field armies with a quarter-AFV, a quarter-Artillery and half Infantry proportions.

Infantry and Artillery variants of the base 'leg' formations are supplied by *Motorized (ti)* and *Mechanized (mi) Infantry*, and *Motorized (tfg, tsg) Artillery* respectively. Note that some of these artillery units are optional to a campaign.

The costs to develop AFV and Motorized/Mechanized units are given in the Research & Development section starting on page 24.

3.2.5 Steamships

Once a nation has reached Tech Level 11 and completed an **R&D: Steamships** project (with or without the help of another nation already possessing steamships), they may build Steamship Yards. Once at least one Shipyard point has been completed, they may begin building actual wooden steamship units (see sections [3.6] and [4.3] on pages 17 and 24).

Completion of the basic **R&D: Steamships** project gains the ability to build wooden steamship units. More advanced steamship unit types must be designed and developed by additional research. All steamship units, however, are built using the same Shipyard capacity points.

3.2.5.1.1 Types of Steamships

Several kinds of steamship units can be developed. The construction costs of these units are given in the Charts and Tables, Industrial Build Chart starting on page 62. There are no inexperienced or elite steamship units.

Each Steam Transport represents two ships, while Cruisers, Battleships, and Carriers represent one ship. Feel free to name, number and keep track of your capital ships.

3.2.5.1.2 Steamship Range

When a Steamship unit is moving, they move either via Sea Zones (where such are available) or via the hexes on the hexgrid overlay. They do *not* move via Inter-Ocean or Inter-Island Current Arrows.

Though capable of operating against the wind, or even in the absence thereof, steamships are restricted by requiring enormous amounts of fuel (wood or coal) to operate. They are also very fickle and require regular, skilled maintenance. Such supplies are acquired only through a fueling (or coaling) station provided by a controlled port (at Tributary or above).

Steamships operating without the support of a coaling station will suffer severe attrition (on the order of 25% per AP) as ships go down for lack of fuel or maintenance.

The operating range (as expressed in Action Points) of a steamship unit is equal to:

$$\text{Operating Range} = \text{Tech Level} - 10$$

The minimum operational range is 1 AP. The maximum operation range of a Steamship is 3 AP.

Example

The Danish Imperial Navy is operating a steamship squadron off the coast of India against Mussulman pirates. Denmark's Tech Level is 12, giving them an operating range of (12-10 = 2 AP). Their nearest controlled port (for fueling and repairs) is at Mansura in Egypt. From Krak-de-Chevaliers in Mansura (Which is on the Nile), they can operate normally in seas as far away as the Red Sea (from Krak, 1 AP into the Nile, 1 AP into Red Sea). Beyond the Red Sea, they will suffer attrition. The acquisition of a port on the Bab-al-Mandab, then, would be of great strategic use.

3.2.5.1.3 Trade Ranges with Steamships

Nations having acquired the capacity to build Steam Transports may use them on their trade routes (as any transport may be converted into MSP), as long as the distance between each **Anchor City** on the trade route is equal to, or less than, **twice** the Steamship Operating Range of the nation.

Steam-powered merchant traffic must use the hexgrid ocean map overlay, if they are not moving through a Sea Zone, for tracing distances for trade routes and conduits.

3.2.6 Diesel-powered Ships

Once a nation has reached Tech Level 14 and completed an **R&D: Improved Engines** project (with or without the help of another nation already possessing diesel-engine ships), they may build Diesel-type versions of previously known Ship types.

3.2.6.1 Types of Diesel-Powered Ships

Several kinds of Improved Engine diesel-powered units can be developed. The construction costs of these units are given in the Charts and Tables, Industrial Build Chart starting on page 62. There are no inexperienced or elite diesel-engine ship units.

Each Diesel Transport unit represents two ships, while Cruisers, Battleships and Carriers represent one ship. Feel free to name, number and keep track of your capital ships.

3.2.6.2 Diesel Ship Operating Range

While, on a per-kilo-of-fuel basis, a Diesel-powered ship gets more kilometers of action range to the liter, they still require an extensive and technically-proficient support structure and vast quantities of fuel.

Diesel-powered ships operating without the support of a fueling station will suffer severe attrition (on the order of 25% per AP) as ships go down for lack of fuel or maintenance.

The operating range (as expressed in Action Points) of a steamship unit is equal to:

$$\text{Operating Range} = \text{Tech Level} / 3$$

This number is rounded **up**, with a minimum of 1 AP. The maximum operating range is 7 AP.

Example

The Imperial Aztec Navy is operating a diesel-powered cruiser squadron off the coast of Australia against Javan pirates. The Aztec Tech Level is 14, giving them an operating range of (14/3 = 5 AP). Their nearest controlled port (for fueling and repairs) is at Majuro on

the Marshall Islands. From the Marshalls they can operate normally in waters as far away as the **Coral Sea** (from the Marshalls, 1 AP into hex 45K, 1 AP into hex 44K, 1 AP into hex 43L, 1 AP into *Solomon Sea*, and 1 AP into *Coral Sea*). Beyond the Coral Sea, they will suffer attrition. The acquisition of a port in Arukun or Papua, then, would be of great strategic use.

3.2.6.3 Trade Ranges with Diesel-powered Ships

Nations having acquired the capacity to build Improved Engine (Diesel) Transports may use them on their trade routes (as any transport may be converted into MSP), as long as the distance between each **Anchor City** on the trade route is equal to, or less than, **twice** the Diesel-ship Operating Range of the nation.

Improved Engine-powered merchant traffic may use the hexgrid ocean map overlay for tracing distances for trade routes and conduits.

3.2.7 Flying Machines

Flying Machines are rigid-airframe, winged aircraft with one or more fixed wings and gasoline- or kerosene- burning engines to drive propellers. Aeroplanes!

A variety of Aircraft units can be developed through Research & Development: *Fighters*, *Bombers*, *Heavy Bombers*, *Cargo Transports*, *Carrier Fighters*, and *Carrier Bombers*.

There are also three broad types of Aircraft: *Biplanes*, *Monowings* and *Jets*. This gives the following roster of unit types and codes:

Table 3-2. Flying Machine Unit Types

Type	Biplane	Monowing	Jet
Fighter	bf	af	jf
Bomber	bib	ab	jb
Hvy Bomber	--	ahb	jhb
Transport	bt	at	jt
Carrier Fighter	bcf	cvf	jcf
Carrier Bomber	bcb	cvb	jcb

Completion of the initial **R&D: Flying Machines: Biplane** research project gains the ability to construct *Biplane Fighters*, *Bombers* and *Transports*.

Subsequent R&D projects may develop the other kinds of aircraft units. All types of aircraft use Aircraft Factory capacity points for construction. There are no inexperienced or elite Aircraft units. See sections [3.6] and [4.3].

Following the completion of the **R&D: Flying Machines** project your Nation can build Aircraft Factories, which will in turn allow you to build the various kinds of Aircraft units.

3.2.8 Airships (Optional Rule)

Airships (zeppelins) are large rigid-airframe flying machines, using hydrogen (or helium for those lucky enough to have helium gas deposits within their domain) for lift and kerosene-burning engines to drive propellers. Though of considerable size, they cannot carry as much as a sea-going ship, and demand considerable and specialized resources to build.

Four different kinds of Airship unit can be developed: *Scout Airships* (zs), "standard" *Airships* (z), *Heavy Airships* (zh) and *Transport Airships* (zt). Completion of the **R&D: Airships** research project gains the ability to construct *Scout Airships* and *Airships*.

Subsequent R&D projects may develop the other three kinds of airship. All types of airships use Airship Factory capacity points for construction. There are no inexperienced or elite Airship units. See sections [3.6] and [4.3].

Note to GMs: the prevalence of airships as a major unit in most nations of Lords One is due to the peculiarities (some would say perversities) of that Campaign.

3.2.8.1 Aerial Combat Doctrine

In battle, you may direct your airship units to *specifically* engage opposing airships or aircraft, in which case a separate combat will be fought (before any ground, naval or siege engagements) to determine air superiority. If you do not so direct your air units, they will fight in conjunction with your ground and/or naval forces.

3.2.8.2 Aerial Bombardment

Airships with a **Siege** rating of one (1) or more may be directed to attack existing facilities (Airship Yards, Submarine Yards, Mercantile Industry, Shipyards) or projects (Railroad lines, Bridges, Pyramids, etc.). Damage is done in terms of GP/NFP/Time required to repair the damage, if the facility is not destroyed outright.

Specific locations may be defended against aerial bombardment by anti-aircraft artillery.

3.2.9 Submarines

Small, cramped, filled with bad air, choking fumes and cursed with absurdly short range, early submarines are more of a novelty than a strategic weapon. In time, however, they become one of the most feared weapons at sea...

Once a nation has completed the **R&D: Internal Combustion Engine** project, they may attempt to develop the *Holland-like Submersible* project to gain the ability to build one kind of unit, the *Submersible* (sub). This is a primitive petrol/electric vessel.

Once a nation has completed the **R&D: Submersibles** project they may attempt to develop the more advanced *Submarine* (ss) unit via the **R&D: Submarines** project. These are the classic diesel-electric boats that were so effective during the two World Wars. Those wanting nuclear powered behemoths are going to have to wait for higher tech levels.

Submarines are built using specialized Submarine Yards, which cannot be used for other kinds of units.

3.2.10 Rockets

Rockets are projectiles driven by the reaction of gases produced by a fast-acting fuel, either burning liquid or solid propellants, carrying an explosive warhead.

A variety of rockets will become available through the Research and Development: *Single-Stage Rockets* (ssr), *Dual-Stage Rockets* and later projects.

Completion of **R&D: Rocketry: Single-Stage Rocket** project gains the **Rocketry QR**. All long-range rockets are launched using the **Rocketry QR**, which governs whether they explode on the pad or in flight, or hit the intended target. There are no inexperienced or elite Rocket units.

Following the completion of the **R&D: Rocketry** project your Nation can build Rocket Factories, which will in turn allow you to build the various kinds of Rocket units.

3.2.10.1 Rocket Bombardment

A rocket unit is useless in battle or in a conventional siege. It is subject to a minimum and maximum range and can only be deployed against cities, fortresses or monolithic constructions within that range. Once in flight a rocket cannot be intercepted at Industrial One, and if successful will crash down onto its target inflicting damage in terms of GP/NFP/Time required to repair, if the location is not destroyed outright. If it carries a Nuclear weapon then the damage inflicted will be determined by the warhead and the **Nuclear QR**.

3.2.11 Nuclear Weapons

Nuclear weapons are a new and fearsome weapon, delivered to the target by another unit (ship, aircraft or rocket).

A variety of nuclear weapons will become available through the Research and Development, but at TL16 only the *Atomic Bomb (nab)* is available. All nuclear weapons use the **Nuclear QR**, which governs whether they detonate, and the level of devastation caused. There are no inexperienced or elite Nuclear units.

Following the completion of the **R&D: Nuclear Theoretical Physics** project your Nation can build Nuclear Production Factories, which will in turn allow you to develop and build the various kinds of Nuclear weapon.

3.2.12 Reserve Units (Optional)

Renaissance and Industrial nations gain the ability to build or place units in 'reserve' status, where they are not actively supported each turn by the nation. These units may, as the need arises, be called up and converted into active units of infantry, cavalry or whatever type they are. Only mobile national units may be placed in, or built in, reserve status. While these units are in reserve, no troop support is paid for them and they do not affect the national ISI.

3.2.12.1 Building Units as Reserves

Only Regular and Inexperienced units can be built as Reserve status units. Like normal national mobile units, they must be built at a Friendly city within the Homeland Build Zone. Since these units are built specifically as reserves, no troop support is paid on them the turn that they are built.

A Reserve unit costs the full cost of a regular unit in GP and Generic Industrial or Yard cost. It has no NFP cost.

3.2.12.2 Placing Existing Units into Reserve

Existing Regular and Inexperienced units that *begin the turn* at a controlled city anywhere in the Nation may be placed into 'Reserve' status at the whim of the player. Simply note on your orders that you desire to place some number of units from a given army into Reserve.

Units may not be placed into Reserve and activated from Reserve in the same turn.

3.2.12.3 Activating Reserves

Reserves can only be called up at the *beginning* of the turn, in any controlled unbesieged Friendly City or Fortress that is within the Homeland Build Zone of the country that placed them into Reserve. The Nation must pay an activation fee, as noted below, for each unit that is being called up.

The activation cost of a Reserve unit is 0.5 GP and the full NFP cost. No Industrial or Yard Cost is required to activate a unit from reserves.

3.2.12.4 Division of Reserves in the event of Civil War

On occasion a Nation may break into one or more successor states due to Dynastic Failure or Civil War. In this case, should the Nation have some troops in Reserve, the reserves are divided proportionally between the successor nations on the basis of how many originally friendly cities each successor state possesses. Fractions are rounded down, however, even if this results in the loss of units.

Example:

The Maori Imperium controlled a wide swathe of the Pacific and Australasia before it dissolved into civil war and three successor states; Austral, Java and the Maori Seahold. Before the civil war, the Maori controlled fifteen friendly cities and they had 56 regular infantry, 20 regular artillery and 115 regular warships in reserve. Now, Austral has eight of those cities, Java three and the Seahold four. This gives the Austral a ($8 \div 15 = 53\%$) share of the reserves, the Javanese a ($3 \div 15 = 20\%$) share, and the Seahold a ($4 \div 15 = 27\%$) share.

In terms of units the Austral get ($56 \times 0.53 = 29$) regular infantry, ($20 \times 0.53 = 10$) regular artillery and ($115 \times 0.53 = 60$) regular warships in reserve. In the same manner the Javanese get 11 regular infantry, 4 regular artillery and 23 regular warships. The Maori Seahold gets 15 regular infantry, 5 regular artillery and 31 regular warships in reserve.

3.3 CONSTRUCTION: COLONIES & CITIES

In the Post Medieval Period the venue for establishing colonies is expanded to include, in addition to the traditional unsettled or depopulated areas, those regions occupied by peoples of substantially inferior technological development. Renaissance and Industrial nations can colonize, or settle, regions inhabited by Pre-Columbian, Nomadic or Barbarian peoples as if those regions were uninhabited.

In addition, Industrial nations can improve the gold point value of cultivated regions and benefit from both higher maximum city size and increased Public Works limits.

3.3.1 Colonizing Inhabited Regions

Regions occupied by Pre-Columbian, Nomadic or Barbarian cultures can be settled by Renaissance and Industrial nations just as if those regions were colonizable (unsettled) regions.

This includes all *uncontrolled* Wilderness, Jungle, Desert and Steppe regions.

The Colonization of these inhabited regions can be accomplished by the expenditure of 50 GP and 25 NFP for each one (1) GPv of the region. Each allotment of 50 GP and 25 NFP converts one intrinsic GPv to the new culture. The GP and NFP may be expended over a period of time with each GPv conversion occurring when the requisite GP and NFP have been expended.

Each region can be settled in this manner up to the original value of the region. As each new GPv of settlers is completed, the equivalent GPv of 'old' population is destroyed or assimilated. Note that each time a GPv is settled, the region may rise up in revolt against the settlers and if not suppressed by friendly armies the settlement(s) may be wiped out.

If the Inhabited Region to be colonized is adjacent to a controlled land region, then the player may expend the requisite GP and NFP directly. If, however, the Inhabited Region is **not** adjacent to a controlled land region, then the GP and NFP must be moved to the Inhabited Region by a Leader (and fleet, if necessary) and deposited. This requires the use of the *Colonize Inhabited Region* Action – see the **Basic Rules**, section [7.2.4.11].

3.3.2 Improving Conquered Pre-Columbian Regions

Renaissance and Industrial nations may increase the GPv of conquered TL1-3 Pre-Columbian cultivated regions through the introduction of more efficient farming and ranching techniques. To this end, conquered Pre-Columbian *Cultivated* regions with a GPv of one (1) or two (2) may be increased by 1 GPv (to 2 and 3, respectively) by the expenditure of **50gp and 25nfp** per region.

Pre-Columbian Cultivated regions with a GPv of 3 or 4 may not be increased.

Exception: Jungle regions that have become cultivated via a Megalithic Project may **not** be improved.

3.3.3 Improving Cultivated Regions

Industrial nations (Tech Level 12 and above) may enhance Cultivated (terrain type **C**) regions which are worth 1 GP (on the **base map**¹) by spending **50gp and 25nfp** to increase them to 2 GP in value.

2 GP (base map) provinces may be increased to 3 GP provinces by the expenditure of **50gp and 25nfp**.

3 and 4 GP provinces may not be improved. All other kinds of provinces (C2, W, etc.) may not be improved.

3.3.4 Urban Populations

Cities in Tech Level 12 (or greater) nations may be improved beyond the size limitations of the Middle Ages and the Renaissance, as per the following table:

Table 3-3. Maximum City Size by Terrain

Region Terrain	Maximum GPv
C2	20
C / I	15
W	10
M / J	8
S / D	6
T	5

Agricultural improvements in the kinds of plows, seed, sewers, medicine, threshing machinery, etc. also improve the amount of Public Works that can be built in a province or city:

Table 3-4. Maximum Public Works for TL 12

Region Terrain	Maximum PWB
C2	GPv × 30
C	GPv × 20
Other Terrains	No Change
Cities	GPv × 15

¹ See the Lords of the Earth Player Resources website at <http://www.throneworld.com/lords/players/maps.html>

3.3.5 City Co-Builds

A Religious Order, Primacy, or Merchant House can add a *complete* GPv to an existing city (with the permission of the cities 'regular' owner) so long as the owner has a Control Status of Ally or above. This gains the co-builder an appropriate improved status in the city. This new status depends on the size of the city the GPv is being added to, and any pre-existing status the co-builder may have in the city. It is a good idea for the owner to demobilize the NFP of the old wall points to either rebuild new wall points around the expanded city or build something else; the co-builder can rebuild the Wall Points but would have to provide the NFP and GP themselves.

If the city owner has a Control Status of Economic Ally or below the imposition of the new immigrant population may spark riots and revolts. If the populace does not revolt then the city gains one GPv but loses its Wall Points which must be rebuilt from scratch using both the NFP and GP of the builder.

Table 3-5. City Build/Status Increase

Starting GPv	Status Increase
1	+4
2	+3
3	+2
4 or more	+1

Table 3-6. Pre-Existing Status Levels

Status Level	MH	PRA	RO
0	None	None	None
1	MA	CH	OH
2	MF	AB	OO
3	BO	MN	OP
4	CI	CA	OE

So, to get the final status the co-builder has in the city, check the starting size of the City to find the amount of increase, then the Pre-Existing chart to see where you're beginning.

Example

Adding a GPv to a 1 GPv city with no pre-existing status results in a 2 GPv city with CI/CA/OE status. Adding 1 GPv to a 9 GPv city containing a Church results in a 10 GPv city with a (1+1 = Level 2, or Abbey) status.

The co-builder must pay the **full GP and NFP cost** of the newly added GPv. The construction of this city GPv may be implemented as a Project (and undertaken over multiple turns), though the new GPv is not added (and the new status gained) until the entire cost is paid.

The city retains the owning Nations' previous status. That is, if a Merchant House adds a GPv to a city held as Pacified by an Open Nation, the city remains Pacified to the Open Nation. A City Co-build cannot create a new city – this requires the standard City construction costs.

More caveats:

1. The co-builder must have permission from the owning nation to attempt the build.
2. The city must be of the co-builder's religion.

3. The co-builder must deliver the NFP/GP to the location to effect the build. Usually this requires a Leader (and perhaps ships) to move from the co-builder's Home Office/Holy City/Order Fortress. However, if the co-builder **already** has a status in the city and the city is within the co-builder's Control Web, the city expansion can be implemented without having to move the NFP/GP to the city directly.
4. The co-builder's construction attempt does not collide with the host nation's own build attempt. Native city construction always, takes priority over any co-builds.
5. The city in question is within the co-builder's Action Range of an existing Cathedral/Order Estate/CartelCity or the Holy City/Order Fortress/Home Office.
6. The maximum city size (as modified by terrain and the tech level of the *lower* tech co-builder) cannot be exceeded.
7. Only one city addition can occur in the turn. For instance: two Merchant Houses cannot each add a level in the same turn.
8. Co-builds only become possible from the Renaissance onwards.

3.4 CONSTRUCTION: RAILROAD PROJECTS

3.4.1 Building Railroads

Renaissance and Industrial Nations (Tech Level 11 and above) can build a new type of National Project: the Railroad (RR). Like a Royal Road, a Railroad is built between the center of a province (though usually anchored to a city) and the center of an adjacent province. Like Royal Roads each RR segment (or level of capacity) is a Level One Project with a base cost of 50gp and 25nfp. Unlike other Projects, each RR segment also costs 10 City (generic) Industrial Capacity points.

A Railroad segment can only be built in a province containing a Friendly city that is within the HBZ, or from a province already containing a Railroad segment that is, in turn, connected to a Friendly city within the HBZ. A Railroad segment can have more than one **level** of capacity.

Railroads built in Desert or Steppe provinces cost an additional 50% over any other modifiers to the Megalithic Construction cost, due to the necessity to import lumber.

A contiguous controlled series of Railroad segments are called a "rail line".

If a Railroad segment must cross a River, a (new) Bridge must be built specifically to carry the railroad. For purposes of keeping the GM from going insane, only one Bridge is required per river crossing, regardless of the number of Railroad levels between the two regions. See Base Rulebook section [6.1.10] for details. A railroad cannot cross a Ferry Point.

3.4.2 Moving Units by Rail

Each level of Railroad can carry 10 cargo points of units per turn in a **single** direction. This is the Rail Capacity of a rail line. Multiple levels of rail between provinces either allow more Cargo moved in one direction, or half as much in each direction. Entering or leaving a city by rail does not cost an additional Action Point.

Example

The RSA has built a rail line from their capital at Great Zimbabwe up to lesuwayo in Mbundu. Each segment has 2 capacity

levels (two tracks, essentially). This means the RSA could move (2 × 10 = 20 cargo) points of units *from* Great Zimbabwe *to* lesuwayo in 1 AP, **or** 10 cargo in both directions at the same time.

An army (a Leader and one or more units) moving by rail may move the full length of the rail-line in 1 AP if the Cargo-size of the army is less than or equal to the rail line capacity. Larger cargo-requirement armies must be 'shuttled', which each additional block of capacity costing 1 AP per set.

If a rail line 'contracts' due to a segment being below the capacity of the others, extra AP will be spent to unload everyone, shuttle them forward on the lower capacity track, then load them up again. Very messy.

Example

The RSA Second Army needs to move up to lesuwayo in preparation for loading onto an invasion fleet. The total cargo cost of the army is 160 points. With the aforementioned double-track rail line (with a one-way capacity of 20 cargo per AP), this would take (160 / 20 = 8 AP) to effect.

3.4.3 Rail Communications

Like a Royal Road, a railway enables swift and efficient communications between the capital of a nation and its attendant provinces and outlying regions. The Homeland Build Zone (and the King's Command and Control Radius) is extended from the capital by a railroad.

The AP cost for HBZ or CCR to enter a region is quartered (multiplied by 0.25) when following a Railroad. Terrain effects (due to mountains, bad terrain, etc.) are still accounted in the cost of tracing the HBZ or CCR, but are quartered as well.

Railroads passing through Tse-Tse Fly regions negate the effects of said flies on CCR tracing.

Example

A Danish railroad passes through the city of Venice in northern Italy, the Imperial capital. As a result, the Danish HBZ (with a range of 4) may extend along the rail-line up to (4 × 4 = 16 AP) to the north or east.

3.4.4 Third-Party Railroad Projects

Merchant Houses of the proper Tech Level (11 and above), may embark upon Railroad construction projects for another 'host' nation. In this case the project appears on the Merchant Houses' stat sheet during construction, then moves to the 'host' Nation's upon completion.

The railroad may be constructed with national NFP (provided by the 'host' nation), Project Recruitment NFP (provided by the Merchant House), or a combination. National NFP provided in this way are **not** halved.

The GP to finance the project must be spent by the Merchant House directly (though of course they may be reimbursed by the 'host' Nation). The Merchant House must provide **all** of the Industrial Capacity used to build the Railway.

A Railroad construction Project must begin in a region containing a city capable of producing the Merchant Houses' "generic" Industrial Capacity used to fuel the project.

Example

The Norskrad merchant house secures a contract to build a railway in Persia, from Tehran to Ormuz in Bandar province. A mighty undertaking indeed! To begin, the Norskrad will have to acquire Cartel City status in either Tehran or Ormuz, then build at least one Merchant Factory to begin providing "generic" Industrial

Capacity. Once they have an operating Factory, they may begin railway construction.

3.5 CONSTRUCTION: UNIVERSAL WEIGHTS AND MEASURES

Industrial Nations may invest in the Universal Weights and Measures project (UW&M) to establish a standardized system of weights and measures throughout the nation. A nation that completes the UW&M Project will have compatible rail-lines, shipping containers, yogurt flavors, wheel and gear sizes, ammunition calibers, gun barrels, measures of distance, time, weight, mass and volume. In game terms this will be represented by a base Tax Rate increase of 10%.

The base cost of a UW&M Project is 100gp, 10nfp and 2 years. The base cost is multiplied by the Imperial Size of your Nation to get the final, Total Cost.

The cost of the UW&M project may not be defrayed through the use of Engineers (see [4.7] on page 30) or by Technical Assistance (see [4.5] on page 30).

Example: *Ming China is Imperial Size 13. Implementing a Universal Weights and Measures Project would cost them (13 x 100gp, 13 x 10nfp and 13 x 2 years) 1,300gp, 130nfp and will take at least 26 years.*

3.6 CONSTRUCTION: FACTORIES & YARDS

The construction of all Heavy-prefix, Artillery, Air, Steam, Diesel, Aircraft and Submarine units requires the use of (in addition to GP and NFP expenditures) **Industrial Capacity** of the appropriate kind. Each unit type has a **IndustC** (Industrial Capacity) cost listed on the Build Chart for your Nation. This is the Industrial Capacity cost when constructing the unit. In addition, some Yards and Projects have an Industrial Capacity Cost as well.

For most types of nations Factory and Industrial Capacity can only be used at a Friendly City within your Homeland Build Zone. Merchant Houses, however, can build **Mercantile Industry Sites** at any location they control at Cartel City (CI) status or better. These Sites provide the House with “generic” Industrial Capacity that can be used for building Heavy-prefix units and supporting National Projects.²

Each point of Yard size (Air, Ship, Submarine, Aircraft, Rocket, Nuclear) provides one Yard Capacity point per **turn**.

A Dockyard permits the use of Port City Intrinsic Industrial Capacity for impressively large sailing ships and smaller Industrial Age vessels.

Industrial Capacity and Yard Capacity may not be saved from turn to turn. Units with a high Yard cost (like a *Battlecruiser*, for example) may, however, be built over the course of multiple turns.

Note the imposition of Industrial and Yard Costs upon **all** Nations, regardless of Tech Level. This means lower Tech nations (nomads, barbarians, Civilized, renaissance, etc.) are also bound by Industrial capacities for the construction of Heavy units. Luckily for them, cities and trade centers have an Intrinsic Industrial Capacity.

² Merchant House construction using Merchant Factory capacity is **not** limited to the Merchant Houses’ Homeland Build Zone. But it is restricted to Cartel City status cities.

3.6.1 Intrinsic Industry

Cities, Trade Centers and Port Cities have “generic” Industrial Capacities, usually referred to as **City Industry**. City Industry Capacity is calculated using the following equation, rounded up:

$$\begin{aligned} \text{Industrial Capacity} = & \\ & (\text{GPv} + (\text{pwb}/15)) \\ & \times \text{CultureModifier} \\ & \times \text{TL} \\ & \times \text{EconomicModifier} \\ & \times \text{Tax Multiple} \end{aligned}$$

A Trade Center is treated as though it has a GPv of 5.

Table 3-7. Industry Culture Modifiers

Cultural Type	Modifier
Pre-Columbian	0.75
Barbarian/Nomad	0.5
Seafarer	0.9
Civilized/Renaissance/Industrial	1.0

Table 3-8. Industry Economic Modifiers

Economic Type	Modifier
Agrarian	0.5
Guild	0.75
Free	1.0
Slave	0.6

Note: Port City capacity is **not** separated for ground unit and ship unit construction. There is only one Capacity, reflecting the specialization of port cities for ship construction.

Note: From TL8 onwards certain types of Renaissance and Industrial warship require the construction of a **Dockyard** to permit the use of the Intrinsic Industrial Capacity of a Port City in the building of these units. See 3.6.5.

3.6.2 Finding Industrial Capacities on the Stat Sheet

The city-based Intrinsic Industrial Capacity is listed on your stat sheet as part of the City description, between the City PWB and City Type like so:

Avalon [3+30i15p4]

This city has a GPv of 3, 30 Public Works, an **Intrinsic Industrial Capacity of 15**, is a Port City, and has 4 Wall Points.

Your Airship/Ship/Submarine/Aircraft Yard capacities are listed in two locations on your stat sheet. First, in the Controlled Region and City listing, beneath each City or Region where a Yard has been constructed, you will see an entry like this:

Airship Factory (City) (5.0), Finished: Project No. 00138

The number in parentheses indicates **5 points** of Airship Yard capacity in this location. This same information is also shown in your Projects section (at the end of your stat sheet), like so:

00138 NAT Airship Factory (City) 5.0 Tenochtitlán Finished

3.6.3 Control of Intrinsic Industrial Capacity

The 'native' Industrial Capacity of a city is, by default, under the control of the Nation controlling the City with an 'open' status (Tributary, Pacified, Friendly, etc.). A Cultic, Order, Primacy or Merchant House status does *not* give access to the Industrial Capacity of a city. They do *not* own the generic industry in the city - they own what they build, but they do not get the rest for free.

If a Holy City, Order Fortress or Home Office resides in a Neutral city (one where no position has an 'open' status) then they can use the Intrinsic Industrial Capacity for a flat fee of 1 GP per point of industrial capacity to hire the local workshops. They can only use yards and factories in the city that they have built (including Dockyards). If two or more resident organizations attempt to use the same capacity then they gain equal fractions.

Merchant Houses can build Mercantile Industry points in a city and *those* are under their direct control. The Nation that owns the Intrinsic Industrial Capacity of the city a Home Office resides in can rent the Intrinsic Industrial Capacity to the Merchant House, or allow them to use it in exchange for some other favor.

A Secret Empire can attempt to access *unused* capacity for a flat fee of 1 GP per point of industrial capacity to hire the local workshops - but they would have to hide, via intel, such an effort. Building a secret underground or hidden city somewhere would be much more effective. Alternatively, they could purchase Export Units from an open nation, or Merchant House.

3.6.4 Building More Industrial Capacity

Additional Industrial Capacity (workshops, forges, foundries, workers) can be built by Renaissance and Industrial Nations (Tech Level 11 and above) at a city by paying 10 GP or 5 NFP per additional point of Capacity. This 'extra' capacity cannot exceed $2 \times$ Intrinsic City Industrial Capacity, so at most you can double the Industrial Capacity.

3.6.5 Building Factories & Yards

There are eight kinds of factories and yards that can be built:

- ◆ Dockyards
- ◆ Airship Factories
- ◆ Shipyards
- ◆ Submarine Yards
- ◆ Aircraft Factories
- ◆ Rocket Factories
- ◆ Nuclear Production Factories
- ◆ Mercantile Industry

The first seven may only be used to construct units of the specified type (airship, submarine, etc). Most Factories and Yards (save Mercantile Industry) may be built at *either* a city or within a region, though the costs and maximum number(s) of Yard Capacity points vary by the kind of location.

There is no restriction to the number of Factory / Yard points which can be built *in a turn*, save the maximum capacity of the build location.

A Dockyard only permits the use of the Intrinsic Industrial Capacity for building certain types of ship; it does *not* add additional capacity.

A Dockyard is needed to utilize all or part of the Intrinsic Industrial Capacity of a Port City for building of certain types of ships. Dockyards cannot be built until TL 8 is achieved. The Dockyard cannot be used to build units until the requisite **Navigation** rating or related R&D Project for the unit has been gained. A Dockyard counts as a Level 1 Monolithic Construction for Project Support costs.

Airship Factories cannot be built until an **R&D: Airships** project has been completed.

Shipyards cannot be built until an **R&D: Steamships** project has been completed.

Submarine Yards cannot be built until an **R&D: Submersibles** project has been completed.

Aircraft Factories cannot be built until an **R&D: Flying Machines** project has been completed.

Rocket Factories cannot be built until an **R&D: Rocketry** project has been completed.

Nuclear Production Factories cannot be built until an **R&D: Nuclear: Theoretical Physics** project has been completed.

The maximum number of Factory/Yard Capacity points which can be built in a region or city are as follows:

Table 3-9. Maximum Factory Construction

Location	Max YC	Notes
City	GPv \times 5	This total includes all Factories and Yards located at the city.
C/C2 region	GPv	This total includes all Factories and Yards located in the province. Shipyard and Submarine Yards may only be built in coastal provinces.
W/I/J region	GPv / 2	This total includes all Factories and Yards located in the province. Shipyard and Submarine Yards may only be built in a coastal province.
Other terrains	None	

Note: Wilderness, Island or Jungle capacity is rounded down (so will be 0 for anything less than a 2 GP province).

Note: This total includes Mercantile Industry points added to the City.

Example

Sussex is a 3 GPv C province and contains London, a 10 GPv city. The rural areas could contain as many as 3 Airship Factories (or Shipyard/Submarine Yards), while the city could contain up to $(10 \times 5 = 50)$ Factories and Yards.

The cost of building a Factory or Yard varies by type and location, as per the following table:

Table 3-10. Factory/Yard Construction Costs

Type	Location	GPc	NFPc	Indust Cap. Cost	Time
Dockyard	Port City	50.0	25	5	5
Airship Factory	City	25.0	5	1	2
	Region	50.0	8	2	4

Type	Location	GPc	NFPc	Indust Cap. Cost	Time
Shipyards	Port City	50.0	5	2	2
	Coastal Region	100. 0	10	3	4
Submarine Yard	Port City	30.0	5	2	2
	Coastal Region	50.0	8	3	4
“Generic” or Mercantile Industry	City	5	1	0	2
Aircraft Factory	City	50	5	1	2
	Region	75	8	2	4
Rocket Factory	City	75	5	3	2
	Region	100	8	3	4
Nuclear Production Factory	City	100	5	5	2
	Region	125	8	5	4
Hidden or Underground	Appropriate Region (only)	x2	x2	x2	x2

Note Homeland Build Zone restrictions continue to apply, even to units built at a Factory. See Base Rulebook section [5.4.2] for more details.

Note Mercantile Industry sites can be staffed (built) using Project Recruitment NFP.

Factories and Yards appear on your stat sheet in the Projects section (and as the Project listing below the appropriate City or Region, where the listed **Level** is the capacity of the Factory or Yard).

3.6.6 Mercantile Industry

Mercantile Industry sites may only be constructed in Cities of Cartel City (CI) status or better. They act as “generic” Industrial Capacity points for all purposes, but are under the direct control of the Merchant House, not any Open Nation controlling the city.

3.6.7 Moving Factories

An Airship or Aircraft Factory or Mercantile Industry Site may be broken down, crated up and moved to a new location. While in transit the Factory does not produce any Capacity. Moving an Airship or Aircraft Factory point costs 10 GP (or 2 NFP). Moving a Mercantile Industry Factory point costs 5 GP (or 1 NFP).

The Factory must be moved to a controlled **City** (even if it was originally built in a region).

A Factory may move up to (HBZ Range) Action Points by regular land movement per turn, without requiring a Leader to move the facility. Note that using a Railroad to move your factory may allow you to move it a considerable distance.

Each Factory point requires 10 Cargo points to transport by rail or sea.

A Factory point may be moved by sea on a fleet, commanded by a Leader (mercenary or National). A Leader moving a Factory by sea may use his entire AP allowance (and is not limited by the HBZ AP limitation of land relocation).

Note! For a moved Factory to be useable, it must *still be within the Homeland Build Zone* after relocation.

3.6.8 Capturing a Factory or Yard

If you capture an enemy location (region or city) containing a Factory or Yard, one-half (rounded down) of the Factory or Yard points in the location are destroyed unless you capture the location by surprise³.

If a captured factory, site or yard is then within the HBZ of the capturing nation *and* the region or city becomes Friendly to the capturing Nation, then those Capacity points may be used by the captor. Captured Airship Factories, Aircraft Factories or Mercantile Industry Sites may be moved as per section [3.6.7] above.

Exception: Nations with a Slave-based economy may use captured, non-Friendly, Factory and Yard capacity in locations within their HBZ, whether the region or city is friendly or not.

3.6.9 Attacking a Factory or Yard

A Factory or Yard in a location may also be attacked by airships or artillery barrage (from either heavy artillery or ships offshore). In this case, units attack with their Siege strength (and Siege QR), and the factories/yards have a passive Siege strength as per the following table:

Table 3-11. Factory/Yard Defense Strengths

Factory or Yard Type	Siege Strength
Airship and Aircraft Factories, Rocket Factories, Nuclear Production Factories, Mercantile Industry	10
Shipyards or Submarine Yard	20
Dockyard	20
City “generic” Yard	15

3.6.10 Hidden and Underground Factories and Yards

Merchant Industry, Airship and Aircraft, Rocket, Nuclear Production Factories and Submarine Yards may be constructed as “hidden” or “underground” facilities for twice the cost of the equivalent Regional Yard. This makes them very expensive, but how else are you going to pay for those side-of-the-mountain clam-shell doors which swing open ponderously to let your newly-built airship majestically appear?

Dockyards and Shipyards cannot be built as “hidden” or “underground”, but you should feel free to build them in some out-of-the way location where no one will notice them.⁴

3.6.11 Upgrading Airship Factories

Existing Airship Factories may be upgraded to Aircraft Factories the turn after the R&D: Flying Machines project is completed by the Nation in two ways:

Two (2) Airship Factories can be directly converted into **one** (1) Aircraft Factory.

One (1) Airship Factory can be converted (retooled) to one (1) Aircraft Factory at the cost of 25 GP and 1 NFP. This NFP cost may be provided by Project Recruitment. The GP cost of this conversion may *not* be provided by Engineers.

³ And it's up to the GM to say whether a location is captured by surprise or not. In general, however, if a Combat roll is involved, then it's not a surprise capture.

⁴ Except some meddling kids and that damned orange dog!

3.6.12 Upgrading Aircraft Factories

Existing Aircraft Factories may be upgraded to Rocket Factories the turn after the R&D: Rocketry project is completed by the Nation in two ways:

Two (2) Aircraft Factories can be directly converted into **one** (1) Rocket Factory.

One (1) Aircraft Factory can be converted (retooled) to one (1) Rocket Factory at the cost of 25 GP and 1 NFP. This NFP cost may be provided by Project Recruitment. The GP cost of this conversion may *not* be provided by Engineers.

3.7 MEGALITHIC CONSTRUCTION COST MODIFIERS

The Base Level cost of a given Megalithic Construction Project is modified by the terrain and the building nation's Culture. If a Project straddles two regions, they take the cost of the more expensive terrain. Fractions are rounded off to the nearest half-level (0.5). Note that the Levels provided for Modern Age Canals, Tunnels and Mega-Bridges already include the relevant Terrain Multiple.

Table 3-12. Megalithic Construct Cost Multiples for Terrain

Culture	Terrain Type								
	c2	c	w	m	s	d	i	j	t
I2/I3	1.0	1.0	1.5	1.5	1.5	2.0	1.0	2.0	2.0
R/I1	1.0	1.0	1.5	2.0	2.0	2.0	1.0	2.0	3.0

3.8 CONSTRUCTION: CANALS

With the onset of the Industrial Age mighty new works of civil engineering can be attempted.

Each canal also costs a number of City (generic) Industrial Capacity points.

Note that each Canal Project has a minimum Tech Level requirement.

Table 3-13. Canal Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
2 (5)	11	15	Queta Canal Upgrade
6	12	10	Suez Canal
3 (6)	12	10	Panama Canal Upgrade
6	13	10	Volga Extension
3	13	5	Volga-Don Extension
2	12	5	White Sea Canal

3.8.1 Queta Canal Upgrade

To allow the passage of Heavy and Super-Heavy ships (see Table 8-11. Unit Class and Effects on page 68) through the Queta Canal (across present day Nicaragua) it must be substantially upgraded to have deeper channels and wider locks. This is a level two (2) Megalithic Project, during which time the Canal is closed to all traffic.

If the Queta Canal has not been built prior to the start of this Project then building this canal is a level five (5) Megalithic Project.

3.8.2 Suez Canal

As the Necho's Canal route cannot be upgraded to allow the passage of Heavy and Super-Heavy ships, the Suez Canal will have to be cut between Red Sea and Gulf of Cyprus. The newly built Suez Canal allows the transit of all Ship Units, see Table 8-11. Unit Class and Effects on page 68.

This is level six (6) Megalithic Construct requiring the efforts of steam powered machinery and thousands of sweating fellaheen, but has the benefit of making Gulf of Cyprus and Red Sea adjacent sea zones (shortening all current trade routes through that junction by one, and not costing fleets an extra 1 AP to hook around through the Nile/Necho's Canal seaway). A newly-built Suez Canal can carry all kinds of ship traffic.

3.8.3 Panama Canal Upgrade

To allow the passage of Heavy and Super-Heavy ships (see Table 8-11. Unit Class and Effects on page 68) through the Panama Canal, it must be substantially upgraded to larger locks, deeper drafts in the channel bottoms and so on. This is a level three (3) Megalithic Project, during which time the Canal is closed to all traffic.

If the Panama Canal has not been built prior to the start of this Project then building this Industrial Age Canal is a level six (6) Megalithic Project, as machines and men labor in the malarial jungles.

3.8.4 Volga Extension

The building of this canal connecting the Volga River to Lake Lagoda and the Baltic requires considerable manpower. It is a level six (6) Megalithic Project.

Completion of this canal allows the passage of all classes of ship through the canal.

3.8.5 Volga-Don Canal

The building of this canal requires heavy engineering, including the construction of massive pumping stations to lift water from the Don River. The completed canal has nine one-chamber canal locks on the Volga slope, which raise ships 88m, and four canal locks of the same kind on the Don slope, which can lower ships 44m.

This is a level three (3) Megalithic Project.

Completion of this canal allows the passage of all classes of ship through the canal.

3.8.6 White Sea Canal

The building of this canal connects Lake Lagoda to the White Sea (via Lakes Onega and Vygozero). The completed canal includes a number of canals and only permits the transit of Medium, Light and Extra-Light class shipping.

This is a level two (2) Megalithic Project.

3.9 CONSTRUCTION: MEGA-BRIDGES

The development of new materials and technologies allows the construction of massive suspension bridges. Many will carry traffic across ancient Ferry Points with the benefit that crossing the bridge requires the expenditure of only one (1) AP obviating the extra cost of moving across the Ferry. These bridges (at these Tech Levels) are not suitable for carrying railroads.

Each mega-bridge also costs a number of City (generic) Industrial Capacity points.

Note that each Mega-Bridge Project has a minimum Tech Level requirement.

Table 3-14. Mega-Bridge Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
4	16	20	Bali Bridge (connecting Bali with Pajajaran).
2	15	10	Bosporus Bridge (connecting Thrace with Bithnia Europe/Asia Minor).
3	15	10	Copenhagen Bridge (connecting Denmark with Skane in northern Europe).
2	13	5	Gate Sea Bridge (connecting Pomo and Salinan in North America).
4	15	15	Hainan Bridge (connecting Hainan and Lingnan in China).
4	16	15	Hokkaido-Honshu Bridge (connecting Hokkaido and Akita in Japan).
4	15	15	Honshu-Shikoku Bridge (connecting Shimane and Shikoku in Japan).
4	16	20	Sicilian Bridge (connecting Sicily with Calabria in Italy).

3.10 CONSTRUCTION: TUNNELS

With the Industrial Age great tunnels can now be bored through the earth and under the sea. These tunnels carry railroads and have the effect of any other rail line for the purposes of control, trade and travel.

If you wish your undersea tunnel to carry more than one rail line then you have to build more tunnels...

Each tunnel also costs a number of City (generic) Industrial Capacity points (this includes the normal generic industry cost for a railroad segment).

Note that each Tunnel Project has a minimum Tech Level requirement.

Table 3-15. Tunnel Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
4	16	15	Bosporus Tunnel (connecting Thrace with Bithnia Europe/Asia Minor).
4	16	30	Channel Tunnel (connecting Sussex with Ponthieu).
3	15	20	Copenhagen Tunnel (connecting Denmark with Skane in northern Europe).
5	16	40	Gibraltar Tunnel (connecting Morocco with Andalusia).
4	16	25	Hokkaido-Honshu Tunnel (connecting Hokkaido and Akita in Japan).

3.11 CONSTRUCTION: SUBMARINE TELEGRAPH LINES

At TL13+ a Submarine Telegraph Line can be laid underwater connecting a pair of controlled port fortresses or

cities unless the line connects two nations. Each port fortress or city is a 'node'. A node can link any number of submarine telegraph lines and the network can allow redundancy to protect against any one line being cut, using either the 'same' or alternative routes.

Third-party Telegraph lines can be constructed by TL13+ Merchant Houses on behalf of nations that do not satisfy the Tech Level requirement as per third-part railroad construction (see section [3.4.4]).

The cable can stretch across a number of sea zones and open ocean hexes, where a sea zone requires one line point and an open ocean hex two. The maximum number of points between two nodes is:

$$\text{Maximum Length} = (\text{TL}-11) \times 8$$

Where each eight points or part thereof constitute a Base Level One project. The project is not complete until sufficient points have been laid to connect the two nodes. In addition to NFP and GP costs each Submarine Telegraph Line between two nodes requires ten points of Industrial Capacity per eight line points. The route taken by the line must be specified.

To lay a cable across open ocean hexes the nation must have completed the steamship project. The maximum number of open ocean hexes crossed by a line is also limited to double the maximum Range of the steam or diesel ships employed by the nation. By using nodes on islands considerable distances can be crossed.

A Submarine Telegraph Line can be cut by hostile action, but this requires the line to be located, requiring a successful Investigate in the target sea zone or open ocean hex and an Attack, both with negative bonuses being applied. It can also be cut by the capture or destruction of a node. To repair a damaged submarine line requires the entire line between two nodes to be reconstructed from scratch.

A Submarine Telegraph Line can be used for the following:

- To extend the Line of Control for tracing the Command Control Radius. See section [6.1.1].
- To provide a small bonus to the International Trade Value of two nations linked by a line.

3.12 CONSTRUCTION: AIRPORTS AND SPACEPORTS

3.12.1 Airport

Base Level One

This is a new type of port available only to Merchant Houses.

An Airport may be built at any city where the Merchant House has an ordinary status at Tributary or above; or a Branch Office or above as a Project. An Airport allows the Merchant House to base aerial MSP at the location. If the city is a Port city then the aerial MSP counts towards the total MSP based there. If the city is not a Port, then an Airport allows aerial MSP to be based inland.

The Project costs cover the building of the airport terminal, beacons, hangars, mooring masts for airships or runways for aeroplanes. It allows the Merchant House to gain more revenue by earning money from aerial trade routes.

3.12.2 Spaceport

Base Level Two

A Spaceport can only be built once the **R&D Project: Rocketry: Dual-Stage Rocket** has been completed. A Spaceport can be built at a city, fortress or in a region.

It represents the infrastructure required to launch larger rockets, consisting of command posts, fabrication buildings, fuel dumps, training facilities, launch pads, and gantries. If the Spaceport is not co-located with the necessary Rocket Factories then the rockets must be transported to the site either by rail or by ship.

3.12.3 Air Raid Shelters

Base Level One

Air Raid shelters provide some protection for a population against conventional strategic bombing (including rocket bombardment), and limited protection against nuclear attack.

They can only be built in Cities and Fortresses.

3.13 CONSTRUCTION: OPTIONAL MEGALITHIC CONSTRUCTS

Additional optional Megalithic Constructs are defined – but first ask your GM if they are in use in their campaign:

http://www.throneworld.com/wiki/index.php?title=Optional_Rules

3.14 NATIONAL TRANSFORMATION

Human society and political institutions are mutable. With the advent of the Modern Era new transformations in Government and Society become possible.

See the **Basic Rulebook** for the full costs per Level in GP, NFP and time to complete.

3.14.1 Changing Government Types

To change a government from one type to another can be as easy as declaring the change, even though it may incur internal rebellions and strife. For each of the possible changes listed below, there are certain conditions that must be met in every case before the change can occur. In all cases, every condition must be met to accomplish the transformation.

From Centralized Monarchy...

To... Dictatorship
Level None
TL Required Tech Level 8 or better.
Conditions After suffering a DF and/or civil war caused by religious, cultural, ethnic, social, or economic causes.

From Constitutional Monarchy...

To... Federalized Democracy
Level 2 (or see below)
TL Required Tech Level 10 or better.
Conditions A Constitutional Monarchy may evolve into a Federalized Democracy if the ConMon exceeds its BL and INFRA maximums. If the

process is forced (by undertaking a Transformation project) a Civil War check will be made when the project is complete.

From Dictatorship...

To... Constitutional Monarchy
Level 1.5
TL Required Tech Level 8 or better.
Conditions A Dynastic Failure check when all the expenditures have been completed. Note that if a DF occurs it is an automatic civil war with the parliamentarians against the old regime's corrupt supporters.

From Federalized Democracy

To... Imperial or Dictatorship
Level None.
TL Required Any.
Conditions If the nation suffers a Civil War and the King (President) assumes direct authority over the nation. (Alternatively, the GM could decide the new government is a Dictatorship)

To... Oligarchy
Level None.
TL Required Any.
Conditions If a Federalized Democracy suffers an economic collapse (due to bank failures or excessive over-taxation) an Oligarchy may result. A Civil War won by the non-governmental faction(s) may produce an Oligarchy.

From Imperial...

To... Dictatorship
Level None
TL Required Tech Level 8 or better.
Conditions A dynastic failure or civil war may spawn a Dictatorship if the Leader of the faction has a Charisma of 8 or better.

To... Constitutional Monarchy
Level None or 2.
TL Required Tech Level 8 or better.
Conditions If the nation had once been either a Constitutional Monarchy or a Democracy and a dynastic failure or civil war occurs; then one of the factions may be forced to adopt a Constitutional Monarchy to form a new regime or a successor state. Likewise, a nation with a tradition of democratic representation may attempt to move from Imperial to Const. Monarchy, but **only** if the current level of Government (BL and Infra) would be supported by a Const. Monarchy. Completion of the project then instigates a Civil War check.

From an Oligarchy...

To...	Federalized Democracy
Level	2 (tradition of democratic rule), 3 (no tradition of democratic rule).
TL Required	Tech Level 10 or better.
Conditions	Attempting to establish a Federalized Democracy from an Oligarchy will inspire Civil War checks upon starting the project and upon completion.

3.14.2 Changing Society Type

The Modern Era permits an additional change in Society Type.

From Clan...

To...	Open
Level	2
TL Required	Tech Level 8 or better.
Notes	Clan societies attempting to become Open will be afflicted with a Civil War check at the completion of the transform project.

4. RESEARCH AND DEVELOPMENT

The acquisition of a variety of technologies and unit types is controlled by Research and Development (R&D) projects. These are like National Projects, save their completion is not just a matter of men, gold and time.

Each R&D project is assigned a certain number of **Advances** which must be attained before the project is complete. Like increasing an AQR; gold, money and time are invested and each turn a die roll is made by the GM to assess progress.

Depending on the amounts invested, the difficulty of the project, the die roll and a host of modifying factors (your Nations' government type, economy, religious strength, imperial size and university level) you may gain one or two advances, make no progress, or even back up a step as the project encounters some dead-end or obstacle.

When a project is complete, you gain the ability to use the devised technology or unit type.

When starting an R&D Project you must also provide a project location (either a region or city under your control within the HBZ of your nation).

4.1.1 Pre-requisites

Note that some R&D Projects have pre-requisites which include not only a previously completed R&D project, a minimum Tech Level but also a certain number of completed Air/Ship/Submarine Yards or Factories.

As Projects start at the beginning of the turn, during Builds, all of the pre-reqs must have been completed the *previous* turn (or earlier).

4.1.2 Optional Projects and Optional Units

The R&D Project list includes a number of Projects that can be included or excluded from a campaign at the whim of the GM.

Similarly, not all units that could be built as a result of a Project are included in the base Unit Build Chart. These units are included in the Optional Build Chart (see Table 8-4) and can be included or excluded by the GM.

Optional units are identified *thus* in the following sections.

4.2 R&D PROJECT COST *and* EXECUTION

When starting an R&D project, you **must** invest *at least* 1 GP and 1 NFP. Thereafter, as each project gains an Advance, your GP investment is zeroed (as for a QR), but your NFP and Time investment remain. On a rough basis, your chances of gaining an Advance on a given turn are equal to:

$$\% = (\text{GP} + (\text{NFP} \times 5) + (\text{Number of Years Invested} \times 5)) / (\text{Total Advances} + 1)$$

Over the entire life of the project, you **must** invest at least as many NFP as the number of **Advances** required by the project. If your NFP investment is not sufficient to match the next Advance level, then you will not progress until you have provided sufficient manpower.

Once invested in a project, invested GP and NFP may **not** be withdrawn.

Example

The Pacific Mercenary and Trust Company is attempting to develop an improved *Ithaqua-Sanrio* kerosene engine (via the Internal Combustion Engine project). This project is a level 6 project. PM&T invests 300gp and 4 NFP into the project. The current turn length is 2 years per turn.

The first turn (assuming all supplementary modifiers cancel out), their chances of gaining an advance are $(300 + (4 \times 5) + (0 \times 5)) / 7 = 45\%$. If they are successful in gaining an Advance, the next turn they will start with 0 GP, 4 NFP and 2 years invested.

While only 4 NFP remain invested in the project, they cannot gain more than 4 Advances, so at some point they will have to commit another 2 NFP to the endeavor.

Note the project, with an Advance requirement of 6 will take (at optimum speed) at least three 2-year turns to complete and more likely six 2-year turns (or more, if the team runs into some obstacle delaying their progress.)

4.3 RESEARCH PROJECTS

The following list of research projects is not inclusive. Other projects may be proposed by the players and accepted by the GM (as the GM sees fit).

4.3.1 Admiralty

Tech Level Requirement	9
R&D Requirement	None
Advances Required	2

Completing the Admiralty project provides the Nation with one Naval Operations point and the capability to invest to gain additional levels. It represents the capability to co-ordinate and command naval assets.

When the Submersibles project has been completed then the Nation may also select to use Sub Ops.

4.3.2 Balloons (Optional)

Tech Level Requirement	10
R&D Requirement	None
Advances Required	2

Completing the Balloons project provides the Nation with the ability to construct Draken (d) units – hot air balloons. Each Draken represents one balloon and the carts needed to transport it, plus the crew.

Draken provide a scouting bonus and 'fight' using the Artillery AQR.

4.3.3 Steamships

Tech Level Requirement	11
R&D Requirement	None
Advances Required	5

Completion of this project provides the Nation with the ability to build Shipyard points, which then allow the construction of *Wooden Steamship* (**xsw**, **scw**, **st** and **gb**) units A Steam Transport unit represents two actual steamships whilst a warship unit represents one ship.

Note that gunboat (**gb**) units can be built at Dockyards instead of a Shipyard.

4.3.4 General Staff

Tech Level Requirement	12
R&D Requirement	None
Advances Required	2

Completing the General Staff project provides the Nation with one Army Operations point and the capability to invest to gain additional levels. It represents the officer cadre assigned to assist senior officers in planning military policy and enhancing the capability to co-ordinate and command land-based assets.

4.3.5 Ironclads

Tech Level Requirement	12
R&D Requirement	Steamships, a Shipyard
Advances Required	2

Completion of the Steam Cruiser project provides the Nation with the ability to build *Ironclad Steam Cruisers* (**sfw**) and *Ironclad Battleship* (**sw**) units. A Steam Cruiser or Battleship unit represents one steam-powered warship.

4.3.6 Battleships

Tech Level Requirement	12
R&D Requirement	Steam Cruiser, Three Shipyards
Advances Required	3

Completion of the Steam Battleship project provides the Nation with the ability to build *Steel Hulled Battleship* (**hsw**) units and (**mt**) transports.

A battleship unit represents one steam-powered warship, whilst a transport represents two ships.

4.3.7 Super-Heavy Artillery

Tech Level Requirement	12
R&D Requirement	None
Advances Required	4

Completion of the Super-Heavy Artillery project allows the Nation to build (**shg**) units. See the Industrial Build Chart starting on page 62 for costs. Super-Heavy Artillery can only be moved from region to region (or city to city) by sea (via cargo ship) or by Rail.

SHG units can be used in Siege situations (either on the attack or on the defense) and in protecting Port Cities from attack by hostile Fleets. They are not useful in open field battles. A Super-Heavy Artillery unit represents one enormous cannon.

4.3.8 The Analytical Engine

Tech Level Requirement	12
R&D Requirement	None

Advances Required	4
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Completion of the Analytical Engine project grants the Nation a bonus on other, subsequent R&D projects, as well as engendering an entire priesthood of pasty-faced monks devoted to the care, feeding and maintenance of the damnable things.

4.3.9 Naval Architecture

Tech Level Requirement	13
R&D Requirement	Battleships, Three Shipyards
Advances Required	4

Completion of the Naval Architecture project provides the Nation with the ability to build pre-modern capital ships (**bw**, **ac**, **pc**) and a pre-modern transport (**ms**). The capital ship units represents one steam-powered warship whilst the transport unit represents two vessels.

4.3.10 Internal Combustion Engine

Tech Level Requirement	13
R&D Requirement	None
Advances Required	6

Developing an economically feasible Internal Combustion Engine does not allow the Nation to immediately build any specific unit types, but it is the prerequisite for a whole series of new Projects, as detailed below:

4.3.11 Torpedoes

Tech Level Requirement	13
R&D Requirement	Internal Combustion Engine, Naval Architecture
Advances Required	2

Completing the Torpedoes Project allows a nation to build Torpedo Equipped Surface Ships (**tbd**, **xtb**).

Note that Torpedo Boats (**xtb**) units can be built at a Dockyard instead of a Shipyard.

4.3.12 Submersibles

Tech Level Requirement	13
R&D Requirement	Naval Architecture, Internal Combustion Engine, Torpedoes
Advances Required	3

Completion of this project provides the Nation with the ability to construct Submarine Yard points, which may then be used to build *Submersible* (**sub**) units. A Submersible unit represents two actual Submersibles. If the Admiralty Project has been completed then the Sub based Naval Ops become available for use.

4.3.13 Motorized Transport

Tech Level Requirement	13
R&D Requirement	Internal Combustion
Advances Required	3

Completion of the Motorized Transport project allows the Nation to build trucks to move their troops around. See the Industrial Build Chart (starting on page 62) for costs of *Motorized Infantry* (**ti**), *Engineers* (**ts**) and *Artillery* (**tfg, tsg**) units.

Motorized Units have half-again the AP per Year of non-Motorized units. Otherwise they operate as standard Infantry or Artillery.

Nations completing this project gain a **Mechanized** QR. All motorized, mechanized and AFV units fight using the Mechanized QR.

Note! All Motorized units are also *elite* units.

4.3.14 Flying Machines: Biplane

Tech Level Requirement	13
R&D Requirement	Internal Combustion Engine
Advances Required	3

Completion of this project allows the Nation to begin building Aircraft Factories, which in turn will allow them to build heavier-than-air *Fighter Aircraft* (**bf**), *Biplane Bomber* (**bib**) and *Biplane Cargo Plane* (**bit**) units (i.e. biplanes).

A Biplane Fighter or Cargo Plane unit represents ten aircraft, pilots and ground-crews. A Bomber unit represents five aircraft, pilots, and ground-crews.

If the nation does not already have the Aircraft QR then completion of this Project gains the nation an **Aircraft** Quality Rating which starts at one (1).

All units derived from the **Flying Machine** project and its descendants fight with the Aircraft QR.

4.3.15 Airships (Optional)

Tech Level Requirement	13
R&D Requirement	Internal Combustion Engine
Advances Required	2

Completion of this project provides the Nation with the ability to build *Scout Airship* (**zs**) and *Standard Airship* (**z**) units. An Airship unit represents two zeppelins.

If the nation does not already have the Aircraft QR then completion of this Project gains the nation an **Aircraft** Quality Rating which starts at one (1). All units derived from the **Airships** project and its descendants fight with the Aircraft QR.

4.3.16 Large Airships (Optional)

Tech Level Requirement	13
R&D Requirement	Airships, Four Airship Yards
Advances Required	3

Completion of this project provides the Nation with the ability to build *Transport Airship* (**zt**) and *Heavy Airship* (**zh**) units. A Transport Airship unit represents two zeppelins. A Heavy Airship unit represents two very large zeppelins.

4.3.17 Airship Carrier (Optional)

Tech Level Requirement	13
R&D Requirement	Naval Architecture, Airships, Six Shipyards
Advances Required	1

Steam Airship Carriers are only available if the Airship optional rule is in use.

Completion of the Steam Airship Carrier project provides the Nation with the ability to build *Steam Airship Carriers* (**acw**) units. A Steam Airship Carrier represents one massive steam-powered warship. A Steam Airship Carrier can carry and launch either two Scout Airships or one Standard Airship.

4.3.18 Air Command

Tech Level Requirement	14
R&D Requirement	Biplane Or Airships
Advances Required	2

Completing the Air Command project provides the Nation with one Air Operations point and the capability to invest in this to gain additional levels. It represents the capability to co-ordinate and command air assets.

4.3.19 Parachute Infantry

Tech Level Requirement	14
R&D Requirement	Biplane, 10 Aircraft Factories
Advances Required	2

Completing the Parachute Infantry project allows the Nation to begin building *Parachute Infantry* (**pi**) units, which fight as Elite Light Infantry (**xei**), but have the training, equipment and capability to be delivered by Cargo Planes to a target by air.

4.3.20 Improved Engines

Tech Level Requirement	14
R&D Requirement	Naval Architecture, Internal Combustion, 6 Shipyards
Advances Required	4

Completion of the Improved Engines (Diesel) project allows the nation to build modern merchant ship (**mm**) units and many subsequent projects.

Existing Steam-prefix units cannot be refitted for these advanced (Diesel) engines. Existing Shipyards, however, can now be used to build Diesel-type units.

Diesel-type units have improved operating range as well as combat capability over their Steam counterparts.

4.3.21 Modern Warships

Tech Level Requirement	14
R&D Requirement	Torpedoes, Improved Engines
Advances Required	4

Completion of the Modern Warships project provides the Nation with the ability to build modern surface combatants. Each Combatant (**bb**, **bc**, **ca**, **cl**, *cla*, **dd**, *de*, *ce*) ship unit represents one diesel-powered warship.

4.3.22 Aircraft Carrier

Tech Level Requirement	14
R&D Requirement	Modern Warships, Carrier Aircraft(*), Six Shipyards
Advances Required	1

The Aircraft Carrier project can be attempted concurrently with the development of Carrier Aircraft. Until both the Carrier Aircraft project and the Aircraft Carrier project are completed, however, neither is finished.

If the Nation already developed Airship Carriers as a ship type, then completion of the Improved Engines project provides for the construction of Aircraft Carriers. However, the Nation can't actually use them until the Carrier Aircraft project is completed.

Completion of the Aircraft Carrier project provides the Nation with the ability to build Carrier (**cv**, **cvl**, *cve*) units. At TL 15 the nation can build more advanced Carrier (*cab*, *cva*) units.

An Aircraft Carrier unit represents one warship.

The different types of modern Carrier can support different numbers of fighters and/or bomber units.

4.3.23 Flying Machines: Carrier Aircraft

Tech Level Requirement	14
R&D Requirement	Biplane, Aircraft Carrier(*), 5 Aircraft Factories
Advances Required	4

The Carrier Aircraft project can be attempted concurrently with the development of Aircraft Carriers. Until both projects are successful, however, neither is finished.

Completing the Carrier Aircraft project allows the Nation to begin building Carrier Aircraft variants of Biplane, Monoplane and Jet units when the relevant aviation project has been completed.

4.3.24 Submarines

Tech Level Requirement	14
R&D Requirement	Submersibles, Improved Engines, 3 Submarine Yards
Advances Required	2

Completion of this project provides the Nation with the ability to build *Submarine* (**ss**) units. Once this project is complete, work may begin the following turn on any project with Submarines as a pre-requisite. A Submarine unit represents two submarines.

4.3.25 Armored Fighting Vehicle: Landships

Tech Level Requirement	14
R&D Requirement	Motorized Transport
Advances Required	5

Completion of the AFV: Landships project provides the Nation with a Combat modifier bonus (unless their opponent has also completed the Landships project).

It allows the initiation of more advanced tank projects.

4.3.26 Armored Fighting Vehicle: Light Tank

Tech Level Requirement	14
R&D Requirement	AFV: Landship
Advances Required	4

Completion of this project allows the Nation to build *Light Tank* (**afx**) units the following turn. Unlike Landships, the Light Tank moves and fights as a regular combat unit.

A Light Tank unit represents five tracked vehicles (which may be either tanks or armored cars, actually) and their crews.

4.3.27 Monowing Aircraft

Following the development of Biplane Aircraft, the inevitable next step in airplane design are fixed mono-wing inline engine designs. These are represented by a new slate of R&D projects and the attendant aircraft unit types.

Project Name	Monoplane Light
Tech Level Requirement	15
R&D Requirement	Biplane, 4 Aircraft Factories
Advances Required	3
Resulting Unit Type	af, ab

Project Name	Monoplane Heavy
Tech Level Requirement	15
R&D Requirement	Monoplane Light, 10 Aircraft Factories
Advances Required	1
Resulting Unit Type	at, ahb

4.3.28 Mechanized Troops

Tech Level Requirement	15
R&D Requirement	AFV: Light Tank
Advances Required	3

Completion of this project allows the Nation to build Mechanized versions of Infantry (**mi**), Engineers (**ms**) and Artillery (*mfg*) - see the Industrial Build Chart starting on page 62.

Mechanized Infantry and Artillery have twice the AP of their base unit types, and include integrated armor (tank,

armored car, self-propelled artillery) elements. This substantially increases their combat capability.

4.3.29 Armored Fighting Vehicle: Medium Tank

Tech Level Requirement	15
R&D Requirement	AFV: Light Tank
Advances Required	4

Completion of this project allows the Nation to build *Medium Tank (afv)* and Mechanized Siege Artillery (*msg*) units the following turn. Like the Light Tank unit, Medium Tanks move and fight as regular combat units.

A Medium Tank unit represents five tanks, their crews and supporting fuel trucks, etc.

A Mechanized Siege Artillery unit represents five self-propelled guns or tank destroyers, their crews and support.

4.3.30 Amphibious Warfare Vessels

Tech Level Requirement	15
R&D Requirement	Improved Engines, AFV: Light Tank
Advances Required	3

Completion of this project allows the Nation to build Attack Cargo Ships (*vka*) and Amphibious Assault Ships (*vph*). Unlike ordinary transports these vessels are built for combat support and have the benefit of reducing the AP required to land troops, vehicles and artillery to one AP regardless of the availability of port facilities at a city or on a coastline. Amphibious Warfare Vessels also provide a bonus to combat when conducting an *Amphibious Assault* action if all of the ships used to land troops and materiel are of this class.

These vessels count as transports – troops carried aboard cannot fight as Marines with the exception of *Airmobile Infantry* carried on an *vph*.

An Amphibious Warfare Vessel represents one warship plus a number of Landing Craft Personnel/Landing Craft Mechanized and their crews.

4.3.31 Armored Fighting Vehicle: Heavy Tank

Tech Level Requirement	15
R&D Requirement	AFV: Medium Tank
Advances Required	3

Completing the AFV: Heavy Tank project allows the Nation to begin building *Heavy Tank (afh)* units the following turn. Each Heavy Tank unit represents five tanks, crews and support personnel.

4.3.32 Rocketry: Single-Stage Rocket

Tech Level Requirement	15
R&D Requirement	None
Advances Required	6

Completing the Rocketry: Single-Stage Rocket project allows the Nation to build Rocket Factories and then the *Single-Stage Rocket (ssr)* units. These are early long-range

rockets with a minimum and maximum range. The turn after the Rocketry project has been completed, the Nation may begin research into more advanced (and more useful) varieties of rocket.

Rocket units cannot move between provinces, save by Sea (carried in cargo ships) or by Rail. A rocket is useless in a battle or a normal siege. When launched the rocket units are automatically destroyed.

This type of rocket cannot carry a large enough payload to deliver a nuclear device to its target.

Completion of this Project gains the nation a **Rocketry** Quality Rating which starts at one (1). All units derived from the **Single-Stage Rocket** project and its descendants fight with the Rocketry QR.

A rocket unit represents two rockets.

4.3.33 Radio

Tech Level Requirement	15
R&D Requirement	Internal Combustion Engine
Advances Required	3

Completing the Radio project gives your aircraft, ground troops and warships a combat and scouting bonus. It also leads, inevitably, to Elvis and the corruption of the youth of your nation.

4.3.34 Radar

Tech Level Requirement	15
R&D Requirement	Radio
Advances Required	5

Completing the Radar project gives your aircraft and warships a combat and scouting bonus.

4.3.35 Sonar

Tech Level Requirement	15
R&D Requirement	Radio
Advances Required	5

Completing the Sonar project gives your warships and submarines a combat and scouting bonus.

4.3.36 Armored Fighting Vehicle: Battle Tank

Tech Level Requirement	16
R&D Requirement	AFV: Heavy Tank
Advances Required	3

Completing the AFV: Battle Tank project allows the Nation to begin building *Battle Tank (afb)* units the following turn. Then there will be some smacky action! Each Battle Tank unit represents five really big tanks, crews and support personnel.

4.3.37 Jet Aircraft

Following the development of Monowing (prop) Aircraft, the inevitable next step in airplane design are jet

turbine-based designs. These are represented by a new slate of R&D projects and the attendant aircraft unit types.

Project Name	Jet Light
Tech Level Requirement	16
R&D Requirement	Monoplane Light, 20 Aircraft Factories
Advances Required	5
Resulting Unit Type	jf, jb

Project Name	Jet Heavy
Tech Level Requirement	16
R&D Requirement	Jet Light, 20 Aircraft Factories
Advances Required	1
Resulting Unit Type	jt, jhb

4.3.38 Helicopters

Tech Level Requirement	16
R&D Requirement	Monoplane Light, 10 Aircraft Factories
Advances Required	5

Completing the Flying Machines: Helicopters project allows the nation to begin building *Airmobile Infantry* units (**ami**). Note that Airmobile Infantry require **both** Intrinsic Yard and Aircraft Factory capacity points to build. This project subsumes both cargo and attack helicopters into one new unit type.

Airmobile Infantry fight with the Mechanized QR.

4.3.39 Rocketry: Dual-Stage Rocket

Tech Level Requirement	16
R&D Requirement	Single-Stage Rocket, 5 Rocket Factories, Radio
Advances Required	5

Completing the Rocketry: Dual-Stage Rocket project allows the Nation to build *Dual-Stage Rocket* (**dsr**) units and build a Spaceport to launch them from. The rocket consists either of two stages or a central core with a number of strap-on boosters. These early rockets require a Spaceport to launch from – anyone wanting intercontinental missiles launched from silos or submarines will have to wait on future projects.

These rockets carry a conventional warhead unless a nuclear device is made available. One unit represents one rocket.

4.3.40 Rocketry: Manned Capsule

Tech Level Requirement	16
R&D Requirement	Dual Stage Rocket, 10 Rocket Factories, Spaceport
Advances Required	2

Completing the Rocketry: Manned Capsule project allows the Nation to build a low orbit *manned space craft* (**smr**) unit. This consists of a one-man capsule up on top of a slim metal tube full of explosive propellant. Spaceflight!

Whilst this project causes all others to quail at your technological prowess (if the astronaut survives) it provides no other benefits. In time it may lead to other exciting things... Each unit represents a single-use rocket which must be launched from a Spaceport.

4.3.41 Rocketry: Rocketplane

Tech Level Requirement	16
R&D Requirement	Single-Stage Rocket, Jet Heavy, 5 Rocket Factories, 16 Aircraft Factories, Radio
Advances Required	6

Completing the Rocketry: Rocketplane project allows the Nation to build *Rocketplane* (**rpr**) units. This primitive spaceplane consists of a rocket-powered vehicle launched from under the wing of a Jet Heavy Bomber just capable of touching the edge of space. It therefore does not require a Spaceport and can be launched from and land at the same Air Base. The rocketplane cannot carry any cargo or a warhead. A rocketplane unit consists of a modified jet heavy bomber, the rocketplane itself plus the pilot and groundcrew. Unlike other rockets of this Tech Level the rocketplane can be reused.

The rocketplane is capable of flying great distances at high altitude and uses Table 5-14. Large Hex Map for Rockets. As the rocketplane carries cameras it confers a scouting bonus relating to the areas it overflies.

Completion of the project allows the initiation of more advanced spaceplane projects.

4.3.42 Nuclear: Theoretical Nuclear Physics

Tech Level Requirement	16
R&D Requirement	None
Advances Required	8

Completion of the Theoretical Nuclear Physics project Project gains the nation a **Nuclear** Quality Rating which starts at one (1). All units derived from the **Theoretical Nuclear Physics** project and its descendants fight with the Nuclear QR.

Completion of this project allows the building of Nuclear Production Factories.

4.3.43 Nuclear: Atomic Bomb

Tech Level Requirement	16
R&D Requirement	Theoretical Nuclear Physics, 5 Nuclear Production Factories
Advances Required	6

Completing the Nuclear: Atomic Bomb project allows the nation to begin building Atom Bomb units.

This unit represents one large and heavy fission bomb. Future projects will bring lighter, less expensive nuclear weapons with a greater yield.

An Atomic Bomb can only be moved by heavy bomber, rail or ship. It can be deployed by heavy bomber, ship or by dual-stage rocket as a warhead.

4.4 PROJECT RECRUITMENT

“Specialized” NFP may be acquired by the various kinds of Nations for National Projects (roads, railroads, research and development, mercantile colonies, etc.) through recruitment if they are Industrialized (TL12 and above). The NFP acquired by this process may **not** be used for the construction of cities, troops, fortresses (including field forts) or fleets.

Recruitment is handled by spending blocks of 25 GP and designating a specific project for the recruited NFP. Each 25 GP gains the project 0-5 (1d6-1) NFP.

Only Merchant Houses can use Project Recruitment for regional colonization (via the Merchant Colony project).

Project Recruitment cannot be attempted in the same turn as over-spending NFP. If an Open Nation controls (at Friendly or Homeland status) the ‘home’ site of an Merchant House, Religious Order or Religious Primacy - and the Open Nation over-spends NFP, then any Project Recruitment attempts undertaken by the House, Order or Primacy in that same turn will fail.

4.5 TECHNICAL ASSISTANCE

A Nation which already possesses the ability to build a unit type (having already completed their own R&D project) may provide help to another nation attempting to gain the capability by providing *Technical Assistance*.

One (1) NFP may be contributed by the assisting Nation to the recipient Nation’s project. In addition to satisfying part (or perhaps all) of the NFP requirements for the project, the assistance so rendered reduces the number of Advances required for the project by one (1).

The NFP representing the technicians must be moved by one of the lending Nation’s Leaders to the project site and then invested in the project.

Conversely, *capturing* one or more Factory points already capable of building a specific kind of unit produces Technical Assistance NFP equal to (# Factories or Yards divided by two, rounded down), which may then be used to jump-start one’s own R&D Projects. This action destroys the Factory points as they are disassembled and studied.

4.6 OVERREACHING

A Nation that is only one Tech Level short of a Project’s requirements (a TL 11 nation, for example, who wishes to embark on a TL 12 project), may do so if they acquire one or more examples of the item to be duplicated (or Technical Assistance NFP).

The number of Advances required for an Overreach R&D Project is increased by two (2) (which may then be reduced by one (1) by the investment of Technical Assistance NFP).

4.7 ENGINEERS

Industrial Nations (TL 12 and better) may use Siege Engineer units (henceforth referred to as Engineers) to assist with **Construction** Projects such as:

Railroads, Royal or Postal Roads, Factory or Yard Construction, Canals, Great Walls, Monoliths or Religious Monuments, Cultivation and Intensive Cultivation and Bridges.

They may not be used to build Wall points, Cities or Fortresses.

Each Engineer unit assigned to a project for an *entire turn* (which means no moving about, no fighting, no sieges, etc.) will add (1-4) NFP to the investment tracked for the project.

Engineers built in a given turn may be used in that *same* turn on Construction Projects in the city where they were built or in the surrounding region. When working on a railroad, the Engineer units automatically follow the surveyed route and so do not have to build – move – build.

Engineer units are not useful for Research and Development projects.

5. LEADERS AND ARMY ACTIONS

5.1 COMBAT IN THE MODERN ERA

The Renaissance introduces artillery to warfare on land and sea; the Industrial Era introduces new technologies harnessing steam power and the internal combustion engine together with the application and exploitation of new designs, materials and capabilities.

The new Modern Era Quality Ratings cover the broad types of war-fighting applications: Artillery, Aircraft, Mechanized, Rocket and Nuclear. The Warship QR is replaced by the Naval QR to cover both surface and subsurface capabilities.

Whilst a QR provides a measure of the level of the quality of your military, within these QR classes Research & Development provides major advances in engineering, design and manufacture. These not only lead to significant new means of waging war (such as torpedoes or aircraft) but major steps in offensive and defensive capability. For instance, an Ironclad warship *will* routinely defeat Ships of the Line because of its maneuverability, the caliber and range of its guns, its armor and its structural strength; a Pre-modern warship *will* routinely defeat an Ironclad.

From TL14 on, Industrial Age city sieges and assaults are particularly devastating.

The Industrial Age enhances or adds new capabilities:

- Scouting. Previously an attribute only of light cavalry, in the Modern Age aviation, fast boats and helicopters can all perform scouting. In combat, the force with the greater number of scouting points enjoys tactical initiative.
- Ranged. Artillery improves until gunnery ranges exceed previous combat ranges. Ranged weapons have the ability to strike the enemy at long-distance.
- Armor. Ships and mechanized vehicles can carry armor and are designed to withstand damage to counter the increasing firepower of artillery, torpedoes and bombs.
- Torpedoes. An R&D Project introduces the ability for some surface vessels and submarines to perform a torpedo attack; if successful they will inflict serious damage upon enemy capital ships. Smaller vessels can attempt to screen these high value units.

These factors will have an impact in combat on land, at sea and in the air.

5.2 REVISED ACTION CAPACITIES

Just like nations during the Middle Ages period, the various kinds of Nations in the Post Medieval period have base Action capacities, based on their culture type. An exception to this are Warship and Transport units, which now calculate their Base Actions per Year from the Navigation Rating of their Nation.

Note that the previous (24-impulse) Action Chart has been replaced by new 48-impulse and 60AP Action Charts. See Table 8-12, which can be found on page 69, Table 8-13, which can be found on page 70 and Table 8-14 on page 71.

Table 5-1. Months Per Year Available For Actions

Culture	# of Months
Civilized	6
Seafaring	7
Barbarian	8
Nomadic	8
Pre-Columbian	5
Renaissance Land Units	8
Renaissance Ships	See build chart
Industrial One non-Steam Ships	See build chart
Industrial One Steamships	See build chart
Industrial One Land Units	9
Industrial Two Land Units	10

Table 5-2. Unit Type Modifiers

Unit Type	Modifier
Leader	+2
Cavalry	+1
Infantry	+0
Siege	+0
Artillery	-1
Tribe Points	-1

Table 5-3. Equipment Type Modifiers

Equipment	Modifier
Heavy	-1
Medium	+0
Light	+1

Table 5-4. Unit Training Modifiers

Training	Modifier
Elite	+1
Regular	+0
Inexperienced	-1

Table 5-5. Leader Combat Rating Modifiers

Combat Leadership	Modifier
1 – 4	-1
5 – 8	+0
9 – 11	+1

The Unit Training Modifier does not apply to Leaders moving by themselves. If, however, they are moving with a unit type that has a greater Action capacity than they do they acquire the Action capacity of the unit *only while* they act in tandem with it.

The modifiers for Equipment and Training apply to ship units, as well as land units.

The Leader's Combat rating does not affect *his own* Action capability, but that of land units he is commanding instead. If he is commanding ships then his Combat Rating may boost the Action Capacity of the ships and thence his own capabilities. Kind of makes the head spin, don't it?

Example

Lord Captain Jehanli Drake, commanding the Marôcain pirate fleet in the Caribbean, is a L97A Leader and he commands a fleet of twelve 1st Rank Ships of the Line. The Marôcain Navigation rating is currently two (2). Drake's fleet gets 18 AP base (for those first-raters), plus two for the Navigation rating, plus one for Drake being a swell guy, = 21 actions per year. Quite enough to raise the very devil

on the coast of Azteca and fill the Marôcain coffers with heavy red gold and their decks with coffles of slaves...

Table 5-6. Regional Terrain Action Modifiers

Culture Type	Regional Terrain Type					
	c/c2/i	w	m	d/s	t	j
Civilized	+0	+1	+2	+1	+2	+2
Seafaring	+0	+1	+2	+2	+2	+2
Barbarian	+0	+0	+1	+1	+1	+1
Nomadic	+0	+1	+2	+0	+2	+2
pre-Columbian	+0	+0	+1	+1	+1	+0
Renaissance	+0	+0	+1	+1	+2	+1
Industrial 1/2	+0	+0	+1	+1	+2	+1

5.3 MODIFIED ACTION CODES

The following actions are modified in the Modern Era.

5.3.1 Amphibious Assault

Code **APH**

BAC 1 per Combat Roll

Stat Combat

Results An Amphibious Assault is used by an army debarking from a fleet into an uncontrolled *region*. This cost and combat rolls are required *before* the AP cost to actually enter the region itself. One combat roll is made against the sea and one against any opposing forces. A failed combat roll (even if unopposed!) forces the army to return to the fleet and the fleet to return to the nearest controlled port.

If the region is defended by Field Forts there is an additional +1 AP cost to the initial attack order.

If the attacker fails to make land or is driven from the beaches back into the sea, losses in men and equipment can be severe. A failed Amphibious Assault results in the fleet attempting to return to the nearest friendly port.

As an optional rule, in the Modern Era warships (Ironclads and better) can provide covering fire to the landing forces when they hit the beaches in the second Combat roll.

If the entire force is being landed from Amphibious Assault Ships this reduces the AP required to land troops, vehicles and artillery to one AP regardless of the availability of port facilities. It also provides a bonus to the first round of combat to get the troops ashore.

5.3.2 Explore

Code **EX**

BAC 3+ AP

Stat Charisma

Results The *Explore* action is used by a Leader and (*optionally*) some ship units to attempt to chart the currents, reefs, shoals and waterways of a given:

- ◆ Unknown or Hostile Sea Zone
- ◆ Inter-Island Arrow
- ◆ Open Ocean Arrow
- ◆ Ocean Hex
- ◆ River Section

Dependent on the wit of the Leader (as represented by his Charisma rating) and the current Navigation Rating of the nation in question, the fleet may accrue Mapping points.

Each Sea Zone, Inter-Island Arrow, Open Ocean Arrow, Ocean Hex and River Section has a Mapping requirement that varies between one (1) and fifteen (15). Each successful Explore action attempt gains 1 Mapping point. When the requirement has been satisfied, the Sea Zone is considered 'known' to that nation. Other nations must still map it, if they are to gain 'known' status.

Once charted, ships in the possession of these charts (historically called 'rutters') can navigate across explored Sea Zones, Rivers and Arrows without undue risk. However, Hostile Sea Zones still cost the same number of Action Points to cross (there's just less chance of the units being lost in doing so). Open Ocean Arrows are relatively easy to explore, while Hostile Sea Zones will still be difficult to map successfully. Regardless of whether the action succeeds or fails, some of the ships may be lost due to storms, wrecks and / or mutinies. When assessing losses, a Leader counts as **one** ship unit. If there is more than one ship unit present then the Leader will be taken **last** in assessing losses.

An exploring open-nation Leader is still within the Command Control Radius if it can be traced from the capital to their location, even if only by one-way arrows. Primacy, Religious Order, Secret Empire and Merchant House leaders can leave the Control Web without penalty. However, if any exploring leader creates a control status not traceable via the CCR/ effective Control Web then they are liable to revolt. Secretive exploration can be performed utilizing Evade (or Secret Movement if the Leader is exploring on their own) doubling the AP cost for Explore.

5.3.3 Blockade Port

Code **B**

BAC All

Stat Combat

Results The Blockade action is used by a fleet against a Port City, a Port Fortress, a regional section of coastline or a river mouth. The fleet must be performing this action for the entire turn or until any supported siege is resolved.

A Blockade must be enforced by warships based at a Port City or Fortress no less than N seasons from the target port or coastline, where N is the Navigation Rating of the Blockader in the Modern Era. If N = 1 then this is the same season as the target port city or region. (Note that steam and diesel powered ships are also subject to their normal operating range.)

The number of warship units required to enforce the blockade is equal to the GPv of the Port City and twice the GPv for a region, and half of the combined GPv of the two coastal regions either side for a river mouth. A Port Area or a standalone Port Fortress counts as a 1 GPv city for the purposes of blockade.

At the end of the turn the blockading warships automatically return to their base port. The blockade may be broken by a war fleet (and/or Super Heavy Artillery) on Defend or React based at the Port City or Fortress (or a war fleet based at the Port Fortress in the region being blockaded) attempting to break out, or a war fleet attempting to break in. The blockading fleet will fight with only 75% of its strength, emulating the rotation of ships on and off the blockade during the course of a year. When successfully used against a City, it prevents any Inter-National or Inter-City trade from being traced by sea from that City. In conjunction with a Siege it closes the City or Fortress off, allowing the possibility of a Starvation "attack" to be used on a Port City. A coastline or river mouth that is Blockaded is similarly closed off. No International Trade or Inter-City Trade can be traced through such a coastline or river.

5.3.4 Modify Troops (Optional)

Code

MT

BAC

8 Leader Actions

Stat

Charisma

Results

This action allows a nation to change the composition of a given mobile land unit (Cavalry, Infantry, Siege Engineers, Artillery, Motorized, Mechanized) to another mobile land unit type, class (Light, Medium, Heavy) and training level (Inexperienced, Regular, Elite), but only where the new unit is available in the Culture Build Chart (see Section [8.6]). Any excess cost difference in GP, NFP and/or Industrial Capacity must be paid for by the nation in full - note that building Parachute and Airmobile Infantry also requires the use of Aircraft Factories. Units may also be modified to a cheaper version, but no refund is given. Units must be modified on a one-to-one basis.

Ships, Submarines, Wall Points, Field Forts, Airships, Aircraft, Rockets and Nuclear Weapons cannot be modified by this Action and must be disbanded and rebuilt (requiring the use of the relevant Yard and Factory Capacity). Parachute and Airmobile Infantry can be modified by this action.

This action must take place in a Friendly city within the Homeland Build Zone and must be executed by a national leader (King, Heir, Prince, or Lieutenant). Full Allies and Feudal Allies may upgrade their own troops as well, but only if they have a Friendly city in their allied region. The Ally must be the one undertaking the action, but may be supported by other national leaders.

Units undergoing MT that are attacked during the process fight as units of their previous type; the action is aborted and must be attempted again. Resources attributed to the aborted action are returned (GP and NFP only; Industrial Capacity, Yard and Factory Capacity cannot be carried over from one turn to the next).

Example: The Industrial Two Duchy of Saxony, after withstanding the siege of Berlin, seeks to take the fight to her enemy. Twenty Siege Engineers (20s) are modified to

Twenty Airmobile Infantry (20ami). The Engineers originally cost Saxony 80 GP, 20 NFP and 40 Industrial Capacity. The new helicopters cost a total of 300 GP, 40 NFP, 60 Industrial Capacity and 40 Aircraft Factories. Saxony must pay the difference of 220 GP, 20 NFP, 20 Industrial Capacity and 40 Aircraft Factories during the action.

5.3.5 Reaction

Code

R

BAC

Land: 2+, Sea: 4+

Stat

Combat

Results

In Industrial One and Industrial Two, Naval Reaction is still limited to the sea zone or zones adjacent to the base port (or the Open Ocean Hex if the fleet is based on an island port). Naval Reaction becomes more effective with the enhanced Scouting Factor (representing shipboard aviation - see Table 8-7. Ship Unit Capabilities) and if ships are equipped with radio and radar.

5.4 NEW ACTION CODES

The following actions are available only to Renaissance culture Nations.

5.4.1 Nationalize Monopoly

Code

NM

BAC

6 King AP

Stat

Diplomacy

Results

The *Nationalize Monopoly* action is used by a Nation when it has had quite enough of the leeching effects of a Mercantile Combine monopoly on its Trade Revenue. It requires the King to spend about a year of time kicking all of the toadying minions of the Combine out of the country and attempting to restore normal economic relations within his nation. Unfortunately the usual result of such an action is to depress the economy and ruin whatever industry or resource the Combine was exploiting — reducing the Tax Rate...

5.5 ARMY, AIRCRAFT, NAVAL, ROCKETRY AND NUCLEAR OPERATIONS

The completion of the **Admiralty** Project provides the Nation with one Naval Operations point. Like Intel and Religious Operations the Nation can invest in this AQR as in any other to gain additional Nav Ops up to the value of their Tech Level. Until the **Submersibles** Project is completed only Surface Operations can be performed. Once Submersibles can be built the Naval Ops can be used for Sub Operations as well.

The completion of the **General Staff** Project provides the Nation with one Army Operations point. The Nation can invest in this AQR as in any other to gain additional Army Ops up to their Tech Level.

The completion of the **Air Command** Project provides the Nation with one Aircraft Operations point. The Nation can invest in this AQR as in any other to gain additional Air Ops up to the Tech Level.

Table 5-7. Operation Leader Types

Type	Description
N	Admiralty - Naval Ops Leader
W	Wing Commander - Air Ops Leader
G	General Staff - Army Ops Leader

Each Operations point generates a special type of Combat Leader. These Leaders possess only Combat and Charisma stats in the range 1-8 and cannot be used for any tasks other than the relevant Operations. A General Staff Leader cannot be used for Aircraft Ops or vice versa with the exception that an Admiralty Leader commanding a fleet including airship or aircraft carriers can use their air assets for fleet-based operations. These Operation Leaders do not count towards the total of National Leaders.

A Combat Leader should be given a designation, for instance *Army Group West*, *North Sea Fleet* or *1st Air Wing* or a name, and based in a particular location. These Combat Leaders will age and die like any other Leader.

An Army or Air Combat Leader can command rocket units and perform rocket operations.

A Combat Leader can optionally be promoted to full Leader status on the turn that a new national Lieutenant is generated by a BL increase, in place of that new Lieutenant. However, during that turn they cannot fight or engage in any missions whilst they travel to the Homeland, and the new Lieutenant they replace cannot be used in any way.

5.5.1 Army Operations

An Army Operations Combat Leader allows a group of land based units at a given **Army Base** to perform an Army Mission during the turn, without the intervention or assistance of a standard Leader.

A regular Leader, however, may take direct control of the units (attaching them to his army) and conduct Leader missions as well.

A Nation's land based units at a specific Base are called an 'Army'. An Army may undertake multiple missions during a turn, as resources (Combat Leader or Leaders) allow.

An army (composed of infantry, artillery, cavalry, engineers, and motorized and mechanized units) employs the lowest Operations Range of any asset within the Army.

Army units tasked to an Action via an Army Operations Combat Leader can only conduct **one (1) mission per turn**. Land based units being commanded by a Leader, however, can conduct as many missions in a turn as the Leader has AP to pay for.

5.5.1.1 Army Bases

Armies have to operate from a *base* and can only engage in Actions (missions) within their Operations *Range* of the base.

Armies can be based at an unbesieged, unblockaded City or Fortress controlled at Tributary or better, which is able to trace a Line of Communication back to the national Capital.

Armies at an isolated City or Fortress cannot undertake any Army Operations (with or without a Leader).

The operational Range of a given Army is determined by the following table.

Table 5-8. Army Operations Ranges

Tech	Infantry and Engineers	Cavalry	Artillery	Motorized And Mechanized
12	3	4	3	5
13	4	5	4	6
14	4	5	4	7
15	4	5	4	7
16	4	5	4	9

Each Operations Range point equals one Action Point; modified by normal movement costs.

Motorized and Mechanized includes Motorized and Mechanized infantry, engineers and artillery, and tanks have a Range of one (1).

5.5.2 Army Missions

The following missions can be attempted by Army units being commanded by a General Staff Leader.

5.5.2.1 Army Rebasing (ARB)

Rebasing Armies can relocate to another Base (which must meet the Base criteria listed above) by moving up to twice their Operations Range in AP, subject to normal movement costs.

5.5.2.2 Army Defend Base (ADB)

The Defend action will keep an Army alert and prepared for an attack (even if it doesn't occur). An army that is using the Defend action will receive a favorable modifier in combat if it is attacked. This is the default condition of any Army Op.

5.5.2.3 Army Defend Region, Prepared (ADP)

The Army will defend the Region where its base is situated. The Defend action will keep an Army alert and prepared for an attack (even if it doesn't occur). An army that is using the Defend action will receive a favorable modifier in combat if it is attacked.

If there are Siege Engineer units with the army, then the defending force gets an additional positive modifier in any combat.

5.5.2.4 Army Defend Region, Directed (ADD)

The Army will defend the Region where its base is situated from attack against the specified border.

If the army elects to defend against an attack from a specific regional border, they receive a further bonus against attacks coming from that specific direction. This is a directed defense. Attacks entering the province from any other direction obviate any Defense bonus.

5.5.2.5 Staff Officer – React (ASR)

A single Army Op is tasked to support a regular Leader on React, increasing the Army's React Range by one AP. No more than one Army Op can be effective in supporting a Leader on React.

5.5.2.6 Staff Officer – Assistance (ASA)

A single Army Op is tasked to support a regular Leader for the duration of the turn, moving with them, increasing that Leader's Combat Rating by one (1). In the event of the Leader's death the Staff Officer will take over their command, in the absence of another Leader to complete any outstanding

Actions – but only those utilizing the Combat Rating; any Diplomacy- or Charisma-based actions will not be performed. The Army will end the turn at a suitable Army Base.

5.5.3 Naval - Surface Operations

Surface units can attempt Actions either by being commanded by a Leader, or through the use of an Admiralty Leader provided by a Naval Operations point.

Ships under the control of a Leader act as regular Fleet units.

Surface Missions (actions) implemented through the use of a Naval Operations point are performed using the Combat rating of the Admiralty Leader, with the exception of Explore, which uses Charisma.

Surface units tasked to an Action via a Naval Operations point can only conduct **one (1) mission per turn**. Ships being commanded by a Leader, however, can conduct as many missions in a turn as the Leader has AP to pay for.

A Nation's ship units at a specific Base are called a Fleet.

A Fleet composed of surface and/or submarine units employs the lowest Operations Range of any asset within the Fleet. If the surface fleet consists of a mixture of technology levels (Sailing Ships/Steamship/Ironclad/Pre-modern /Modern employs the lowest Operations Range of any asset within the Fleet.

5.5.3.1 Fleet Bases

Fleets have to operate from a *base* and can only engage in Actions (missions) within their Operations *Range* of the base.

Fleets can be based at an unbesieged, unblockaded Port City or Port Fortress controlled at Tributary or better, which is able to trace a Line of Communication back to the national capital. Fleets at an isolated Port City or Port Fortress cannot undertake any Naval Operations (with or without a Leader) with the exception of Exploration.

The Operational Range of a given Fleet comprised of Surface units is determined by the following table.

Table 5-9. Warship Operations Ranges

Tech	Sailing Ships	Steam Ships, Ironclads and Premodern	Modern
9	3 + Nav	-	-
10	4 + Nav		
11	4 + Nav	1	-
12	4 + Nav	2	-
13	4 + Nav	3	-
14	4 + Nav	3	6
15	4 + Nav	3	9
16	4 + Nav	3	12

Each Operations Range point equals one Sea Zone or Hex. Sailing ships cannot enter Sea Hexes.

5.5.4 Surface Missions

The following missions can be attempted by Surface units being deployed by a Naval Operations Combat Leader.

5.5.4.1 Rebasing (WRB)

Rebasing Fleets can relocate to another Base (which must meet the Base criteria listed above) by moving up to **twice** their Operations Range in Sea Zones or Hexes.

5.5.4.2 Merchant Raiding (WMR)

A Fleet can be directed to raid merchant shipping (MSP) in a given Sea Zone or Hex within their Operations Range. This is equivalent to the Leader based **Piracy** action.

5.5.4.3 Commerce Protection (WMR)

A Fleet can be directed to protect merchant shipping (MSP) in a given Sea Zone or Hex within their Operations Range.

5.5.4.4 Blockade (WBP)

A Fleet is assigned to blockade either a Port City or a region of coastline within the smaller of its Navigation Rating or Operations Range. This is equivalent to the Leader-based **Blockade Port** action, see Section [5.3.3].

5.5.4.5 Explore (WEX)

This action allows a Naval Ops Leader to perform the Explore action (see Section [5.3.2]) so that a valuable national leader does not have to risk the perils of the unknown.

Exploration commences at a Fleet Base, but may end the turn at an unexplored coastline or uncontrolled port. Inevitably, this may result in attrition and onwards movement is limited by the Warship Operations Range of the Fleet. Until it returns to a Fleet Base the Fleet can only continue to Explore in subsequent turns, unless a National Leader assumes control.

5.5.4.6 Patrol (WPL)

Regular Leader AP cost is at least 5 AP.

Surface units on patrol are assigned to assert 'control of the sea' to defend a specific Sea Zone or Hex within their Operational Range against hostile attack or presence. Any fleets within the Sea Zone or Hex (including armies on islands) are protected by this action. While sailable (undestroyed, undamaged) units remain attached to the mission, they can defend against multiple attacks.

5.5.4.7 Gunboat Diplomacy (WGD)

A Fleet can be directed to 'show the flag' parading their naval force to intimidate, coerce or demonstrate good will at a region or port city within their Operations Range. This action attempts to aid a Leader performing a diplomacy action. Note that the Admiralty Leader himself cannot perform Diplomacy.

5.5.4.8 Naval Bombardment (WTB)

Regular Leader AP cost is 5 AP plus the AP to reach the objective.

Warships with a **Siege** rating of one (1) or more may be directed to attack existing facilities (Dockyards, Airship Yards, Submarine Yards, Industry, Shipyards) or projects (Railroad lines, Bridges, Pyramids, etc.) in a coastal Region or port city within their Operational Range. Damage is done in terms of GP/NFP/Time required to repair the damage, if the facility is not destroyed outright.

This mission can also be performed in support of amphibious assaults.

5.5.4.9 Naval Transport (WNT)

Fleets including transports can deliver other units to or from a controlled city or fortress within their Operational Range. The Fleet must include sufficient cargo capacity on transport ships to carry the other units.

Fleets can only deliver units to controlled port cities and fortresses.

Note that this is not an assault action and the order includes the time for troops to embark and disembark. The units being transported cannot fight as they are crammed into cargo holds.

This Naval Operations Combat Leader Action will deliver the units Operations Range + Navigation AP after their arrival at the port of embarkation.

5.5.5 Naval - Sub Operations

Submersible (sub) and Submarine (ss) units can attempt Actions either by being commanded by a Leader, or through the use of a Naval Operations Combat Leader.

Subs under the control of a Leader act as regular Fleet units, though they can still execute a Torpedo Attack during Fleet vs. Fleet combat.

Sub Missions (actions) implemented through the use of a Naval Operations point are performed using the Combat rating of the Combat Leader.

Sub units tasked to an Action via a Naval Operations point can only conduct **one (1) mission per turn**. Ships being commanded by a Leader, however, can conduct as many missions in a turn as the Leader has AP to pay for.

A Nation's sub units at a specific Base are called an 'Wolf Pack'.

5.5.5.1 Sub Bases

Submarines have to operate from a *base* and can only engage in Actions (missions) within Operations Range AP of that base.

Subs can be based at an unbesieged, unblockaded Port City or Port Fortress controlled at Tributary or better, which is able to trace a Line of Communication back to the national capital. Subs at an isolated Port City or Port Fortress cannot undertake any Sub Operations (with or without a Leader).

The operational Range of a given wolfpack comprised of Submarine units is determined by the following formula.

$$\text{Sub Operational Range} = (\text{TL} - 12) \times 3$$

Table 5-10. Submarine Operations Range

Tech	Operations Range
13	3
14	6
15	9
16	12

Each Operations Range point equals one Sea Zone or Hex.

5.5.6 Sub Missions

The following missions can be attempted by Submarine units being deployed by a Naval Operations Combat Leader.

5.5.6.1 Rebasing (SRB)

Rebasing subs can relocate to another Base (which must meet the Base criteria listed above) by moving up to **twice** their Operations Range in Sea Zones or Hexes.

5.5.6.2 Merchant Raiding (SMR)

A Wolf Pack can be directed to raid merchant shipping (MSP) in a given Sea Zone or Hex within their Operations Range.

5.5.6.3 Torpedo Attack (STA)

Submersible/Submarine (sub) units can be employed in combat either as discrete units attached to a fleet of warships (and led by a Leader), or through a Torpedo Attack (deployed by a Naval Ops Combat Leader).

A Torpedo Attack is directed at a Sea Zone or Hex within the Operations Range of the Wolf Pack. Any hostile Fleets (including enemy submarines) entering the Sea Zone or Hex will be attacked, if found.

In combat against opposing Fleets of warships, subs have a preliminary combat round during which they may destroy or damage enemy ships. Submarines can be particularly deadly in that, regardless of the Armor value and Combat Strength of their target, a single torpedo attack could damage or even destroy the target.

Submarine attacks can be screened, however, by 'light' ship units: torpedo boat destroyers, torpedo boats, modern corvettes, destroyers and frigates.

5.5.7 Aircraft Operations

An Aircraft Operations Combat Leader allows a group of aircraft units at a given **Air Base** to perform an Air Mission during the turn, without the intervention or assistance of a standard Leader.

A Leader, however, may take direct control of the aircraft units (attaching them to his army) and conduct Air missions as well.

A Nation's aircraft units at a specific Base are called an 'Air Wing'. An Air Wing may undertake multiple missions during a turn, as resources (Combat Leader or Leaders) allow.

An Air Wing composed of airships and aeroplanes, or differing types of aeroplane (biplane/monowing/jet) employs the lowest Operations Range of any asset within the Air Wing.

Aircraft tasked to an Action via an Air Operations Combat Leader can only conduct **one (1) mission per turn**. Aircraft being commanded by a Leader, however, can conduct as many missions in a turn as the Leader has AP to pay for.

In the following description Aircraft means either Airships or Aeroplanes.

5.5.7.1 Air Bases

Aircraft have to operate from a *base* and can engage in combat operations (in support of Leader actions or in Strategic attacks) within their Operations Range of the base.

Aircraft can be based at a City or Fortress controlled at Tributary or better, which is able to trace a Line of Communication back to the national capital.

Aircraft Carriers act as mobile Air Bases which do not have to trace a supply line back to a HBZ city. They do, however, have to *end the turn* in a controlled Port City. Aircraft at an isolated City or Fortress cannot undertake any Air Operations (with or without a Leader).

Aircraft at a base but *not* under the command of a Combat Leader or a Leader automatically defend the base itself (the city or fortress or aircraft carrier) if it is attacked. They do not, however, defend the **region** where the City or Fortress is located unless acting under the control of a Combat Air Patrol air operation.

Aircraft under the command of a Leader or being employed through a Combat Leader point may conduct offensive operations (in support of an Attack or Siege or React), in either the region where they are based, or in regions up to their Operations Range away.

Table 5-11. Operational Ranges for Airships

Airship Type	
Scout Airship	3
Airship	4
Heavy Airship	6
Airship Transport	8

Table 5-12. Operational Ranges for Aircraft

Aircraft Type	Biplane	Monowing	Jet
Carrier Fighter	0	1	3
Fighter / Carrier Bomber	1	2	5
Bomber / Cargo Plane	1	4	8
Heavy Bomber	-	6	12

Sea Zones and Hexes count as 2 Range Points per zone or hex. This means that Carrier Biplane Fighters can only defend own fleet and Carrier Monowing Fighters can only conduct operations in their current Sea Hex or Zone.

An exception to this is Sea Hex/Zone combinations which in area make up approximately one Hex. Examples of this are: Hex 23C and *Freyja Bank*, Hex 41H and *Inland Sea* and so on. In this case the Zone is 1 Range and the Hex is 1 Range.

An Air Range point works on a Region/Sea Hex/Zone basis - so if an airship or aircraft enters a Region/Sea Hex/Zone then it can attack anything (or any location) within it.

5.5.7.2 Aircraft Combat Doctrine

In battle, you may direct your aircraft units to *specifically* engage opposing aircraft, in which case a separate combat will be fought (before any ground, naval or siege engagements) to determine air superiority. If you do not so direct your air units, they will fight in conjunction with your ground and/or naval forces.

Fighter and *Carrier Fighter*-type Aircraft can only engage in combat with other Aircraft and Airships.

Bombers and *Carrier Bombers* can engage in land combat, sieges, and naval actions.

Heavy Bombers can engage in siege, land combat and aerial bombardment, but are not particularly useful in naval actions.

Aircraft engaged in combat with Airships gain a substantial bonus to their combat rolls.

5.5.8 Air Missions

Air Missions (actions) implemented through the use of an Air Operations point are performed using the Combat rating of the Wing Commander.

5.5.8.1 Aircraft Rebasing (AIB)

Regular Leader AP cost is 2 AP.

Aircraft units can **rebase** – move from one controlled City or Fortress to another controlled City or Fortress – with a range of twice their Operational Range.

5.5.8.2 Strategic Bombardment (STB)

Regular Leader AP cost is 5 AP.

Aircraft with a **Siege** rating of one (1) or more may be directed to attack existing facilities (Dockyards, Airship Yards, Submarine Yards, Industry, Shipyards) or projects (Railroad lines, Bridges, Pyramids, etc.) in a Region within their Operational Range. Damage is done in terms of GP/NFP/Time required to repair the damage, if the facility is not destroyed outright.

Specific locations may be defended against aerial bombardment by AA artillery or opposing aircraft and airships on Combat Air Patrol.

5.5.8.3 Combat Air Patrol (CAP)

Regular Leader AP cost is at least 5 AP.

Air units on CAP are assigned to defend a specific Region, Sea Zone or Hex within their Operational Range against hostile air attacks. Any locations, armies or fleets within the Region, Sea Zone or Hex are protected by this action. While flyable (undestroyed, undamaged) aircraft remain attached to the mission, they can defend against multiple attacks.

Enemy air missions passing through the protected area may provoke combat with the CAP mission.

5.5.8.4 Anti-Piracy Patrol

Airships or aeroplanes can be tasked to patrol a Sea Zone or Hex to protect merchant shipping against Piracy or Merchant Raiding. This Operation will reduce the effects of any Piracy/Merchant Raiding within the designated Sea Zone or Hex. If performed by Heavy Airships or Bombers it may result in the destruction of some or all of the hostile units.

5.5.8.5 Ground Support (GS)

Regular Leader AP cost is at least 2 AP.

Air units on ground support are attached to a friendly Army and attack in concert with that army for the duration of the turn (even as the Army moves), while the Army is within the operational Range of the aircraft Base.

Note! Air units supporting an Army fighting on the ground can only add Siege strength points up to one-half of the base army strength.

5.5.8.6 Fleet Air Attack (FAA)

Regular Leader AP cost is at least 3 AP.

Air units tasked to an FAA mission are directed against a given Sea Zone or Hex where enemy fleets or merchant shipping are located. Any hostile Fleets which enter the Sea Zone or Hex may be attacked (if found by the aircraft), while undamaged, undestroyed aircraft units remain on the mission.

5.5.8.7 Interdiction (INT)

Regular Leader AP cost is all possible AP.

Air units tasked to an INT mission are directed against a given Region. Enemy armies entering the region then must pay additional AP to conduct actions in the region, based on the

success of the Interdiction effort, the number of aircraft on the mission, etc.

5.5.8.8 Air Assault (AAA)

Regular Leader AP cost is 6 AP.

An Air Wing including aircraft with a cargo rating may be directed to drop Parachute Infantry (pi) in a Region within their Operational Range. The Air Wing must have the cargo capacity to deliver the paratrooper units. The transport planes can be accompanied by fighters to defend them.

Once on the ground the Parachute Infantry have an initial bonus against other ground units in combat in the region and can be supported by another Air Op performing Ground Support. However, unless the Parachute Infantry join up with an Army led by an Army Combat Leader or ordinary Leader they are removed at the end of the turn (no supply line).

If the Air Assault is led by a normal Leader, then the player can specify if the Leader returns with the aircraft or leads the paratroopers in combat. If the latter the aircraft on the mission automatically return to base - and if engaged in combat returning home will be led by a Temporary Leader (see **Basic Rules** section [7.1.10]) - and the paratroopers will be played as any other army led by a Leader.

If a Combat Leader or standard Leader does not jump with the Paratroopers then they fight as though led on the ground by that Leader - due to mission planning.

Specific locations may be defended against parachutists by AA artillery or opposing aircraft and airships on Combat Air Patrol, by regional garrisons, and armies on React or Defend.

5.5.8.9 Air Transport (AAT)

Regular Leader AP cost is 4 AP.

Air Wings including transports can deliver other units to or from a controlled city or fortress within their Operational Range. The Air Wing must include sufficient cargo capacity to transport the other units.

Air Wings consisting of aircraft can only deliver to a controlled city or fortress. Air Wings consisting only of airships can deliver to a controlled region for an additional one (1) AP.

Note that this is not an assault action and the order includes the time for troops to embark and disembark.

This Air Operations Combat Leader Action will deliver the units Operations Range AP after their arrival at the location of embarkation.

5.5.9 Rocketry Operations

Rocket Operations can be performed by an Aircraft Operations Combat Leader or an Army Operations Combat Leader without the intervention or assistance of a standard Leader.

A Leader, however, may take direct control of the rocket units (attaching them to his army) and conduct Rocket missions as well.

5.5.9.1 Rocket Bases

Rockets have to operate from a *base* and can engage in bombardment operations (in support of Leader actions or in Strategic attacks) within their Operations *Range* of the base. This can be an Army Base or Aircraft Base. Rockets can be based at a City or Fortress controlled at Tributary or better,

which is able to trace a Line of Communication back to the national capital.

A single-stage rocket requires no special launch facilities; larger two-stage rockets require a Spaceport. (Silo-based and submarine-carried intercontinental missiles will appear at later Tech Levels.)

Rockets under the command of a Leader or being employed through a Combat Leader point may conduct offensive operations in regions up to their Operations Range away. When launched the rocket units are automatically destroyed regardless of whether they hit their intended target or not.

5.5.9.2 Rocket Ranges

Table 5-13. Operational Ranges for Rockets

Rocket Type	Minimum Range	Maximum Range	Nuclear Capable	Space port
Single-Stage Rocket	1	3	No	No
Dual-Stage Rocket	2	3 Large Hexes	Yes	Yes
Rocketry: Manned Capsule	--	--	No	Yes
Rocket plane	1	8 Large Hexes	No	No

Sea Zones and Hexes count as 2 Range Points per zone or hex. An exception to this is Sea Hex/Zone combinations which in area make up approximately one Hex. Examples of this are: Hex 23C and *Freyja Bank*, Hex 41H and *Inland Sea* and so on. In this case the Zone is 1 Range and the Hex is 1 Range.

Table 5-14. Large Hex Map for Rockets

The Large Hex Map provides an easy way to determine and define the trajectory of any inter-continental rocket. To calculate the range of the rocket identify the launch site in one hex and the target in another. The launch hex and the target hex both count against the range of the rocket.

In addition to flying on the map, long range rockets can also fly over the Polar Regions. This means that any rocket trajectory can leave the top or bottom edge of the Map and reappear anywhere along that edge of the Map.

This map is also used in determining the course flown by rocketplanes.

5.5.10 Rocket Missions

Rocket Missions (actions) implemented through the use of an Army or Air Operations point are performed using the Combat rating of the Commander.

5.5.10.1 Bombardment (RBM)

Regular Leader AP cost is 3 AP.

Rockets with a **Siege** rating of one (1) or more may be directed to attack a single target per order against a city, fortress or project location (Railroad lines, Bridges, Pyramids, etc.) in a Region within their Operational Range. Damage is done in terms of GP/NFP/Time required to repair the damage, if the facility is not destroyed outright.

Each Mission can direct multiple rockets at the Rocket base to a single target. An additional Mission is needed to launch one or more rockets against another target (preparing for launch, calibrating the guidance instruments, and aligning the launch pad).

When performing this Mission the rocket trajectory must be specified.

There is no defense (at Industrial Levels One) against Rocket Bombardment.

5.5.10.2 Launch Manned Spacecraft (LMS)

Regular Leader AP cost is 5AP.

A manned spacecraft blasts off from the Rocket Base and (hopefully) achieves orbit, and is safely returned to Earth. The AP duration of the Mission covers the sequence from launch, orbit and return.

As with any other Rocket Mission, the Rocketry QR governs the likely outcome.

A failure results in a big explosion on the pad, the breakup of the rocket in flight, failure to return the capsule to Earth, the capsule burning up on re-entry or failing to deploy parachutes or landing rockets... There is much that can go wrong with such a highly complex technological endeavor. Unless you wish to celebrate glorious (but deceased) heroes and heroines of your nation, you may wish to send irritating primitive beeping satellites and unfortunate dogs and chimps into space instead of a human.

Later Projects will allow for docking at orbital space labs and space stations or flying to the Moon...

This action can also be used to fly a rocketplane, but can only be performed by Aircraft Operations Combat Leader or a standard Leader and must be performed at an Air Base.

5.5.11 Nuclear Operations

Nuclear Operations can be performed by an Aircraft Operations Combat Leader, a Naval Operations Combat Leader or Army Operations Combat Leader without the intervention or assistance of a standard Leader.

A Leader, however, may take direct control of the Nuclear units (attaching them to his army) and conduct Nuclear missions as well.

5.5.12 Nuclear Missions

Nuclear Missions (actions) implemented through the use of an Army, Navy or Air Operations point are performed using the Combat rating of the Commander.

When a nuclear weapon is deployed by another unit, the nuclear weapon damage is applied, not the damage of the unit carrying it to its target.

5.5.12.1 Deploy Nuclear Bomb (DNB)

Regular Leader AP cost is 1AP.

The deployment of a nuclear bomb counts as an addition to an existing mission, not as a distinct mission, unless performed by a Regular Leader. The AP cost represents the preparations for deploying the bomb.

An Atomic Bomb can only be deployed by heavy bomber or ship so the Action must be combined with another Action. If deployed using aircraft then this counts as a Strategic Bombing or Air Support; if deployed by ship or submarine this counts as being left at an enemy Port City or Port Fortress as a Nuclear Depth Bomb.

Delivering the bomb by some other means, such as by cargo ship or railroad requires a regular Leader to move it and probably intel CFs to conceal the dastardly plan.

5.5.12.2 Deploy Nuclear Warhead (DNW)

Regular Leader AP cost is 1AP.

The deployment of a nuclear warhead counts as an addition to an existing mission, not as a distinct mission, unless performed by a Regular Leader. The AP cost represents the preparations for deploying the warhead.

An Atomic Bomb as a warhead must be deployed by dual-stage rocket and so the Action must be combined with a Bombardment Action.

5.5.13 Effects of Nuclear Weapons

The damage caused by a nuclear weapon is divided equally into the components: population loss, pwb loss, wallpoints, damage to factories and yards and units present at the location.

If a component is totally destroyed then the remaining damage is divided among the remaining components, and again, until no damage points remain. Any railroads using the city or fortress as an anchor point are automatically broken and will require a Level One construction project to repair the tracks. Roads are not affected.

The damage caused is reduced by 25 points per weapon if air raid shelters are available at the location. Wallpoints provide no protection against nuclear attack.

If a nuclear bomb is used in a ground support weapon, the GM must determine the percentages of losses attributed to enemy and friendly forces, including field forts. Nuclear warheads cannot be used in battle until more advanced tactical weapons are developed. The effects of a nuclear bomb in naval warfare are more limited though all sailing and steam ships in the vicinity will be automatically destroyed. Damage against Pre-modern ships is reduced by 25 points per bomb, and by 50 points against modern ships. Due to the effects of EMP the advantages conferred by radio, radar and other electronic systems in the location, army or fleet will be halved for the remainder of the turn.

In addition to their direct damage against a city, fortress or armies, nuclear weapons have other dire effects. The detonation of multiple bombs in a relatively short period brings the threat of a Nuclear Winter of varying degree, affecting the continental and possibly global agro production as dust and smoke is thrown up into the atmosphere. It may then be followed by a deadly Nuclear Summer, heralding more damage to plant life and a worsening climate as desertification

spreads. In the worst case full ecological collapse is triggered as the food chain dies from the bottom up.

Within the target nation and potentially surrounding nations as wind patterns distribute the fallout, nfp may be depressed for many years due to the effects of radiation and mortality rates from radiation poisoning and birth defects. The early atomic and nuclear bombs and warheads are not *clean*. A major nuclear exchange brings the collapse of national infrastructure, and a likely fall in Tech Level even if the war damage does not herald an endgame scenario.

At Industrial One aircraft and ships carrying nuclear weapons can be engaged by conventional forces. There is no defense against a warhead delivered by rocket.

At Industrial Two Anti-Ballistic Missile systems can be developed.

6. EMPIRE BUILDING

6.1 RULING WIDE DOMAINS

The location of the Capital or Homeland (if your Infrastructure or Bureaucratic Level is two (2) or greater) or from your King (otherwise) governs what territory can be effectively controlled. High Bureaucratic Level and whether or not a King is performing a *Rule* action help determine the efficacy of the Command Control Radius (CCR) on outlying regions. For open nations the CCR is roughly equal to your Bureaucratic Level, plus the King's Administration stat (which is usually unknown to you).

Religious Primacies, Religious Orders, Merchant Houses and Secret Empires trace their command radius slightly differently than Open Nations. (Generally speaking, an Open Nation expanded from the Homeland into adjacent regions, and then from controlled regions into their neighbors.) These are more porous - having scattered locations of control and interest. For Primacies, Religious Orders and Secret Empires and Merchant Houses the Control Web is used to trace the Line of Communication over land and overseas. The important factors are:

- Action Range = One-half of Tech Level, rounded up APs
- Maximum Number of Links = (BL + Admin)

If the position has regions, cities or sites that are outside the Command Control Radius or the effective Control Web at the **end** of the turn, then they may revolt.

6.1.1 Tracing the Command Radius

This happy activity is undertaken by the Game Master at the end of each turn for each country, just to see if your realm has grown too fat to be supported by the efforts of your King and his dutiful bureaucrats. To determine this, the Game Master traces Lines of Communication from your Capital (if you have one) or from your King (if you do not have a Capital) to your outlying regions, counting each CCR point as if it were an Action Point for a "messenger" traveling from the King (or Capital) to each outlying region.

For these purposes, each *complete* Trade Conduit counts as **one** Sea Zone for CCR 'movement'. A complete Trade Conduit is one that is 'anchored' at each end by a controlled Port City of at least Tributary status. If a controlled region exists at the very end of a Sea Trade route and is not anchored by a controlled Port City, then the Sea Zones in the last portion of the Sea Trade Route are counted individually for CCR purposes.

Control has to be traced back to the Capital (or Holy City, Home Office or whatever). Locations that are isolated from the Capital will degrade. For instance, even though a Merchant House Cartel City is within range of another Cartel City, if one or the other cannot trace control back to the Home Office, both will degrade. The control web of a Primacy, Religious Order, Secret Empire or Merchant House has a hierarchy from low control to high.

If it is impossible to move from the Capital to the outlying region with (CCR) Action Points, then the region is 'out of control' and may revolt.

The usual movement point costs are used for tracing, with some supplemental items, as detailed here:

Table 6-1. CCR Costs Supplement

Border / Region Type	CCR Cost
Controlled land border along a Royal or Postal Road segment	× ½
Unsettled (empty, Barbarian / Pre-Columbian / Nomadic) regions	+1
Any kind of region within the tsetse Fly zone (unless traversed by a Railroad)	+1
'Anchored' Trade Conduit	1
Submarine Telegraph Cable	1
Controlled land border along a Railroad	× ¼

Example

The Nisei realm has established control of various colonies in Scandinavia. To support control of these regions, the Shogunate possesses controlled port cities in the intervening area. At the end of the given turn, a Nisei general has completed the conquest of the province of Norway. The Game Master, checking the CCR, observes that the Nisei capital is in the province of Gosiute on the Great Inland Sea in the New World. The Nisei BL is 8, and their current Shogun has an Administration of 4 and is, in fact, ruling this turn.

This set of circumstances gives the Nisei a CCR of (8 + 4 = 12ap). From Gosiute an Imperial Highway runs through the provinces of Bohogue, Lemhi, Shoshone, Crow, Teton, Okoboiji, Minnewaska, Yankotnai and into Chippewa. The CCR cost for this section is seven due to the Road. The base would be fourteen (9 for nine controlled regions, plus 5 for two Type-2 and one Type-1 mountain range in the way), divided by two for the Royal Road passing through all of the involved provinces.

From Chippewa the Nisei have a set of Trade Conduits anchored on the cities of Joetsu in Chippewa, Achi in Sokoki, Nuri in Naskapi, and Ukio-ye in the Shetlands. This adds three more to the cost of the CCR (1 CCR for the Trade Conduit between Joetsu and Achi, 1 CCR for the Trade Conduit between Achi and Nuri, and 1 CCR for the Trade Conduit between Nuri and Ukio-ye) bringing it to 10 of its 12 points. Since the city of Bergen in Hordaland is still under siege by Nisei and Dakotan troops, it cannot serve as an 'anchor' city. The last section must be traced sea zone by sea zone then, which adds another 3 to the total CCR cost (1 CCR for *Viking Bank*, 1 CCR for the *Skaggerak* and 1 CCR for the region of Norway) bringing it to 13.

Well, this is one more than the Nisei can support with their CCR of 12, so the army in Norway will be checked for revolt at the end of the turn. Should the army pass the check and move out of the province, then the province will be checked for revolt each turn following while it remains out of the CCR.

6.1.2 Tracing a Line of Communication

When required to establish a Line of Communication, you trace a series of contiguous controlled land regions and/or unblockaded Sea Zones or Ferry Points to the designated region or city from the national capital (or homeland, if there is no capital) to the location in question - see the **Basic Rules**, section [10.1.1.2] for the full details.

6.2 INTER-NATIONAL BANKING

There exist, in all nations blessed with Renaissance (Tech Level 8 or better) culture; banks, moneylenders, brokers and merchants who are willing to loan varying sums to their own rulers, and perchance, to the rulers of neighboring realms with which their own princes are of good accord. Obviously, such merchants must make a little something for their troubles and risks. Thus the borrower must pay a hefty interest surcharge as well as the amount initially borrowed.

Depending on the decision of the player for each civilized nation, other nations may also borrow from his banks, paying a greater fee.

Of course, if a borrower defaults on a loan and is unable or unwilling to pay it back, the bank suffers. When a bank is forced into collapse by defaulting borrowers the economy of the nation suffers. This is reflected as a reduction in the Tax Rate of the country whose bank has suffered collapse, for one or more turns.

More than one loan may be taken out against the national bank simultaneously as long as the total value of all currently outstanding loans does not exceed the amount of funds on hand for the bank to lend.

The profits from these loans are re-invested in the bank, improving its value and ability to lend.

Only Open Nations have banks. Religious Primacies, Orders, Merchant Houses and Secret Empires do not have banks, though they may borrow from them.

6.2.1 The Loan Payment Schedule

The principal and the interest of a loan are due at the **beginning** of the **third** turn following the initial borrowing, regardless of the number of years per turn. The loan may, of course, be paid back before this time, but the full amount (principal + interest) must be paid.

6.2.2 Catholic National Banks

For campaigns that began at 1000AD (or earlier) the proscription against usury stands until the Roman Pope rescinds it. Though unlikely, this state of affairs may still pertain during the Renaissance Period.

While this edict is in effect, only the Papacy can make external (nation to nation) loans. A very small amount of internal loan capacity is available to each Catholic nation. Once the Papacy rescinds the proscription, then each Catholic nation may make external loans to one another.

Note that Catholic nations may freely acquire external loans from non-Catholic national banks during this time.

6.2.3 Banking System Status

Each national banking system has one of three statuses; **Open**, **Closed** or **Defaulted**. An Open bank can make loans to its own national government and other nations with which its nation is currently trading. A Closed bank can only make loans to its own national government. A Defaulted bank cannot make any loans to any nation until it recovers from the default.

Each player may decide whether his nation's bank will be Open or Closed at the beginning of each turn, as it pleases him. Additionally, a player may declare that his bank is closed to specific other nations, even ones that he is trading with. Finally, Nations that are not trading with his nation at the beginning of the turn cannot take out loans from his bank.

6.2.4 Loan Capacity

Each national bank has a basic loan capacity, which is roughly (though not exactly) equal to that nation's Base Revenue. In addition to this base capacity, nations may invest in their bank by spending Gold Points. Each 10 GP spent increases the Loan Capacity of the bank by one (1) GP. These investment increases are permanent until such time as the bank suffers a collapse due to a defaulted loan (or loans),

whereupon the investment increase is reduced by the amount of the defaulted loan. If the defaulted loan is greater than the amount invested, then the base capacity is reduced by the remainder.

The Loan Capacity of a nation may also grow or shrink as its base assets grow and shrink. When loans are paid back, the profits are invested in the bank, raising its capacity.

6.2.5 Interest Rates

Each national bank has two interest rates, one for internal loans (to the national government) and one for external loans (to other governments). The internal rate is generally 30%, the external 40%. Bank systems that have defaulted and then recover are required to boost their interest rates by 10%, to 40% and 50%, respectively.

The player can increase or decrease the **external** loan rate as he pleases, bearing in mind that the minimum is the current **internal** loan rate and the maximum is the highest rate that the international market can bear.

The internal loan rate can also be adjusted, with a minimum of interest rate of 20%.

The calculation to determine the amount that must be repaid is:

$$\text{Amount Owed} = \text{Principal} + (\text{Principal} \times \text{Interest})$$

There is no compounding for each year or turn. If you borrow 100gp at 30%, you pay back 130gp. Very simple. This amount is due whether your nation takes one turn or three to pay back the outstanding loan.

Example

Florence has a Loan Capacity of 450gp. Charles the Bold of Burgundy wants to borrow 200gp to finance a war against the Swiss cantons. The Florentine internal rate is at 25% (due to internal stock manipulations and excessive government intervention in the Florentine banking houses) and the external is 43%. Charles will have to pay back ($200 \times 1.43 = 286\text{gp}$) to the Florentines. When (and if) he does so, the Florentine bank will get 36gp in cold hard cash, which will be invested, raising the base value of the Bank by ($36 / 10 = 3.6$) GP.

6.2.6 Loan Defaults

When a nation that has taken out a loan is unwilling or unable to repay the loan principal and interest on the beginning of the third turn, that nation is considered to have *defaulted* on the loan. The bank that made the loan, and the nation that the bank resides in, suffer a number of deleterious effects.

- ◆ First, the defaulting nation (regardless of the type of Nation — Normal, Religious, Merchant House, it matters not!) loses all external borrowing privileges to **all** banking systems, including the nation's own until such time as the Penalty Payment is made.
- ◆ Second, the bank defaulted against loses loan capacity equal to the amount of the forfeited loan (starting with any Investment and proceeding to the Base Capacity thereafter). If the bank capacity is reduced to zero or less then the Bank has *Collapsed*.
- ◆ Third, the tax rate of the nation with a bank in collapse is reduced by the same proportion of the banking capacity that was lost for the following turn. The turn thereafter the Tax Rate is reduced by half of that proportion, and

the third turn by one quarter of the proportion. On the fourth turn the nation regains its full tax rate.

Any current Government Investment is reduced (wiped out) by defaulted loans. If the base capacity is reduced, it recovers during the turns that the Tax Rate is reduced. During this period loans may still be taken out by allowed parties (that is, NOT those who defaulted) to the maximum of the reduced Capacity. If the bank Collapses, however, **no loans** may be taken out until the bank regains its full capacity (that is, four turns later).

Example

Charles the Bold of Burgundy, having previously borrowed 200gp from the Florentine banks, launches his campaign against the Swiss and the southern German cities and is utterly trounced at the battle of Nancy. So crushing is his defeat that he is forced to default on a large number of loans, including the one to the Florentine banks.

So. The initial Florentine capacity was 450gp, and Charles borrowed 200gp. He, then, has defaulted on 44% of the Florentine capacity. This means that the next turn, the Florentine Tax Rate (normally, say, 100%) will be reduced by 44%, to 56%. Needless to say, this will not please the Florentine government (and in fact will lead to the collapse of the Florentine merchant republic and lead to the foundation of the first of a series of tyrannies and eventually the establishment of a Dukedom and autocratic rule). The second turn following, the base Tax Rate (again, say it's 100%) will be reduced by half of the forfeited percentage, or 22% to 78%. The third and final turn of the process the Florentine Tax Rate will be 89%, as the reduction will be 11%.

6.2.7 Penalty Payments

Nations that have defaulted on loans from foreign banks must make Penalty Payments in order to resume taking out foreign loans. The Penalty Payment is twice the total amount of any defaulted loans. Once this large pile of cash is paid, then the defaulting nation's foreign borrowing rights are restored.

6.2.8 Rebuilding a Collapsed Bank

Once a bank has collapsed, you have to rebuild it by paying out bags of cash. In short, you have to pay 4gp per GP of the bank before it collapsed. Yes, it is quite expensive, but those are the breaks.

These payments may be spread out over several turns, but the bank is not restored until all of the money has been paid. At that point it will reset its value to that of your base economy.

7. THE MERCHANT HOUSE

The **Merchant House** is a new Nation type, like an Open Empire, Secret Empire or Religious Primate. It represents the great mercantile cartels and companies of the late Renaissance and the age of Imperialism. The primary emphasis of a Merchant House is to develop a world-spanning web of trade contacts, monopolies and eventually political power that enable it to shake the foundations of the great Nations and direct their policies to its own ends.

It's about money, really. A Merchant House is not geared towards fighting a land war in Asia. It exists in a symbiotic relationship with the Open Empires, providing them with services and receiving various trade concessions in turn. Since the Merchant does not have access to a large source of manpower (and what manpower it does receive will doubtless go into ships to protect and expand its trade routes) it is vulnerable to the greater military power of the Open Empires. However, a Merchant House can generate more money from trade and the local economies than can an Open Empire.

Playing a Merchant House also requires much more skill at diplomacy and cunning than a raw Empire throwing armies around the world. Various trade arrangements and pacts will need to be established if the Merchant House is to flourish and expand.

7.1.1 Founding Merchant Houses

A Merchant House is founded when a player requests to start one and the GM agrees. A new Merchant Houses commences with a Home Office in a suitable city (preferably a port), one leader, 50gp and 25nfp. A city is suitable if it is uncontrolled or the nation or nations controlling it are favorable to the creation of a Home Office there. The new Merchant House will share the religion and language dominant in the city.

7.1.2 Merchant House Leader Types

Merchant Houses are allowed the following Leader Types: King, Prince, Lieutenant, Ally, Bishop and Mercenary.

As they do not have Heir-type Leaders, when the King dies, the surviving Princes contest amongst themselves to succeed him, using their Charisma ability.

Allied and Mercenary Leaders cannot perform any of the Merchant Actions that create a Merchant House Control Status.

7.2 POWERS OF THE MERCHANT HOUSE

Like Secret Empires or Religious Primacies, Merchant Houses have a number of special capabilities that set them apart from the more mundane world of the Open Empire. These capabilities are:

- ◆ Monopolies
- ◆ Colonies
- ◆ Cartel Trade
- ◆ Mercenary Brokerage
- ◆ Trading Via Road Networks

- ◆ Divisional Offices

7.2.1 Controlling Monopolies

A Merchant House can establish one or more Monopolies in Nations (Open Empires) that it associates with. Each monopoly represents the control of a specific portion of the National economy, like the trade in salt, or slaves or amber or grain. A Monopoly, once established, effectively transfers a Trade Value point from the Nation to the Merchant.

Controlling *one or more* Monopolies also improves the competitive ability of the Merchant House: each Nation granting the House *at least* one Monopoly increases the National Market Value of the House by 0.01.

Note! This means that if you're looking to improve your NMV, you want monopolies from multiple nations.

Each nation is worth a certain number of Monopolies, in total, equal to the square-root of its total Trade Value, rounded up. Therefore if a nation has a Trade Value of, say, eight, then the number of Monopolies that could be established within its economy is three (2.8 rounded up). Each successfully established Monopoly reduces the Trade Value of the Nation by one and increases the Trade Value of the Merchant by one.

$$m = \sqrt{tv}$$

M is the number of possible monopolies (rounded up).

TV is the Trade Value of the nation granting the monopolies.

Establishing a Monopoly can be achieved in one of two ways:

- ◆ The Nation in question can grant the Merchant House a monopoly within its borders in return for services rendered, or cold hard cash, or a cut in the action as a result. This arrangement is purely between the players of the Nation and the Merchant. The granting Nation can revoke a 'granted' Monopoly at any time. A variant of this kind of Monopoly acquisition is where a Nation is forced to grant a Monopoly as part of a peace settlement between the Merchant (or its allies) and the Nation.
- ◆ The second kind of Monopoly is one acquired via the *Acquire Monopoly* action, where the Merchant seizes control of a Monopoly through purely economic means. This kind of Monopoly is much harder to achieve than the first, but cannot be 'expelled' by the Nation at its whim. An acquired Monopoly can only be removed by the Nation executing a successful *Nationalize Monopoly* action. In this event the Trade Value represented by the Monopoly is destroyed and the Monopoly is removed.

Example

The Khemer East Africa company has its eye on the trade in slaves and gold coming out of the Ethiopian highlands, an area that is controlled by the Lion Kingdom of Judah. The Khemer, however, are a Renaissance nation and the Judah are only Civilized. Why, they barely have gunpowder — foolish savages!

So the Khemer approach the Judah king and offer him several shiploads of cannons and powder in exchange for monopolies on gold and slaves. The Judah nation has a Trade Value of 16, so

there are $(16^{1/2} = 4)$ possible monopolies to be acquired. The Judah, desiring the guns, agree and fork over 2 monopolies (and two of their own trade value points) to the KEAC. The KEAC trade value is increased by two as a result, and the Judah trade value is reduced to 14. For the moment, anyway, both sides are satisfied.

7.2.2 Establishing Colonies

In addition to the normal methods of establishing Colonies a Merchant House may also attempt to establish colonies through the *Establish Colony* action (See Section [7.5.5] below). By this means a Combine attempts to establish a new Colony in any qualifying region or city:

- The colony site must be within (Trade Range) Action Points of the Home Office, a Cartel City, a Colony, or a region or city controlled by the House at Tributary or better.
- The colony site must either be uninhabited or only shared with a Pre-Columbian, Nomadic or Barbarian culture while there are unconverted GPv left. If it has a Civilised, Renaissance or Industrial population then one of the conventional methods of colonization must be employed instead.
- No other open Merchant House, Renaissance or Civilized statuses can exist in the region.

Unlike the colonies established by Open Nations, however, Mercantile Colonies do not necessarily require the expenditure of NFP to settle them. In most circumstances, it will take more than one turn to complete the Merchant Colony. It will be recorded as a Project and the location status given as Mercantile Colony (MCL) until it is completed and becomes of Friendly status.

Settling a region (either inhabited or uninhabited) costs 50 GP and 25 NFP per GPv. A Merchant House may acquire the NFP for a Colony via Project Recruitment (see section [4.4] on page 30) or expend its own NFP in establishing a colony.

If the region is uninhabited or has been depopulated then the first 50 GP and 25 NFP creates the first level of colonization as a $(0 / n)$ region. It is then subject to the normal constraints for the maximum GPv it can be colonized to and is only complete when colonized to that maximum.

If the region is inhabited then *all* the native GPv must be replaced before the Merchant Colony is complete. Unlike the result of the *Colonize Inhabited Region* action the location then has the language and the religion of the colonizers and the status of Friendly.

Example

The Khemer East Africa Company decides that it wants to expand into new, raw material rich, areas in South Africa. The present culture in that area is Pre-Columbian, so even though there are populated regions along the coast the KEAC can settle the regions directly. A Leader, Lord Prahvarata, is sent with a small fleet down into the region of Transkei off of the *Cape Francis* sea zone. He lands and attempts an Establish Colony action. By good luck, this succeeds. He has brought 25 NFP and 50 GP with him on his fleet, so this converts one of the two GPv of the province.

7.2.3 Cartel Trade

Since a Merchant House is more efficient than an Open Nation at conducting trade (well, in the majority of cases...) it may make financial and political sense for a Merchant to handle the Sea Trade being conducted between a **pair** of

Open Nations. In this case the Merchant House provides all of the Merchant Shipping for **one** of the nations involved and receives the proceeds of that trade (for their Cartel partner).

The Merchant's NMV, MSP, Trade Range and Conduits are used in place of the Nation that it is replacing the shipping for in this case. The nation whose trade is being handled is called the Cartel Nation hereafter. The *other* trade partner is called the Target nation.

The Merchant House opening (or accepting) a cartel trade route must have a **Branch Office** status or better in the port-of-origin cities of *both* the Cartel and the Target nation. This represents the considerable time and effort needed to interact with the trade and port authorities of both nations.

If the necessary status is lost then the Merchant House must have a *replacement* Branch Office status or better in another port of the nation - this becomes the new port-of-origin - by the end of the following turn. If this is not in place the Cartel Trade Route collapses (and reverts to a purely national trade route, if feasible) because there is insufficient clerical effort for the paperwork.

As the Merchant House can only carry trade in one direction, the other party (not the Cartel partner) in the trade may wish to negotiate other benefits for allowing the House to maintain a Branch in their territory. This might take the form of the Merchant House running Cartel Trade to another nation for them, a cut in the profits or some other advantage... Making deals is all part of the life of a Merchant House.

Example:

The AEIC wants to establish cartel trade between Danish India (from Schwarzkastel) to Ethiopia (via the port of Gozer). The AEIC *must* have a Branch Office or better in both Schwarzkastel and in Gozer. Note the MSP for this route may be based at any AEIC port with capacity.

There are a number of advantages to cartel trade:

- ◆ The Merchant House NMV is usually higher than regular nation NMV allowing more gold to be squeezed from the route!
- ◆ Merchant House Trade Ranges are generally higher than regular nations, allowing fewer MSP to carry more trade, which also increases revenues.
- ◆ Due to the Merchant Houses' trade network a cartel trade route may be the only way for two regular nations to trade with one another, also increasing revenue.

The disadvantages are in the realm of coordination between the Merchant and the cartel Nation, of figuring out what the Merchant House cut is, and redistributing the gold produced by this trade. These responsibilities fall upon the Merchant House player to handle.

Additional Restrictions include:

- Trade between any nation and a Merchant House cannot be carried by *another* Merchant House.
- Land trade between adjacent nations cannot be carried by a Merchant House.
- A Merchant House may only handle one Nation's trade on a given trade route, **not** both!

- If the Cartel nation revokes Cartel Trade rights to a route, that route reverts to the Cartel nation. Cartel Trade rights can be assigned to a different Merchant House on the following turn (or thereafter).
- When a Merchant House takes over another Nations' trade route(s) for the purposes of Cartel Trade, the MSP for the route **must** be based at a port city where the Merchant House has sufficient free capacity.

The gold generated by Cartel Trade goes to the **Merchant House** at the end of the turn. The Merchant must then figure out how much to give to the Cartel Nation, who gets it the **next turn**. This one-turn delay may be a disadvantage.

7.2.3.1 Transfer of MSP

MSP transferred from an Open Nation to a Merchant House for Cartel Trade is exempt from the usual halving of transferred units. In this case, since the Open Nation is making a business arrangement for the carriage of trade, the MSP on a transferred route (if there are any) are shifted directly, without conversion, to the Merchant House.

7.2.4 Mercenary Brokerage

A Merchant House may also become the broker for mercenaries operating in their area. When this occurs, players wishing to hire mercenaries must negotiate with the House instead of bidding directly on the mercenaries themselves. The Merchant house shoulders the responsibility of feeding and equipping the mercenaries.

To acquire this business, a Merchant Leader must succeed in an *Establish Mercenary Brokerage* action (see section [7.5.11]) in a specific geographic area (which corresponds to the Merc Pool). Thereafter, the Merchant House must pay the mercs **at least** the minimum of 0.5 GP per unit per turn, or more if they are hired out, and have a Cartel City or Home Office in the geographic area to manage the brokerage.

Should the Merchant ever fail to pay this minimal support, they will lose their Broker's rights and will have a substantial number of angry mercenaries to deal with! This will also happen whenever a Merchant House player fails to turn in orders for a turn. If a Merchant House has no Cartel City or Home Office in the geographic area then from the beginning of the next turn it loses the brokerage for all the mercenaries in the Pool, save for those serving outside the geographic area in a zone where the Merchant House has one or more Cartel Cities or its Home Office. Those mercenaries then transfer to the Mercenary Pool where they are currently operating.

Of course, another Merchant House can always attempt to steal this lucrative trade from whoever is the current broker. Ah, the price of business!

7.2.4.1 Adjusting Mercenary Pool Composition

A Merchant House that acts as broker for a mercenary pool may adjust the composition of the pool by rebuilding the units therein at their own cost. For example, a pool with 20i may be converted into 10c and 10i if the broker house pays the cost to build 10c.

7.2.4.2 Hiring Mercenaries from a Broker

Certain areas have a *Hiring Contact* for the mercenaries. If there is a Hiring Contact, those wishing to hire mercs must contact that player to make a bid for the mercenaries, otherwise, the bid will be ignored. Note also that mercenaries must be hired at a **City** within the Geographical Zone covered by the Mercenary Pool. If a group of mercenaries move out of their Regional area into another, they may be hired at the location they ended the previous turn.

7.2.4.3 Breaking a Brokerage Agreement

An unfriendly Merchant House may attempt to disrupt an existing Brokerage agreement by attempting an *Establish Mercenary Brokerage* action (EMB) of its own.

If successful, the existing agreement is broken, removing the other Merchant Houses' control of the Pool. On a following turn, the 'attacking' Merchant House must succeed at a *second* EMB action to acquire a new agreement with the Mercenary Pool.

Note that this requires at least two turns of activity and two separate, successful, EMB actions.

Defending against a hostile EMB is effected by attempting an EMB on a Pool you already control. Note however, that a particularly bad failure at protecting your own Pool will cause the Mercenaries (who are by nature fickle creatures) to revert to non-agreement status.

7.2.5 Trading Via Royal Road & Railroad Networks

While Open Nations are restricted to only trading with adjacent land neighbors, Merchant Houses may take advantage of Royal Road and/or Railroad networks to trade *through* one or more Nations to another, which may be landlocked and otherwise barred from trade.

To open an Overland Trade Route, the following conditions must be met:

1. A contiguous Royal Road or Railroad must link the **capital** of the landlocked power to a **port city**, from which a sea trade route must exist that reaches the Home Office of the Merchant House (unless, of course, the port city is itself the Home Office). **Or** the Royal Road / RR may connect the Home Office directly to the landlocked capital. A contiguous Royal Road or Railroad may be comprised of any combination of individual Royal Road or Railroad links.
2. The Merchant House must have at least a **Branch Office** in the Capital of the land-locked trading partner and at least a **Merchant Factor** (or better) in each city through which the Royal Road / RR passes to reach the capital of the land-locked power.
3. The Nation(s) controlling the intervening area (cities and regions through which the Royal Road or Railroad passes) must give their explicit permission to the Merchant House to carry this trade through their demesne. Of course, such a Nation may choose to levy a tax on this trade...
4. The length of the land-bound (Royal Road / RR) portion of the trade route cannot be longer (in AP) than the Trade Range of the Merchant House, divided by two (2).

When the Trade Route is established it will appear as a Sea Trade route with a Distance equal to the AP necessary to

reach from the port city to the land-bound capital, plus any Sea Zones necessary to reach from the port city to the Home Office.

Only the Merchant House may allocate MSP (in this case, not only ships, crews and warehouses, but pack animals, drovers, caravan masters, etc.) to the overland trade route.

7.2.6 Division Headquarters

A Merchant House having:

- ◆ Two or more BL
- ◆ Two or more Infra
- ◆ One or more cities controlled at Cartel City status

May designate *one* appropriate qualifying Cartel City within the effective Control Web of the Home Office (by land or sea), as a **division headquarters**.

Once the Division Headquarters is designated, pairs of BL and Infra may be transferred from the Home Office to the Division Headquarters by paying the “Moving Your Capital” cost for each pair of points, as noted in Base Rulebook section [10.1.3].

BL and Infra must be transferred in pairs (1 BL + 1 Infra).

Upon the loss of a Lieutenant due to Leader death, a new Lieutenant is generated at either the Home Office or the Division Headquarters, whichever is *closer* to the location where the Lieutenant died.

Only Lieutenants are replaced in this way. All other Leaders (King, Heir, Prince) appear at the Home Office.

The Division Headquarters may also be used as an endpoint for trade routes. The Trade Route distance of such a ‘subordinate’ route is equal to the distance from the trade partner to the division headquarters and then to the Home Office.

Should the Home Office be lost due to enemy action or the destruction of the host city, the Division Headquarters *automatically* becomes the new Home Office.

In the event of the Merchant House suffering a Dynastic Failure/Civil War of some kind, it is very likely the Division Headquarters will revolt, founding a new Merchant House.

7.3 HOUSE CONTROL LEVELS

Merchant Houses are not restricted in the kinds of control that they may exert over cities and regions controlled by them. They may have all of the usual control types (Allied, Tributary, Friendly and so on) but you should be aware, as a player, that the Imperial Size modifier for a Merchant House is quite high. As a result, it is not likely to be cost effective for a House to control large territories — unless the House has grown very rich and can afford the Infrastructure.

There are, however, some special control status’s that apply only to Mercantile Houses:

Table 7-1. Merchant House Control Statuses

Control Status	Code	Taxes	Agro	NFP	Trade?	Base?
Merchant Agent	ma	0.10	0.00	No	Yes	Yes
Merchant Factory	mf	0.20	0.10	No	Yes	Yes
Branch Office	bo	0.30	0.20	No	Yes	Yes
Cartel City	ci	0.40	0.30	Yes	Yes	Yes

Control Status	Code	Taxes	Agro	NFP	Trade?	Base?
Home Office	ho	0.50	0.40	Yes	Yes	Yes
Merchant Colony	mcl	1.00	1.00	Yes	Yes	Yes

Taxes This is the taxation percentage that the Merchant House receives of the Regional or City GPv and Public Works and affects Industrial Capacity.

Agro This is the rate at which a given status produces and consumes Agro.

NFP? Indicates whether the Merchant House receives any NFP from the location / control status. Cartel Cities do not provide as much NFP as does a Home Office.

Trade? Indicates whether the location under this control status adds to the International Trade Value of the Merchant House.

Base? Indicates whether a Port City containing one of these statuses can provide harborage for House merchant shipping points. Only a Branch Office status (or better) can serve as a Conduit Anchor.

Note that Merchant Houses are creatures of cities, and efforts to create Control Statuses in regions suffer a negative modifier. In addition, only Agents, Factories, Branch Offices and Colonies may be created in the provinces (regions). Cartel Cities and the Home Office **must** be in a city.

As with Secret Empires and Religious Primacies, a Merchant House control status can only increase one level per turn. So, you cannot establish a Cartel City directly — you must have first acquired an Agent, then created a Factory, then expanded that operation to a Branch Office before attempting to create a Cartel City.

The tax rate of a Merchant House, even with a census in effect, may be affected by a shortfall of Infrastructure if it grows too large. Its control status rates of Agro production or consumption are very low, but still present. Merchant Houses must pay Agro to support troop units, ships, cities and their fortifications. Their tax rate may also be driven down by famine.

7.3.1 Mercantile Agent

The Agent (**ma**) is the first level of control status that a Merchant House can exert on a given city or province. It represents a local office and a minimal network of contacts, arrangements and interest. Some revenue is generated by the Agent’s local dealings. No NFP are produced. An Agent can serve as a base for Intel activities.

An Agent may be acquired in either a region or a city.

An Agent does not interfere with any Open Nation control statuses that may exist in the city, and can coexist with up to ten (!) Agents of other Mercantile Houses.

7.3.2 Merchant Factory

The Factory (or Factor) (**mf**) is the second level of control status that a Merchant House can exert on a given city or province. It represents a local office, warehouses and a growing network of contacts, arrangements and interest. Some revenue is generated by the Factory’s local dealings. No NFP are produced. A Factory can serve as a base for Intel activities.

A Factory can be established in either a region or a city.

A Factory does not interfere with any Open Nation control status's that may exist in the city, and can coexist with up to three Factories of other Merchant Houses.

7.3.3 Branch Office

A Branch Office (**bo**) represents a more substantial interest in the local economy. The revenues from local operations are increased and the possibility of acquiring a Monopoly from the host nation is opened up. Like a Factor, a Branch Office can serve as a base for Intel operations and as a location for hiring Mercenaries.

A Branch Office may be established in a region or city.

A Branch Office does not interfere with the control statuses that an Open Nation may have in respect to the location. A Branch Office may coexist with either two Factors of other Merchant Houses or one other Branch Office. A Branch Office in a Port City allows the House to use the city as a Conduit Anchor.

7.3.4 Cartel City

A Cartel City (**ci**) is restricted, as the name implies, to Cities only. With this level the Merchant House has assumed essentially direct **economic** control over the city government. The city counts for the Combine's Trade Value and the majority of the revenues and a portion of the NFP produced by the city are collected by the House. Military and Political administration of the city may still be retained by an Open Nation.

A Cartel City can also serve as a base for Intel operations, Merchant Shipping Points and hiring Mercenaries. Cartel City status cannot coexist with any other Merchant House status, even the measly Agents of another House.

7.3.5 Colony

A Colony (**mcl**) is the special, intermediate case of a region or a city being settled by the Merchant House. The revenue, if any, that it produces is entirely gathered by the House. So too are any NFP that are produced by the Colony. A Colony may only share a control status in the region with a Pre-Columbian, Nomadic or Barbarian culture while there are unconverted GPv left. No other Mercantile Combine or Renaissance or Civilized statuses can exist in the region.

7.3.6 Home Office

The Home Office (**ho**) is the cornerstone of the Merchant House. It serves as the focus for the entire operation, as well as the origin of the Homeland Build Zone for the House. It is the seat of the House government — that is the Bureaucratic Level, Infrastructure, Intel Ratings and University. Each Combine can only have one Home Office at a time, though the Home Office can be moved like a Capital from its original location to another location of at least Cartel City status at any time (as explained in **Base Rulebook** section [10.1.3]).

If the Home Office is destroyed then this counts as the destruction of the capital (see **Base Rulebook** section [10.1.4]). On the same turn that the Home Office is destroyed, a new Home Office is declared in the most appropriate Cartel City (or the next highest site location). All remaining BL and Infra points are moved to this new location. You may include a conditional order with your turn(s) indicating the location of the 'backup' Home Office or

the GM will choose the new location for you. If a Division Headquarters has been created (see section [7.2.6]) then it *automatically* becomes the new Home Office.

The Home Office produces full gold and NFP revenue from its location, and cannot coexist with any other kind of Merchant House status. It can coexist with any level of Open Nation status. A Home Office allows the Merchant House to base Intel Operations and Merchant Shipping Points from its location and to hire Mercenaries.

Note that the Home Office must reside in a city either controlled by a nation or uncontrolled. A Merchant House cannot have multiple statuses at *any* location.

The Merchant House only has access to yards and factories it builds at the Home Office location, unless it gains access to some or all of the Intrinsic Industrial Capacity — see section [3.6.3].

7.4 MERCHANT HOUSE RESTRICTIONS

Merchants operate under a number of restrictions, as delineated in the following sections.

7.4.1 Societal Bases

Due to its nature, a Combine can only be of the *Clan*, *Caste* or *Open* societal types.

7.4.2 Economic Bases

Only the *Guild* and *Free* Economic bases are available to a Combine.

7.4.3 Government Types

Only the *Oligarchy* and *Dictatorship* government types are available to a Combine.

7.4.4 Limited Manpower

This is the primary restriction on the Merchant House. They just do not get very much in the way of NFP. You will find, if you are playing a Merchant House, that you must adjust your playing style to avoid land wars (unless fought by mercenaries) or any kind of protracted conflict that may reduce your fleet assets.

7.4.5 Agricultural Requirements

Merchant Houses produce and consume only limited numbers of Agricultural Points from regions and/or cities where they have a mercantile status. Regions or cities that the Merchant House controls with a 'regular' control status (Allied, Friendly, etc.) produce Agro for the House and consume it at the usual rates. Colonies established by the House produce and require Agro (if they are a City) to support.

Also note that troops (infantry, warships, siege) consume food too! So if the Merchant House has men under arms, they will need agro points to feed them.

7.4.6 Troop Support

Should a Merchant House have regular troops (infantry, artillery, warships, etc.) then they pay the usual rate of troop support for these units. Soldiers have to be paid, right?

However, unlike Open Nations or Primacies, Merchant Houses must also pay support on the **Merchant Shipping Points** that they maintain on trade routes. Those boats and

crews are the lifeblood of the merchant house, they need pay, equipment, repairs, etc. This support will appear as “Troop Support” on the Merchant House stat-sheet.

Each MSP requires 0.1 GP per turn in support, adjusted for turn length, of course.

7.4.7 Controlling the Domains of a Merchant House

The House traces a chain of administrative control through its control statuses (which are also called “sites”) to create a Control Web.

Action Range is the critical stat in maintaining control over a far-flung Merchant House. The CCR (BL + Admin) defines how extensive the *effective* Control Web is, defining the maximum number of (AR) Action Point links. Thus the effective Line of Control is not infinite, although Trade Conduits may eventually permit a globe-spanning Control Web.

It is possible that a Merchant House will have sites/regions/cities that can trace a Line of Communication to the Home Office but are outside the effective Control Web and so are liable to revolt or degrade, see section [6.1.1].

- ◆ Each *Cartel City* or *Colony* must be within (AR) Action Points of the Home Office - or another Cartel City, Colony or regions or cities controlled at Tributary or better by the House able to trace an unbroken line of control to the Home Office.
- ◆ Each *region* or *city* controlled at Tributary or better by the House must be within (AR) Action Points of the Home Office - or a Cartel City, Colony or regions or cities controlled at Tributary or better by the House able to trace an unbroken line of control to the Home Office.
- ◆ Each *Branch Office* must be within (AR) Action Points of the Home Office - or a Cartel City, Colony or regions or cities controlled at Tributary or better by the House able to trace an unbroken line of control to the Home Office.
- ◆ Each *Factory* must be within (AR) Action Points of the Home Office - or a Cartel City, Colony, Branch Office, or a region or city controlled by the House at Tributary or better able to trace an unbroken line of control to the Home Office.
- ◆ Each *Agent* must be within (AR) Action Points of the Home Office - or a Cartel City, Colony, Branch Office, Factory or a region or city controlled by the House at Tributary or better that can trace an unbroken line of control to the Home Office.

When tracing the Action Range, you count regions as if you were moving a merchant Leader through them in regular movement. Mountains and hostile terrain hinder, therefore, and roads and seas benefit. See section [7.4.8].

Each Trade Conduit (Anchor City to Anchor City) counts as 1 AP when tracing the Action Range, regardless of the number of Sea Zones it passes through.

Merchant Houses can also use Aerial Trade Conduits to trace their control web. Each Aerial Trade Conduit (Anchor City to Anchor City) counts as 1 AP when tracing the Action Range, regardless of the number of Regions or Sea Zones it flies over.

Once an Anchor City is reached, however, Action Range

across land regions is traced normally. If the final city on the Conduit is not an Anchor City, or if there is no final Conduit then each Region and Sea Zone from the final Anchor City counts 1 AP for Action Range purposes.

A contiguous Railroad quarters the AP cost to trace the Action Range if the Merchant House owns or has permission to use it.

7.4.7.1 Merchant Leaders and the Control Web

An individual Merchant Leader may leave the effective Control Web of the Merchant House (on any number of missions) and will not revolt, unless provoked by a hostile power. Once that Leader creates a Control Status, however, it must be within the effective Web of the Merchant House, or any Merchant Leader at the location at the end of the turn will be checked for revolt. If they revolt they may attempt to establish their own Merchant House in the location and take control of other sites within Action Range of themselves, if those locations are also outside the effective Control Web. If the Merchant Leader does not revolt the site will degrade.

When a Merchant Leader revolts under other circumstances they may set up their own dominion with whatever resources are to hand. They might take over a lower-tech province or city as its ruler, start a new Merchant House, or go native and disappear.

If a Merchant Leader sets up their own dominion or Merchant House then the parent company loses 1 BL and 1 Infra to the rebel. If they have seized control of a Divisional Headquarters then instead they control whatever BL and Infra was located there. Nasty.

7.4.8 Movement of Merchant Leaders

Merchant Houses Leaders do not pay an additional AP for entering an *uncontrolled* region or city if:

- The Leader’s House has a control status of MA or better in the region / city, or...
- The region / city have the same *language* as the Leader’s Merchant House.

If a Merchant House has been discredited in a Nation, then they must pay +1 AP per region as they move through the hostile domain. This can have serious implications for tracing an effective Control Web, as it becomes more difficult to trace the Action Range across the territory of the Nation.

7.4.9 Religious Operations

Merchant Houses cannot perform Religious Operations. Merchants are not very religious...

7.4.10 Banking

Merchant Houses do not possess a "free" bank like the Open Nations do, but can lend their own monies to whomever they please and at whatever rate of interest subject to usury restrictions — but this comes under the purview of Players as Bankers. See the Main Rules *Players as Bankers*.

7.5 MERCHANT ACTIONS

In addition to the Action Codes available to Open Nations, there are a number of new Actions specific to the Merchant House. All of these actions chances of success can

be improved by spending Gold in support of them. In addition, some actions' chances of success can be improved by the *Support Diplomacy* (SD) or *Battle Assistance* (BA) Intel actions.

Table 7-2. Merchant House Actions Table

Action (Code)	Applicable Intel	Costs
Acquire Agent (aa)	Support Diplomacy	2 AP and 3 GP
Establish Factory (emf)	Support Diplomacy	3 AP and 5 GP
Open Branch Office (obo)	Support Diplomacy	6 AP and 10 GP
Acquire Monopoly (amn)	Support Diplomacy	8 AP and 25 GP
Found Cartel City (fct)	Support Diplomacy	8 AP and 25 GP
Establish Mercantile Colony (ecl)	Battle Assistance	8 AP and 25GP / year
Gain Preferential Treatment (gpt)	Support Diplomacy	3 AP and 25 GP
Discredit Competitor (dcm)	Support Diplomacy	6 AP and 25 GP
Seize Location (zl)	Battle Assistance	5 AP and 10 GP
Establish Mercenary Brokerage (emb)	Support Diplomacy	12 AP and 25 GP

7.5.1 Acquire Agent

Code **AA**
BAC 3+ AP and 3 GP
Stat Diplomacy

Results Can be attempted in any Region or City within (Action Range) AP of, or adjacent to, a location controlled by the Combine. If successful, it creates an Agent control status in the location. Chances of success are increased by spending gold to support the action and by Support Diplomacy actions. Hostile religion, different language and distance from other controlled locations are detriments to this effort.

7.5.2 Establish Factory

Code **EMF**
BAC 3+ AP and 5 GP
Stat Diplomacy

Results Can be attempted in any Region or City already containing an Agent. Chances of success are increased by spending gold to support the action and by Support Diplomacy actions. Hostile religion, different language and distance from other controlled locations are detriments to this effort.

7.5.3 Open Branch Office

Code **OBO**
BAC 6+ AP and 10 GP
Stat Diplomacy

Results Can be attempted in any location that already contains a Factory status. If successful, it upgrades the Factory to a Branch Office status. Suffers from the same detriments to success that an *Establish Factor* action does. Can also benefit from gold and Support Diplomacy actions.

7.5.4 Found Cartel City

Code **FCT**
BAC 8+ AP and 25 GP
Stat Diplomacy

Results A Branch Office in a city can be expanded to a Cartel City status through the FCT action if there are no other existing Merchant House statuses in the city. If another House has a Factor or Branch Office in the city already, it would need to be withdrawn or destroyed before a Cartel City could be founded. Again, gold and Support Diplomacy actions can increase the chances of success.

7.5.5 Establish Mercantile Colony

Code **ECL**
BAC 8 AP plus the Colony GP/NFP cost
Stat Combat

Results The ECL action is attempted by a Merchant Leader in the target province. This action is used if the target province is not adjacent to a location controlled by the Combine at least of Branch Office (or Tributary) status. Battle Assistance actions can also be used to increase the chances of success. See section [7.2.2] for more details.

7.5.6 Acquire Monopoly

Code **AMN**
BAC 8+ AP and 25 GP
Stat Diplomacy

Results Attempting to acquire a Monopoly requires at least a Branch Office in the Capital of the nation that the Monopoly will be acquired from. If no Capital exists, than a city in the target nation's homeland region will suffice. If no such city exists, than the Merchant House *may not* establish a monopoly. This action, which produces a Monopoly despite any agreement from the Nation in question, is difficult to achieve. However, if the majority of cities and regions controlled by the Nation already have some kind of Merchant House control status in them, then the chances of success are improved. Lots of cash in bribes helps too. Maintaining a Monopoly requires the Merchant House maintain a control level in the Capital/Homeland city of Branch Office or higher. If the Branch Office (or better) status is destroyed for any reason, then the Monopoly is lost and the 'borrowed' Trade Value point reverts to the Nation. This action can also be used to convert an existing 'granted' monopoly to an 'acquired' monopoly to help secure it from the whims of local governments.

7.5.7 Gain Preferential Treatment

Code **GPT**
BAC 3+ AP and 25 GP
Stat Diplomacy

Results The GPT action can be undertaken in a Nation where the Merchant House has at least a Branch Office in the national capital. Its effect is to adjust the Trade Route Duration for a trade route between the Merchant House and the Nation upwards. This has the effect of increasing the revenues gained from

the trade route as taxes or levies are relaxed and the House gains better access to the National markets. If there are numerous Merchant locations (Factors, Branch Offices and so on) in the Nation, the chances of success are greater.

A GPT can also be used to reverse the effects of a Discredit Competitor action taken by a rival.

7.5.8 Discredit Competitor

Code DCM

BAC 6+ AP and 25 GP

Stat Diplomacy

Results Once you realize that other Merchant Houses are edging in on your action in some Nation, you begin to think about ways to kick them back to whatever misbegotten land they came from in the first place. The DCM action is one of the tools that you have available to deal with other Merchants. A specific DCM action must be directed against one of the following kinds of targets:

- ◆ A competitor's Monopoly (a difficult target).
- ◆ A competitor's Preferential Treatment (a moderate target).
- ◆ A competitor's movement in the Nation (an easy target)

You must have either at least a Branch Office in the same Nation that is providing the Monopoly or the Preferential Treatment to attempt the action. If your effort is successful, then your competitor may lose the Monopoly, or have the Trade Duration of his Trade Route to this Nation reduced. For DCM effects on Merchant House Leader movement, see section [7.4.8] on page 49.

This action and its counterpart, *Gain Preferential Treatment* (GPT) can be undertaken on the same target nation by two or more competing Merchant Houses. In this situation, each GPT action cancels out one DCM action and vice versa. Any remaining result is implemented.

7.5.9 Seize Location

Code ZL

BAC 5+ AP and 10 GP

Stat Combat

Results A Leader (hopefully backed by some combat units – warships and infantry) attempts to directly attack and take over another Combine's control status. If successful, the captured site degrades one level. If the site is defended (by Merchant House units or by units of a government friendly to it) then the defenders must be defeated before Seize Location can be used to capture the local assets. If a Home Office is seized, then the unlucky Merchant House suffers the effects of the Destruction of the Capital, see the **Basic Rules**, section [10.1.4]. The lost government/intel/etc. may be ransomed if it is not put to the sword by the attacker.

7.5.10 Destroy Location

See Base Rulebook action Destroy Location, section [7.2.4.17].

7.5.11 Establish/Break Mercenary Brokerage

Code EMB

BAC 12+ AP and 25 GP

Stat Diplomacy

Results This effort is directed against a geographic area's Mercenary Pool in an attempt to become the controlling broker for those mercenary *condottieri*. See section [7.2.4] for more details. The Merchant House must have at least one Cartel City in the geographic area to be able to manage the brokerage.

7.5.12 Other Actions Undertaken by Combines

There are many activities that a Combine may undertake in support and pursuit of its mercantile policies. They are not limited to the actions shown above. Here are some activities that you may be interested in undertaking to expand your own sphere of business and limiting the influence of others:

- ◆ Piracy against other Combine's merchant fleets. Particularly in areas that you are expanding into.
- ◆ Supporting Open Nations that are fighting against other Open Nations that support your competitors.
- ◆ Fighting limited, mercenary-led, wars against weak nations to force them to grant you Monopolies and Trade Concessions.
- ◆ Piracy against the merchant fleets of Nations that you are trading with so that your Merchant Shipping expands into the deficit of hulls that this leaves. Piracy will also get you more shipping if you are lucky.
- ◆ Convincing Open Nations to destroy the locations and control statuses of your competitors.

7.6 MUNITIONS AND HEAVY MACHINERY EXPORT

All Nations with the proper Industrial and Yard Capacity may build the following kinds of units for export to other, less-technologically endowed, nations:

- Heavy Infantry or Cavalry (as Gun points)
- Warships and Transports
- Artillery
- Steamships
- Airships
- Aircraft
- Submarines
- Motorized
- Mechanized
- Rockets
- Nuclear Weapons

The construction of units for Export requires the usual number of GP and Industrial or Yard Capacity (of the proper type) expended by the constructing nation. Export units require the expenditure of **no** NFP to build. Export units are noted on the stat sheet by their code's enclosure in parentheses.

Example

The Pacific Mercenary and Trust company builds 10 Artillery units for export to Prester John. These units would be listed on the PM&T stat sheet like so: 10(g).

The Cargo requirement of an Export unit is one-half the cost of the regular unit. Once built and moved (or sailed by a ‘ferry crew’, in the case of ships) to the purchasing nation, the Export unit is expended to upgrade an existing national unit to a new type, as per the following table.

You may, of course, upgrade your own National units (if they are far from home) with Export units.

A ‘ferry crew’ for export ship units consists of a minimal crew commanded by a Leader tasked with delivering the vessels to their new owner. If attacked in transit, the units are simply captured, as the ‘ferry crew’ is very small and will not be able to fight the ship against an attacker and the Leader may be killed, captured or make their escape. For safety, the vessels should be escorted, or else fully crewed, sailed to the new owner, the crew withdrawn and shipped back as NFP or equivalent units of Light Infantry.

Upgrading a unit (or group of units) takes 6 AP, and in the case of ship units, must be undertaken at a controlled Port City.

Table 7-3. Export Unit Conversion(s)

Export Unit	Turns...	...Into
(hei)	2i	hei
(hec)	2c	hec
(ct), (xt), (xw), (nrw), (rrt), (rw), (xrw), (w), (dw), (hrw), (cw), (t), (vw), (ew), (hw), (gw), (fw), (efw), (gfw), (ffw), (efw), (hfw), (xsw), (scw), (st), (gb), (sfw), (hsw), (sw), (mt), (bw), (ac), (pc), (ms), (acw), (tbd), (xtb), (sb), (mm), (bb), (bc), (ca), (cl), (cla), (dd), (de), (ce), (cab), (cva), (vka), (vph)	ship (nfp equivalent)	ct, xt, xw, nrw, rrt, rw, xrw, w, dw, hrw, cw, t, vw, ew, hw, gw, fw, ew, gfw, ffw, efw, hfw, xsw, scw, st, gb, sfw, hsw, sw, mt, bw, ac, pc, ms, acw, tbd, xtb, sb, mm, bb, bc, ca, cl, cla, dd, de, ce, cab, cva, vka, vph
(d)	c	d
(zs), (z), (zh), (zt)	c (or d) (nfp equivalent)	zs, z, zh, zt
(sb), (ss)	ship (nfp equivalent)	sb, ss
(bf), (btb), (bit), (bcf), (bcb), (af), (ab), (act), (cvf), (cvb), (ahb), (jaf), (jab), (jct), (jcf), (jcb), (jhb)	i (nfp equivalent)	bf, btb, bit, bcf, bcb, af, ab, act, cvf, cvb, ahb, jaf, jab, jct, jcf, jcb, jhb
(ti), (mi), (pi), (ami)	2 i	ti, mi, pi, ami
(ts), (ms)	2s	ts, ms
(bg), (g), (sg), (hg)	c	bg, g, sg, hg
(tfg), (tsg), (mg), (msg), (shg)	2g	tfg, tsg, mg, msg, shg
(afx), (afv), (afh), (afb)	c	afx, afv, afh, afb
(ssr), (dsr), (smr), (rpr)	i (nfp equivalent)	ssr, dsr, smr, rpr
(nab)	i (nfp equivalent)	nab

Note National units upgraded by the delivery of export arms continue to fight with the Quality Rating of the nation employing them.

Note When crewing Units which cost more than 1 NFP, you must convert an NFP equivalent number of

‘equipable’ units to the NFP build cost of the upgraded unit.

Note If the customer receiving the export unit does not have the relevant QR (as they have not yet completed the requisite Project) then the units will fight at a default AQR of 1.

7.7 MERCANTILE CONSTRUCTION

With the introduction of Factories and Yards (of all kinds), the Merchant House gains the capability to build different kinds of units in cities outside their immediate Homeland Build Zone.

Note: This is an exception to the usual Yard and Factory rules and **only** applies to Merchant House construction.

Cartel Cities (both within and without the HBZ) containing a Mercantile Industry site (or other factory or yard) may be used to build:

- Units of the type constructed by the specific Yard or Factory (Airships, Steamships, Submarines etc.).
- Export Munitions (guns, artillery, ships) using the “generic” Industrial Capacity of any Mercantile Industry points present in the Cartel City.
- Railroads using the “generic” Industrial Capacity of any Mercantile Industry points present in the Cartel City.
- Other types of Monolithic Construction using the “generic” Industrial Capacity of any Mercantile Industry points present in the Cartel City.

Regular units (including ships for use by the Merchant House itself), must be constructed with the Homeland Build Zone (and most likely at the Home Office).

A Merchant House may build any kind of unit for which they have the technology, gold, NFP and industrial/yard capacity at their Home Office. In addition, they may build any kind of unit (assuming they have the industrial/yard capacity) within their Homeland Build Zone at any Cartel City, and any city or region in which they have an Open status (some types of factory and yard can be built in regions, see section [3.6.5]).

The Homeland Build Zone of a Merchant House is traced through regions they control (with a Merchant Agent or better, or have an Open status of Tributary or better) subject to the normal conditions stated in the Basic Rules section [2.4.4]. In addition, their HBZ can be traced along a Railroad (see section [3.4.3]) if they own the line or have been granted permission to use it.

8. CHARTS AND TABLES

8.1 THE STAT SHEET

Table 2-1. Technology Levels

Tech Level	Tech Level Title	Culture Types
001	Stone Working	Pre-Columbian / Seafaring
002	Iron Working	Pre-Columbian / Barbarian / Nomadic / Seafaring
003	Iron Working - Steel	Civilized / Pre-Columbian / Barbarian / Nomadic / Seafaring
004	Early Medieval	Civilized / Barbarian / Nomadic / Seafaring
005	Medieval - Medicine	
006	Medieval - Crossbow	Civilized / Seafaring
007	Late Medieval	
008	Renaissance - Gunpowder	
009	Renaissance - Printing	
010	Renaissance - Balloons	The Renaissance
011	Renaissance - Steam Engine	
012	Industrial 1 - Railroads	
013	Industrial 1 - Internal Combustion	Industrial Stage One
014	Industrial 1 - Electricity	
015	Industrial 1 - Vacuum Tubes	
016 - 019	Industrial 2	Industrial Stage Two
020 - 022	Industrial 3	Industrial Stage Three

Table 2-2. National Culture Modifiers

Cultural Type	Modifier
Industrial Four	1.4
Industrial Three	1.3
Industrial Two	1.2
Industrial One	1.1
Renaissance	1.0
Seafaring	0.9
Civilized	0.8
Barbarian	0.7
Nomadic	0.6
Pre-Columbian	0.5

Table 2-3. Terrain Type Tax Multiples

Terrain	Culture							
	I1	R	C	B	N	S	P	
c2	1.0	1.0	1.0	1.5	2.0	1.0	1.0	
C	1.0	1.0	1.0	1.0	1.5	1.0	1.0	
W	0.5	0.5	0.5	1.0	0.3	0.5	1.0	
M	0.5	0.3	0.3	0.5	0.2	0.2	0.5	
S	0.5	0.3	0.3	0.2	1.0	0.0	0.2	
D	0.2	0.2	0.2	0.2	0.5	0.0	0.2	
T	0.2	0.2	0.2	0.3	0.0	0.0	0.2	
I	0.5	1.0	1.0	1.0	1.0	1.5	1.0	
j	0.2	0.3	0.3	0.5	0.2	1.0	1.0	
o	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

Table 2-4. Army Status Troop Support Modifiers

Status	Description	Modifier
A	Administering	1.0
B	Being Besieged	2.0
C	On Campaign	2.0
E	Sneaking Around...	0.0
G	In Garrison	1.5
M	Mutinous!	0.0
N	Normal	1.0
P	Prisoner	0.0
R	Ruling	1.0
S	Besieging A City	2.0

Table 2-5. Terrain Troop Support Modifiers

Terr.	I1	R	C	B	N	S	P
M	1.5	1.75	2.0	1.0	2.0	2.0	1.5
S	2.0	1.5	2.0	1.5	0.0	2.0	1.5
T	2.0	2.0	2.0	1.5	2.0	2.0	1.0
D	2.0	1.75	1.5	1.5	1.0	1.5	1.5
J	1.5	1.5	1.5	1.0	1.5	1.0	1.0
W	1.25	1.0	1.5	1.0	1.5	1.5	1.0
C	1.0	1.0	1.0	1.0	0.1	1.0	1.0
C2	1.0	1.0	1.0	0.5	0.1	1.0	1.0
I	1.0	1.0	1.0	1.0	1.0	0.5	1.0
O	2.0	2.0	2.0	2.0	1.0	2.0	1.5

Table 2-6. Garrison Terrain Modifiers

Culture	c	c2	w	s	j	i	d	m	t	o
PreColumbian	1	1	1	2 ^c	1	1	2 ^c	1	2	1
Seafaring	1	1	2	2 ^c	2	1	2 ^c	2	2	1
Civilized	1	1	2	2 ^c	2	1	2 ^c	2	2	1
Barbarian	2	2	1	2 ^c	1	1	2 ^c	1	2	2
Nomadic	1	2	2	1 ^c	2	1	1 ^c	2	2	1
Rena./Indust1	1	1	2	2 ^c	1	1	1.5 ^c	1	2	1

Notes

- ◆ All regions requiring a cavalry garrison (those marked with a ^c) can be garrisoned with infantry or field forts in twice the cavalry amount. An exception to this applies in the case of regions where there is no Cavalry in use (pre-Cav Count America, or South Africa).
- ◆ All listed numbers are factors that are multiplied by the Region Resistance Value.

Table 2-7. Maximum Region Status by Religion

National RS	Regional Religion.		
	Same	Tolerant	Hostile
1	F	F	A
2-3	F	F	EA
4-5	F	A	EA
6-7	F	EA	T
8-9	F	EA	NT
10	F	T	P/PT

Table 2-8. Maximum Region Status by Terrain

Regional Terrain	Controlling Culture.					
	R/I1	C	B	N	S	P
C2 (Intns Cult.)	Hm	Hm	Hm	Hm	F	Hm
C (Cultivated)	Hm	Hm	Hm	Hm	F	Hm
W (Wilderness)	F	F	Hm	EA	FA	Hm
M (Mountain)	EA	FA	F	T	EA	FA
S (Steppe)	EA	FA	T	F	NT	FA
D (Desert)	EA	FA	T	F	NT	EA

Regional Terrain	Controlling Culture.					
	R / I	C	B	N	S	P
T (Tundra)	F	F	F	NT	T	F
I (Island)	Hm	F	F	T	Hm	F
J (Jungle)	F	F	EA	NT	EA	F
O (Oasis)	EA	T	NT	A	NT	NT

Table 2-9. Base City Types

Type Base	Code	Notes
Capital	C	
Road	R	Must be connected to the capital by Royal Road.
Railroad	T	Must be connected to the capital by Railroad.
Port City	P	
Silk Route	S	Silk Route must be "working". Overridden by Road or Railroad.
University	U	Only if the University is not in the Capital.
Sacred City	H	
Treasury	\$	

Table 2-10. Meta-City Types

Meta-Type	Code
Road and Port	%
Road and Railroad	=
Road, Railroad and Port	#
Silk-Route and Sacred City	!
Sacred City and University	*

Table 2-11. Master City Type List

Description	Code	Agro	ITV	Road?	Port?	+RV
Normal	/	1.0	0.5	No	No	+0
Capital	C	1.0	1.25	No	No	+1
Road	R	1.0	1.0	Yes	No	+0
Railroad	T	1.0	1.5	Yes	No	+0
Port City	P	0.8	1.5	No	Yes	+1
Silk Route	S	1.0	1.0	No	No	+0
University	U	1.0	0.75	No	No	+1
Sacred City	H	1.2	0.75	No	No	+1
Treasury	\$	1.0	0.75	No	No	+1
Road, Port	%	0.8	1.5	Yes	Yes	+1
Road, Railroad	=	0.8	1.5	Yes	No	+0
Road, Railroad, Port	#	0.8	1.5	Yes	Yes	+1
Railroad, Port						
Railroad, Port	+	0.8	1.5	Yes	Yes	+1
Silk-Route, Sacred City	!	1.2	1.0	No	No	+1
Sacred City, University	*	1.2	0.75	No	No	+2
Capital, Road	CR	1.0	1.25	Yes	No	+1
Capital, Port	CP	0.8	1.5	No	Yes	+2
Capital, Railroad	CT	0.8	1.5	Yes	No	+1
Capital, Road, Port	C%	0.8	1.5	Yes	Yes	+2
Capital, Road, Railroad	C=	0.8	1.5	Yes	No	+1
Capital, Road, Railroad, Port	C#	0.8	1.5	Yes	Yes	+2
Capital, Railroad, Port	C+	0.8	1.5	Yes	Yes	+2
Capital, Silk-Route, Sacred City	C!	1.0	1.25	No	No	+2
Capital, University	CU	1.0	0.75	No	No	+1
Capital, Road, University	CRU	1.0	1.25	Yes	No	+1
Capital, Port, University	CPU	0.8	1.5	No	Yes	+1
Capital, Railroad, University	CRU	0.8	1.5	Yes	No	+1
Capital, Silk-Route, University	CSU	1.0	1.0	No	No	+1
Capital, Silk-Route, Sacred City	CS!	1.0	1.25	No	No	+1
Capital, Silk-Route, Port	PS	0.8	1.5	No	Yes	+1

Description	Code	Agro	ITV	Road?	Port?	+RV
Sacred City						
Sacred City, Road	RH	1.2	1.0	Yes	No	+1
Sacred City, Railroad	TH	1.0	1.5	Yes	No	+1
Sacred City, Port	PH	1.0	1.5	No	Yes	+1
Sacred City, Road, Port	%H	1.2	1.5	Yes	Yes	+2
Sacred City, Road, Railroad	=H	1.0	1.5	Yes	No	+1
Sacred City, Road, Railroad, Port	#H	1.0	1.5	Yes	Yes	+2
Sacred City, University, Road, Port	+H	1.0	1.5	Yes	Yes	+3
Sacred City, University, Road, Railroad	=*	1.0	1.5	Yes	No	+2
Sacred City, University, Road, Railroad, Port	#*	1.0	1.5	Yes	Yes	+3
Sacred City, University, Railroad, Port	+*	1.0	1.5	Yes	Yes	+3
Capital, Sacred City, Road, Port	C%H	1.0	1.5	Yes	Yes	+2
Capital, Sacred City, Road, Railroad	C=H	1.0	1.5	Yes	No	+2
Capital, Sacred City, Road, Railroad, Port	C#H	1.0	1.5	Yes	Yes	+3
Road, University	RU	1.0	1.0	Yes	No	+1
Railroad, University	TU	0.8	1.5	Yes	No	+1
Port City, University	PU	0.8	1.5	No	Yes	+1
Silk Route, University	SU	1.0	1.0	No	No	+1
Capital, Silk Route	CS	1.0	1.25	No	No	+1
Port City, Silk Route	PS	0.8	1.5	No	Yes	+1

Table 2-12. Years per Turn

Tech Level	Years per Turn	Base Tax Rate
1-7	5	100%
8-9	4	80%
10-11	3	60%
12-13	2	40%
14-15	1	20%
16-17	6 months	10%
18-19	3 months	6%
20+	1 month	2%

Table 2-13. Sea Ratings Maximum Values

Rating	Maximum Value
Navigation	Tech Level / 2
Trade Range	Tech Level - 2
Conduit Limit	Tech Level / 2

Table 2-14. Ship Movement Rates

Culture	Actions per Year
Renaissance	7 + Nav. Rating + other AP modifiers
Industrial One	8 + Nav. Rating + other AP modifiers

Table 2-15. New Trade Ranges

Original Culture Type	New Trade Range
Civilized	4
Seafaring	5

Table 2-16. Conduit City Minimum Status

Nation Type	Minimum Status for Conduit City
Open Nation	Economic Ally
Religious Primacy	Holy City or Economic Ally
Merchant Combine	Branch Office or Economic Ally
Religious Order	Order Fortress or Economic Ally

Table 2-17. Trade Route Status

RouteStatus	Description	Throughput
AIR	Aerial Trade	25%
BST	Blockaded Sea Trade	50%
LTC	Land along the Silk Route	30%
LTD	Land by Difficult Terrain	80%
LTH	Land by Hostile Terrain	70%
LTO	Land by Open Terrain	85%
LRR	Land by Rail Road	110%
LTR	Land by Road	90%
LTS	Land across the Sahara	50%
INI	Trade Under Interdict	50%
NST	Normal Sea Trade	1-100%
WAR	Blocked by Warfare	10%

8.2 THE ORDER FORM

Table 3-1. Max. QRs per Culture and Tech Level

Civilized

Tech	Cavalry	Infantry	Warship	Siege	Artillery
3	5	5	4	5	--
4	7	6	5	7	--
5	8	7	6	8	--
6	9	8	7	10	--
7	10	10	10	12	4

If a Civilized Tech 7 Nation purchases one or more Artillery units from a Renaissance nation they can then begin building Artillery units and investing in their own QR, which starts at one (1).

Seafaring

Tech Level	Cavalry	Infantry	Warship	Siege
1	0	3	4	2
2	1	4	6	4
3	3	5	6	5
4	5	6	7	7
5	6	7	8	8
6	7	8	9	10
7	8	10	12	12

Barbarian

Tech Level	Cavalry	Infantry	Warship	Siege
2	3	4	4	4
3	5	5	4	5
4	7	6	5	7

Nomadic

Tech Level	Cavalry	Infantry	Warship	Siege
2	5	3	2	2
3	7	4	3	3
4	9	5	4	5

Pre-Columbian

Tech Level	Cavalry	Infantry	Warship	Siege
1	0 (1)	3	2	2
2	0 (2)	4	4	4
3	0 (3)	5	4	5

Note: Cavalry is available to Pre-Columbian cultures only after the expiration of the Cavalry Count in that geographic area.

Renaissance

Tech	Cavalry	Infantry	Warship	Siege	Artillery
8	11	12	12	15	6
9	11	14	15	17	9
10	12	15	17	20	11
11	13	16	20	23	13

Industrial One

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air	Rock
12	14	18	27	26	20	--	--	--
13	14	20	30	29	22	5	5	--
14	14	22	34	32	24	10	10	1
15	15	24	37	35	26	15	15	3

Industrial Two

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air
16	15	26	40	38	30	20	25
17	15	28	42	41	32	25	30
18	15	30	46	44	35	30	35
19	15	32	48	47	40	35	40

Tech	Rocket	Nuclear
16	6	2
17	9	4
18	12	6
19	15	8

Industrial Three

Tech	Cav	Inf	Naval	Siege	Art	Mech	Air
20	15	34	50	50	42	40	45
21	15	40	54	53	45	45	50
22	15	50	57	57	50	50	55

Tech	Rocket	Nuclear
20	20	10
21	25	15
22	30	21

Table 3-2. Flying Machine Unit Types

Type	Biplane	Monowing	Jet
Fighter	bf	af	jf
Bomber	bib	ab	jb
Hvy Bomber	--	ahb	jhb
Transport	bt	at	jt
Carrier Fighter	bcb	cvf	jcf
Carrier Bomber	bcb	cvb	jcb

Table 3-3. Maximum City Size by Terrain

Region Terrain	Maximum GPV
C2	20
C / I	15
W	10
M / J	8
S / D	6
T	5

Table 3-4. Maximum Public Works for TL 12

Region Terrain	Maximum PWB
C2	GPv x 30
C	GPv x 20
Other Terrains	No Change
Cities	GPv x 15

Table 3-5. City Build/Status Increase

Starting GPv	Status Increase
1	+4
2	+3
3	+2
4 or more	+1

Table 3-6. Pre-Existing Status Levels

Status Level	MH	PRA	RO
0	None	None	None
1	MA	CH	OH
2	MF	AB	OO
3	BO	MN	OP
4	CI	CA	OE

Table 3-7. Industry Culture Modifiers

Cultural Type	Modifier
Pre-Columbian	0.75
Barbarian/Nomad	0.5
Seafarer	0.9
Civilized/Renaissance/Industrial	1.0

Table 3-8. Industry Economic Modifiers

Economic Type	Modifier
Agrarian	0.5
Guild	0.75
Free	1.0
Slave	0.6

Table 3-9. Maximum Factory Construction

Location	Max YC	Notes
City	GPv x 5	This total includes all Factories and Yards located at the city.
C/C2 region	GPv	This total includes all Factories and Yards located in the province. Shipyard and Submarine Yards may only be built in coastal provinces.
W/I/J region	GPv / 2	This total includes all Factories and Yards located in the province. Shipyard and Submarine Yards may only be built in a coastal province.
Other terrains	None	

Note: Wilderness, Island or Jungle capacity is rounded down (so will be 0 for anything less than a 2 GP province).

Note: This total includes Mercantile Industry points added to the City.

Table 3-10. Factory/Yard Construction Costs

Type	Location	GPc	NFPc	Indust Cap. Cost	Time
Dockyard	Port City	50.0	25	5	5
	Airship City	25.0	5	1	2
Shipyard	Region	50.0	8	2	4
	Port City	50.0	5	2	2
	Coastal Region	100.0	10	3	4
Submarine Yard	Region	0			
	Port City	30.0	5	2	2
"Generic" or Mercantile Industry	Coastal Region	50.0	8	3	4
	City	5	1	0	2
Aircraft Factory	City	50	5	1	2
	Region	75	8	2	4
Rocket Factory	City	75	5	3	2
	Region	100	8	3	4
Nuclear Production Factory	City	100	5	5	2
	Region	125	8	5	4
Hidden or Underground	Appropriate Region (only)	x2	x2	x2	x2

Note Homeland Build Zone restrictions continue to apply, even to units built at a Factory. See Base Rulebook section [5.4.2] for more details.

Note Mercantile Industry sites can be staffed (built) using Project Recruitment NFP.

Table 3-11. Factory/Yard Defense Strengths

Factory or Yard Type	Siege Strength
Airship and Aircraft Factories, Rocket Factories, Nuclear Production Factories, Mercantile Industry	10
Shipyard or Submarine Yard	20
Dockyard	20
City "generic" Yard	15

Table 3-12. Megalithic Construct Cost Multiples for Terrain

Culture	Terrain Type								
	c2	c	w	m	s	d	i	j	t
I2/I3	1.0	1.0	1.5	1.5	1.5	2.0	1.0	2.0	2.0
R/I1	1.0	1.0	1.5	2.0	2.0	2.0	1.0	2.0	3.0

Table 3-13. Canal Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
2 (5)	11	15	Queta Canal Upgrade
6	12	10	Suez Canal
3 (6)	12	10	Panama Canal Upgrade
6	13	10	Volga Extension
3	13	5	Volga-Don Extension
2	12	5	White Sea Canal

Table 3-14. Mega-Bridge Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
4	16	20	Bali Bridge (connecting Bali with Pajajaran).
2	15	10	Bosporus Bridge (connecting Thrace with Bithnia Europe/Asia Minor).
3	15	10	Copenhagen Bridge (connecting Denmark with Skane in northern Europe).
2	13	5	Gate Sea Bridge (connecting Pomo and Salinan in North America).
4	15	15	Hainan Bridge (connecting Hainan and Lingnan in China).
4	16	15	Hokkaido-Honshu Bridge (connecting Hokkaido and Akita in Japan).
4	15	15	Honshu-Shikoku Bridge (connecting Shimane and Shikoku in Japan).
4	16	20	Sicilian Bridge (connecting Sicily with Calabria in Italy).

Table 3-15. Tunnel Construction Levels

Level	Tech Level Requirement	Industrial Capacity Cost	Description
4	16	15	Bosporus Tunnel (connecting Thrace with Bithnia Europe/Asia Minor).
4	16	30	Channel Tunnel (connecting Sussex with Ponthieu).
3	15	20	Copenhagen Tunnel (connecting Denmark with Skane in northern Europe).
5	16	40	Gibraltar Tunnel (connecting Morocco with Andalusia).
4	16	25	Hokkaido-Honshu Tunnel (connecting Hokkaido and Akita in Japan).

8.3 LEADERS AND ARMY ACTIONS

Table 5-1. Months Per Year Available For Actions

Culture	# of Months
Civilized	6
Seafaring	7
Barbarian	8
Nomadic	8
Pre-Columbian	5
Renaissance Land Units	8
Renaissance Ships	See build chart
Industrial One non-Steam Ships	See build chart
Industrial One Steamships	See build chart
Industrial One Land Units	9
Industrial Two Land Units	10

Table 5-2. Unit Type Modifiers

Unit Type	Modifier
Leader	+2
Cavalry	+1
Infantry	+0

Unit Type	Modifier
Siege	+0
Artillery	-1
Tribe Points	-1

Table 5-3. Equipment Type Modifiers

Equipment	Modifier
Heavy	-1
Medium	+0
Light	+1

Table 5-4. Unit Training Modifiers

Training	Modifier
Elite	+1
Regular	+0
Inexperienced	-1

Table 5-5. Leader Combat Rating Modifiers

Combat Leadership	Modifier
1 – 4	-1
5 – 8	+0
9 – 11	+1

Table 5-6. Regional Terrain Action Modifiers

Culture Type	Regional Terrain Type					
	c/c2/i	w	m	d/s	t	j
Civilized	+0	+1	+2	+1	+2	+2
Seafaring	+0	+1	+2	+2	+2	+2
Barbarian	+0	+0	+1	+1	+1	+1
Nomadic	+0	+1	+2	+0	+2	+2
pre-Columbian	+0	+0	+1	+1	+1	+0
Renaissance	+0	+0	+1	+1	+2	+1
Industrial 1/2	+0	+0	+1	+1	+2	+1

Table 5-7. Operation Leader Types

Type	Description
N	Admiralty - Naval Ops Leader
W	Wing Commander - Air Ops Leader
G	General Staff - Army Ops Leader

Table 5-8. Army Operations Ranges

Tech	Infantry and Engineers	Cavalry	Artillery	Motorized And Mechanized
12	3	4	3	5
13	4	5	4	6
14	4	5	4	7
15	4	5	4	7
16	4	5	4	9

Table 5-9. Warship Operations Ranges

Tech	Sailing Ships	Steam Ships, Ironclads and Premodern	Modern
9	3 + Nav	-	-
10	4 + Nav	-	-
11	4 + Nav	1	-
12	4 + Nav	2	-
13	4 + Nav	3	-
14	4 + Nav	3	6
15	4 + Nav	3	9

Tech	Sailing Ships	Steam Ships, Ironclads and Premodern	Modern
16	4 + Nav	3	12

Table 5-10. Submarine Operations Range

Tech	Operations Range
13	3
14	6
15	9
16	12

Table 5-11. Operational Ranges for Airships

Airship Type	
Scout Airship	3
Airship	4
Heavy Airship	6
Airship Transport	8

Table 5-12. Operational Ranges for Aircraft

Aircraft Type	Biplane	Monowing	Jet
Carrier Fighter	0	1	3
Fighter / Carrier Bomber	1	2	5
Bomber / Cargo Plane	1	4	8
Heavy Bomber	-	6	12

Table 5-13. Operational Ranges for Rockets

Rocket Type	Minimum Range	Maximum Range	Nuclear Capable	Space port
Single-Stage Rocket	1	3	No	No
Dual-Stage Rocket	2	3 Large Hexes	Yes	Yes
Rocketry: Manned Capsule	--	--	No	Yes
Rocket plane	1	8 Large Hexes	No	No

Sea Zones and Hexes count as 2 Range Points per zone or hex. An exception to this is Sea Hex/Zone combinations which in area make up approximately one Hex. Examples of this are: Hex 23C and *Freya Bank*, Hex 41H and *Inland Sea* and so on. In this case the Zone is 1 Range and the Hex is 1 Range.

Table 5-14. Large Hex Map for Rockets

GA	GB	GC	GD	GE	GF	GG	GH
GA1	GB1	GC1	GD1	GE1	GF1	GG1	GD1
GA2	GB2	GC2	GD2	GE2	GF2	GG2	GH2
GA3	GB3	GC3	GD3	GE3	GF3	GG3	GH3
GA4	GB4	GC4	GD4	GE4	GF4	GG4	GH4
	GB5		GD5		GF5		GD5

The Large Hex Map provides an easy way to determine and define the trajectory of any inter-continental rocket. To calculate the range of the rocket identify the launch site in one hex and the target in another. The launch hex and the target hex both count against the range of the rocket.

In addition to flying on the map, long range rockets can also fly over the Polar Regions. This means that any rocket trajectory can leave the top or bottom edge of the Map and reappear anywhere along that edge of the Map.

This map is also used in determining the course flown by rocketplanes.

8.4 EMPIRE BUILDING

Table 6-1. CCR Costs Supplement

Border / Region Type	CCR Cost
Controlled land border along a Royal or Postal Road segment	$\times \frac{1}{2}$
Unsettled (empty, Barbarian / Pre-Columbian / Nomadic) regions	+1
Any kind of region within the tsetse Fly zone (unless traversed by a Railroad)	+1
'Anchored' Trade Conduit	1
Submarine Telegraph Cable	1
Controlled land border along a Railroad	$\times \frac{1}{4}$

8.5 MERCHANT HOUSE INFORMATION

Table 7-1. Merchant House Control Statuses

Control Status	Code	Taxes	Agro	NFP	Trade?	Base?
Merchant Agent	ma	0.10	0.00	No	Yes	Yes
Merchant Factory	mf	0.20	0.10	No	Yes	Yes
Branch Office	bo	0.30	0.20	No	Yes	Yes
Cartel City	ci	0.40	0.30	Yes	Yes	Yes
Home Office	ho	0.50	0.40	Yes	Yes	Yes
Merchant Colony	mcl	1.00	1.00	Yes	Yes	Yes

Taxes This is the taxation percentage that the Merchant House receives of the Regional or City GPV and Public Works and affects Industrial Capacity.

Agro This is the rate at which a given status produces and consumes Agro.

NFP? Indicates whether the Merchant House receives any NFP from the location / control status. Cartel Cities do not provide as much NFP as does a Home Office.

Trade? Indicates whether the location under this control status adds to the International Trade Value of the Merchant House.

Base? Indicates whether a Port City containing one of these statuses can provide harborage for House merchant shipping points. Only a Branch Office status (or better) can serve as a Conduit Anchor.

Table 7-2. Merchant House Actions Table

Action (Code)	Applicable Intel	Costs
Acquire Agent (aa)	Support	2 AP and 3 GP
	Diplomacy	
Establish Factory (emf)	Support	3 AP and 5 GP
	Diplomacy	
Open Branch Office (obo)	Support	6 AP and 10 GP
	Diplomacy	
Acquire Monopoly	Support	8 AP and 25 GP

Action (Code)	Applicable Intel	Costs
(amn)	Diplomacy	
Found Cartel City (fct)	Support	8 AP and 25 GP
	Diplomacy	
Establish Mercantile Colony (ecl)	Battle Assistance	8 AP and 25GP / year
Gain Preferential Treatment (gpt)	Support	3 AP and 25 GP
	Diplomacy	
Discredit Competitor (dcm)	Support	6 AP and 25 GP
	Diplomacy	
Seize Location (zl)	Battle Assistance	5 AP and 10 GP
Establish Mercenary Brokerage (emb)	Support	12 AP and 25 GP
	Diplomacy	

Table 7-3. Export Unit Conversion(s)

Export Unit	Turns...	...Into
(hei)	2i	hei
(hec)	2c	hec
(ct), (xt), (xw), (nrw), (rrt), (rw), (xrw), (w), (dw), (hrw), (cw), (t), (vw), (ew), (hw), (gw), (fw), (ew), (gfw), (ffw), (efw), (hfw), (xsw), (scw), (st), (gb), (sfw), (hsw), (sw), (mt), (bw), (ac), (pc), (ms), (acw), (tbd), (xtb), (sb), (mm), (bb), (bc), (ca), (cl), (cla), (dd), (de), (ce), (cab), (cva), (vka), (vph)	ship (nfp equivalent)	ct, xt, xw, nrw, rrt, rw, xrw, w, dw, hrw, cw, t, vw, ew, hw, gw, fw, ew, gfw, ffw, efw, hfw, xsw, scw, st, gb, sfw, hsw, sw, mt, bw, ac, pc, ms, acw, tbd, xtb, sb, mm, bb, bc, ca, cl, cla, dd, de, ce, cab, cva, vka, vph
(d)	c	d
(zs), (z), (zh), (zt)	c (or d) (nfp equivalent)	zs, z, zh, zt
(sb), (ss)	ship (nfp equivalent)	sb, ss
(bf), (btb), (bit), (bcf), (bcb), (af), (ab), (act), (cvf), (cvb), (ahb), (jaf), (jab), (jct), (jcf), (jcb), (jhb)	i (nfp equivalent)	bf, btb, bit, bcf, bcb, af, ab, act, cvf, cvb, ahb, jaf, jab, jct, jcf, jcb, jhb
(ti), (mi), (pi), (ami)	2 i	ti, mi, pi, ami
(ts), (ms)	2s	ts, ms
(bg), (g), (sg), (hg)	c	bg, g, sg, hg
(tfg), (tsg), (mg), (msg), (shg)	2g	tfg, tsg, mg, msg, shg
(afx), (afv), (afh), (afb)	c	afx, afv, afh, afb
(ssr), (dsr), (smr), (rpr)	i (nfp equivalent)	ssr, dsr, smr, rpr
(nab)	i (nfp equivalent)	nab

Note National units upgraded by the delivery of export arms continue to fight with the Quality Rating of the nation employing them.

Note When crewing Units which cost more than 1 NFP, you must convert an NFP equivalent number of 'equipable' units to the NFP build cost of the upgraded unit.

Note If the customer receiving the export unit does not have the relevant QR (as they have not yet completed the requisite Project) then the units will fight at a default AQR of 1.

8.6 UNIT BUILD CHARTS

Note: Some of the Projects are optional to a campaign, and some of the resulting unit types are also optional to a campaign. See section [4.1.2] and Table 8-4.

Table 8-1. Research & Development Project Summary

Name	Pre-requisites	Advances	Results
Tech Level 9			
Admiralty	None	2	Gains one Naval Op. Can invest in Naval Ops QR.
Tech Level 10			
Balloons (Optional)	None	2	Can build Draken (d) units – hot air balloons, useful for artillery spotting.
Tech Level 11			
Steamships	None	5	Can build Wooden Steamship (xsw, scw, st and gb) units and Shipyards.
Tech Level 12			
General Staff	None	2	Gains one Army Op. Can invest in Army Ops QR.
Ironclads	Steamships, 1 Shipyard	2	Can build Steam Cruiser (sfw) units & Ironclad (sw) Battleships
Battleships	Ironclads, 3 Shipyards	3	Can build Steel Hulled (hsw) Battleships and (mt) transports.
Super-Heavy Artillery	None	4	Can build Super-Heavy Artillery (shg) units.
The Analytical Engine	None	4	Bonus to further R&D projects.
Tech Level 13			
Naval Architecture	Battleships, 3 Shipyards	4	Can build pre-modern capital ships (bw, ac, pc) and steel hulled transports (ms)
Internal Combustion Engine	None	6	Allows many subsequent projects.
Torpedoes	Naval Architecture	2	Can build Torpedo Equipped Surface Ships (tbd, xtb) units.
Submersibles	Naval Architecture, Internal Combustion Engine, Torpedoes	3	Can build (sub) units and submarine yards
-	Submersibles, Admiralty	-	Can use Sub based Naval Ops
Motorized Transport	Internal Combustion Engine	3	Can build Motorized Infantry (ti) Artillery (tfg, tsg) and Engineers (ts).
Flying Machines: Biplane	Internal Combustion Engine	4	Can build Fighter (bf), Bomber (bib) and Transport (bit) Aircraft units. Can build Aircraft Factories.
Airships (Optional)	Internal Combustion Engine	2	Can build Airships (z), Scout Airships (zs), and Airship yards
Large Airships (Optional)	Airships, 4 Airship Yards	3	Can build Heavy Airships (zh) and Transport Airships (zt)
Airship Carrier (Optional)	Naval Architecture, Airships, 6 Shipyards	3	Can build (acw) units
Tech Level 14			
Air Command	Airships OR Biplane	2	Gains one Air Op. Can invest in Air Ops QR.
Parachute Infantry	Biplane, 10 Aircraft Factories	2	Can build Parachute Infantry (pi) units.
Improved Engines	Naval Architecture, Internal Combustion, 6 Shipyards	4	Allows modern merchant ship (mm) units and many subsequent projects.
Modern Warships	Torpedoes, Improved Engines	4	Can build Modern Surface Combatants (bb, bc, ca, cl, cla, dd, de, ce) units.
Aircraft Carrier	Modern Warships, Carrier Aircraft(*)	1	Can build Modern Carriers (cv, cvl, cve) units, and (cab, cva) units at TL15.
Flying Machines: Carrier Aircraft	Biplane, Aircraft Carrier (*), 5 Aircraft Factories	4	Can build Carrier Biplane Fighter (bcf) and (bcb) units and Monoplane and jet equivalents when relevant project completed.
Submarines	Submersibles, Improved Engines, 3 Submarine yards	2	Can build (ss) units.
Landships	Motorized Transport	5	Provides a Combat Bonus unless the opponent has also completed the Project.
Armored Fighting Vehicle: Light Tank	Internal Combustion, Landship	4	Can build Light Tank (afx) units.
Tech Level 15			
Flying Machines: Monoplane Light	Biplane, 4 Aircraft Factories	3	Can build Fighter (af) and Bomber (ab) Aircraft units
Flying Machines: Monoplane Heavy	Monoplane Light, 10 Aircraft Factories	1	Can build Cargo (act) and Heavy Bomber (ahb) Aircraft units.
Mechanized Troops	Light Tank	3	Can build Mechanized versions of Infantry (mi) and Artillery (mfg) and Engineers (ms).
Armored Fighting Vehicle: Medium Tank	Light Tank	4	Can build Medium Tank (afv) units and heavier Mechanized Artillery (msg)
Amphibious Warfare Vessel	Improved Engines, Light Tank	3	Can build Attack Cargo Ships (vka) and Amphibious Assault Ships (vph).
Armored Fighting Vehicle: Heavy Tank	Medium Tank	3	Can build Heavy Tank (afh) units.
Rocketry: Single-Stage Rocket	None	6	Can build Single-Stage Rockets (ssr) units.

Name	Pre-requisites	Advances	Results
Radio	Internal Combustion	3	Combat bonus
Radar	Radio	5	Combat and Intercept bonus
Sonar	Radio	5	Combat and Intercept bonus
Tech Level 16			
Armored Fighting Vehicle: Battle Tank	Heavy Tank	3	Can build Battle units (afb) units.
Flying Machines: Jet Light	Monoplane Light, 20 Aircraft Factories	5	Can build Jet Fighter (jf) and Bomber (ib) units
Flying Machines: Jet Heavy	Jet Light, 30 Aircraft Factories	1	Can build Jet Cargo Transport (jct) and Heavy Bomber (jhb) units.
Helicopters	Monoplane Light, 10 Aircraft Factories	5	Can build Airmobile Infantry (ami).
Rocketry: Dual-Stage Rocket	Single-Stage Rocket, 5 Rocket Factories, Radio	5	Can build Dual-Stage Rocket (dsr) units.
Rocketry: Manned Capsule	Dual-Stage Rocket, 10 Rocket Factories, Spaceport	2	Can build a low orbit manned space craft (smr) unit.
Rocketry: Rocketplane	Single-Stage Rocket, Jet Heavy Bomber, 5 Rocket Factories, 16 Aircraft Factories, Radio	6	Can build a reusable primitive spaceplane (rpr) unit.
Nuclear: Theoretical Nuclear Physics	None	8	Can build Nuclear Production Factories
Nuclear: Atomic Bomb	Theoretical Nuclear Physics, 5 Nuclear Production Factories	6	Can build Atomic Bomb (nab) unit.

Table 8-2. Renaissance Unit Construction Chart

Unit Name	Code	GPc	NFP _c	Indust _C	AP	Cargo	Support	Combat	Siege	Build At...
Cavalry										
Cavalry	C	6.0	1	1	8	4	0.6	2.3	0.8	Fc
Heavy Elite Cavalry	HEC	11.0	2	2	9.	4	1.1	3.4	1.1	Fc
Inexperienced Cavalry	IC	2.5	1	-	8	3	0.25	0.8	0.3	Hm,Fc
Light Cavalry	XC	4.0	1	-	10	2	0.4	0.8	0.3	Hm,Fc,Csr
Light Elite Cavalry	XEC	9.0	2	-	11	2	0.9	1.1	0.4	Fc
Artillery										
Prerequisite - TL 8										
Bombard	BG	7	1	1	6	8	0.8	0.5	2	Fc
Prerequisite - TL 10										
Siege Artillery	SG	12	1	2	6	9	1.2	2	4	Fc
Prerequisite - TL 11										
Artillery	G	6	1	1	8	5	0.6	3	2	Fc
Infantry										
Heavy Elite Infantry	HEI	7.0	2	2	8	3	0.7	2.3	3.4	Fc
Infantry	I	4.0	1	1	7	3	0.4	1.5	2.3	Fc
Inexperienced Infantry	II	1.5	1	-	7	2	0.15	0.5	0.8	Hm,Fc
Light Elite Infantry	XEI	5.0	2	-	10	1	0.5	0.8	1.1	Fc
Light Infantry	XI	2.0	1	-	9	1	0.2	0.5	0.8	Hm,Fc,Crh
Forts and Engineers										
Field Fort	F	5.0	1	-	--	--	0.3	5.0	--	Cr
Siege Engineers	S	4.0	1	1	8	2	0.4	0.5	4.0	Fc
Wall Point	WP	8.0	1	-	--	--	0.5	--	10.0	Cc
Warships										
Pre TL6 Ships										
Cog	CT	4	0.1	1	12+Nav	(3)	0.4	(0.0)	(0.0)	HBZ Pa
Light Transports	XT	3	0.1	1	18+Nav	(1)	0.3	(0.0)	(0.0)	HBZ Pa
Light Warship	XW	5	0.2	1	14+Nav	0	0.5	0.5	0.5	HBZ Pa
TL6 Ships										
Caravel	W	6	0.5	3	14+Nav	(1)	0.6	2.0	1.0	HBZ Pc
TL7 Ships										
Carrack	CW	7	1	4	16+Nav	(2)	0.7	4.0	3.0	HBZ Pc
TL8 Ships										
Ordinary Transports	T	4	0.1	1	17+Nav	(3)	0.4	(0.0)	(0.0)	HBZ Pa
Prerequisite - TL8, Navigation 4+										
Corvette	VW	3	0.2	1	20+Nav	0	0.3	0.5	0.5	HBZ Pc
Galleon	EW	24	1	4	17+Nav	(2)	2.4	4.0	4.0	Dockyard
Prerequisite - TL 9, Navigation 4+										
Ship of the Line - 1st Rank	HW	66	2.5	16	17+Nav	(2)	6.6	11	11	Dockyard
Ship of the Line - 3rd Rank	FW	54	1.5	8	17+Nav	(2)	5.4	9.0	9.0	Dockyard
Frigate	GFW	18	0.8	4	23+Nav	(1)	1.8	3.0	3.0	HBZ Pc
Prerequisite - TL 10, Navigation 5+										
Heavy Frigate	HFW	42	1	4	23+Nav	(2)	4.2	7.0	7.0	Dockyard
Prerequisite - TL11, Project: Steamships										
Wooden Steam Battleship	XSW	70	2.5	1	32+Nav	(2)	7.0	12	24	Shipyard

Unit Name	Code	GPc	NFP _c	Indust _C	AP	Cargo	Support	Combat	Siege	Build At...
Wooden Steam Cruiser	SCW	50	1	1	36+Nav	(1)	5.0	8.0	16	Shipyard
Wooden Steam Transport	ST	10	0.1	1	32+Nav	(5)	1.0	(0.0)	(0.0)	Shipyard
Gunboat	GB	10	0.2	1	32+Nav	0	1.0	1.0	0.6	Dockyard, Shipyard

Notes

- ♦ **HM** : Unit can be built in the Homeland of the Nation, regardless of whether there is a city there or not.
- ♦ **FC** : Unit can be built at a Friendly city within the Homeland Build Zone of the nation.
- ♦ **CSR** : Unit type can be built at a Friendly Steppe region within the nation. This region does not have to be within the Homeland Build Zone of the nation.
- ♦ **« None »** : Unit cannot be built by normal means, but appear as a result of Holy Wars and Crusades.
- ♦ **CC**: Unit can be built in a controlled city with the exception of Non-Paying Tributary.
- ♦ **CR**: Unit can be built in a controlled region with the exception of Non-Paying Tributary.
- ♦ **CRH** : Unit can be built in a controlled region within the Homeland Build Zone of the nation.
- ♦ **PA** : Unit type can be built in a Port Area within the Homeland Build Zone of the nation.
- ♦ **PC** : Unit type can be built at a Port City within the Homeland Build Zone of the nation.
- ♦ **FA** : Unit type can be built at a controlled Ferry Arrow.
- ♦ **(Cargo)**: Carrying capacity of a ship unit.
- ♦ **Cargo**: Cost of the unit to be carried by a ship unit.
- ♦ **Marines**: Infantry carried on a warship (but not on transports) fight in any boarding actions and close combat as marines. Note however, that boarding actions and other naval combat are tough on marines. No other unit type can fight aboard a ship.
- ♦ **Galleon**: A Galleon represents a 'Great Ship' and a Ship of the Line 4th Rank.
- ♦ **Frigate**: A frigate represents a Ship of the Line 5th Rank
- ♦ **Gunboat**: A gunboat can be built at a Dockyard or a Shipyard.

Note: Ship unit actual movements rates units are calculated by adding the Navigation Rating of your nation to the shown AP rate.

Yard Cost Type	Source of Capacity
Dockyard	Dockyard + PC
Steamship	Shipyard + HM

Table 8-3. Industrial Build Chart

Unit Name	Code	GPc	NFP _c	Indust _C	AP	Cargo	Support	Combat	Siege	Build At...
Cavalry										
Cavalry	C	9.0	1	1	9	4	0.6	2.3	0.8	Fc
Heavy Elite Cavalry	HEC	17.0	2	2	10	4	1.1	3.4	1.1	Fc
Light Cavalry	XC	7.0	1	1	11	2	0.4	0.8	0.3	Hm,Fc,Csr
Light Elite Cavalry	XEC	15.0	2	1	12	2	0.9	1.1	0.4	Fc
Artillery										
Artillery	G	6	1	2	8	5	0.6	3.0	2.0	Fc
Siege Artillery	SG	12	1	3	6	9	1.2	2.0	4.0	Fc
Project: Super-Heavy Artillery										
Super-Heavy Artillery	SHG	25.0	2	6	--	10	2.5	(10.0)	10.0	Fc
Project: Motorized Transport										
Motorized Field Artillery	TFG	8.0	2	5	14	5	2.0	4.0	3.0	Fc
Motorized Siege Artillery	TSG	10.0	2	5	14	5	2.0	2.0	5.0	Fc
Infantry										
Heavy Elite Infantry	HEI	7.0	2	2	9	3	0.7	2.3	3.4	Fc
Infantry	I	4.0	1	1	8	3	0.4	1.5	2.3	Fc
Inexperienced Infantry	II	1.5	1	-	8	2	0.15	0.5	0.8	Hm,Fc
Light Elite Infantry	XEI	5.0	2	1	11	1	0.5	0.8	1.1	Fc
Light Infantry	XI	2.0	1	1	10	1	0.2	0.5	0.8	Hm,Fc,Crh
Project: Motorized Transport										
Motorized Infantry	TI	9.0	2	4	15	4	1.2	2.0	2.3	Fc
Project: Mechanized Troops										
Mechanized Infantry	MI	12.0	2	5	20	5	2.4	4.0	2.5	Fc
Project: Parachute Infantry										
Parachute Infantry	PI	4.0	2	2a	6	1	0.4	0.8	1.0	Fc + Aircraft Factory
Project: Helicopters										
Airmobile Infantry	AMI	15.0	2	3g / 2a	25	5	3.0	3.0	1.5	Fc + Aircraft Factory
Civilians										
Force Point (Colonists)	NFP	N/A	N/A	-	8	2	1.0	6.0	-	Fr
Refugees (Tribal) Point	TBL	N/A	N/A	-	9	10	9.0	5.0	-	Cannot be built.
Forts and Engineers										
Field Fort	F	5.0	1	-	-	-	0.3	5.0	5.0	Cr
Wall Point	WP	8.0	1	-	-	-	0.5	-	10.0	Cc
Siege Engineers	S	4.0	1	2	9	2	0.4	0.5	4.0	Fc

Unit Name	Code	GPc	NFPc	Indust C	AP	Cargo	Support	Combat	Siege	Build At...
Project: Motorized Transport										
Motorized Engineers	TS	12.0	2	4	15	5	1.6	1.0	5.0	Fc
Project: Mechanized Troops										
Mechanized Engineers	MS	15.0	2	5	20	6	3.2	2.0	7.0	Fc
Mechanized										
Project: Light Tank										
Light Tank	AFX	8.0	1	4	9	3	1.6	2.0	0.5	Fc
Project: Medium Tank										
Medium Tank	AFV	12.0	1	5	9	4	2.4	4.0	1.0	Fc
Project: Heavy Tank										
Heavy Tank	AFH	15.0	1	6	9	5	3.0	8.0	1.5	Fc
Project: Battle Tank										
Battle Tank	AFB	18.0	1	6	12	6	4.0	12.0	2.0	Fc
Sailing Ships										
Ordinary Transports	T	4	0.1	1	18+Nav	(3)	0.4	(0.0)	(0.0)	HBZ Pa
Light Transports	XT	3	0.1	1	18+Nav	(1)	0.3	(0.0)	(0.0)	HBZ Pa
Prerequisite - Navigation 4+										
Ship of the Line - 1st Rank	HW	66	2.5	16	18+Nav	(2)	6.6	11	11	Dockyard
Ship of the Line - 3rd Rank	FW	54	1.5	8	18+Nav	(2)	5.4	9.0	9.0	Dockyard
Galleon	EW	24	1	4	18+Nav	(2)	2.0	4.0	4.0	Dockyard
Frigate	GFW	18	0.8	4	24+Nav	(1)	1.8	3.0	3.0	HBZ Pc
Corvette	VW	3	0.2	1	21+Nav	0	0.3	0.5	0.5	HBZ Pc
Prerequisite - Navigation 5+										
Heavy Frigate	HFW	42	1	4	24+Nav	(2)	4.2	7.0	7.0	Dockyard
Steamship Era (TL11 Hybrid Sail/Steam) Naval Units										
Project: Steamships										
Wooden Steam Battleship	XSW	70	2.5	1	32+Nav	(2)	7.0	12	24	Shipyards
Wooden Steam Cruiser	SCW	50	1	1	36+Nav	(1)	5.0	8.0	16	Shipyards
Wooden Steam Transport	ST	10	0.1	1	32+Nav	(5)	1.0	(0.0)	(0.0)	Shipyards
Gunboat	GB	10	0.2	1	32+Nav	0	1.0	1.0	0.6	Dockyard, Shipyards
Ironclad Era (TL12 Hybrid Sail/Steam) Naval Units										
Project: Ironclads										
Ironclad Cruiser	SFW	60	1	2	36+Nav	(1)	6.0	12	20	Shipyards
Ironclad Battleship	SW	80	2	3	32+Nav	(2)	8.0	16	30	Shipyards
Project: Battleships										
Steel Hulled Battleship	HSW	90	2	5	32+Nav	(2)	9.0	16	30	Shipyards
Metal Hulled Transport	MT	10	0.1	1	32+Nav	(6)	1.0	(0.0)	(0.0)	Shipyards
Pre-modern Era (TL13 Coal Fired/Multi-Caliber) Naval Units										
Project: Naval Architecture										
Battleship	BW	120	2	8	36+Nav	(2)	12	24	36	Shipyards
Armored Cruiser	AC	100	1.5	6	36+Nav	(2)	10	20	32	Shipyards
Protected Cruiser	PC	50	1	2	40+Nav	(1)	5.0	16	20	Shipyards
Steel Transport	MS	10	0.1	2	32+Nav	(8)	1.0	(0.0)	(0.0)	Shipyards
Project: Torpedoes										
Torpedo Boat Destroyer	TBD	40	1	1	40+Nav	0	4.0	4.0	1.0	Shipyards
Torpedo Boat	XTB	20	0.5	1	40+Nav	0	2.0	2.0	0.8	Dockyard, Shipyards
Project: Submersible										
Submersible	SB	10	0.2	1	24+Nav	0	1.0	1.0	0.0	Sub Yard
Modern (TL14 Diesel Oil or Coal / Single Caliber) Naval Units										
Project: Improved Engines										
Modern Merchantship	MM	10	0.1	3	32+Nav	(10)	1.0	(0.0)	(0.0)	Shipyards
Project: Modern Warships										
Modern Battleship	BB	200	5	16	40+Nav	(3)	20	48	36	Shipyards
Battlecruiser	BC	150	4	14	44+Nav	(2)	15	40	32	Shipyards
Heavy Cruiser	CA	100	3	10	44+Nav	(2)	10	30	24	Shipyards
Light Cruiser	CL	80	2	6	48+Nav	(1)	8.0	20	20	Shipyards
Destroyer	DD	40	1	3	40+Nav	0	4.0	8.0	10	Shipyards
Project Submarines										
Submarine	SS	15	0.2	2	24+Nav	0	1.5	2.0	0.0	Sub Yard
Project: Aircraft Carrier										
Aircraft Carrier	CV	200	8	12	42+Nav	4a/c	20	19	0.0	Shipyards
Light Carrier	CVL	100	4	6	48+Nav	3a/c	10	8.0	0.0	Shipyards
Modern (TL15 Diesel Oil or Coal / Single Caliber) Naval Units										
Project: Aircraft Carrier										
Fleet Carrier	CVA	300	12	15	42+Nav	5a/c	25	26	0.0	Shipyards
Project: Amphibious Warfare Vessel										
Amphibious Assault Ship	VPH	80	1	6	40+Nav	(10)	8.0	(8.0)	(4.0)	Shipyards
Aircraft										
Project: Biplane										
Biplane Fighter	BF	5.0	1	1	Range 1	2	1.0	1.0	0.1	Aircraft Factory
Biplane Bomber	BIB	8.0	1	2	Range 1	4	1.6	(1.0)	1.5	Aircraft Factory

Unit Name	Code	GPc	NFPc	Indust C	AP	Cargo	Support	Combat	Siege	Build At...
Biplane Cargo Transport	BIT	6.0	1	1	Range 1	2 or (1)	1.2	(1.0)	-	Aircraft Factory
Project: Carrier Aircraft										
Biplane Carrier Fighter	BCF	6.0	1	2	Range 0	2	1.2	1.0	0.1	Aircraft Factory
Biplane Carrier Bomber	BCB	9.0	1	3	Range 1	4	1.8	(1.0)	1.0	Aircraft Factory
Carrier Fighter	CVF	6.0	1	2	Range 1	2	1.2	1.5	-	Aircraft Factory
Carrier Bomber	CVB	9.0	1	3	Range 2	4	1.8	(1.5)	2.0	Aircraft Factory
Jet Carrier Fighter	JCF	6.0	1	3	Range 3	2	1.2	3.0	1.0	Aircraft Factory
Jet Carrier Bomber	JCB	9.0	1	4	Range 5	4	1.8	(3.0)	4.0	Aircraft Factory
Project: Monoplane Light										
Fighter	AF	5.0	1	2	Range 2	2	1.0	2.0	1.0	Aircraft Factory
Bomber	AB	8.0	1	4	Range 4	4	1.6	(2.0)	3.0	Aircraft Factory
Project: Monoplane Heavy										
Cargo Transport	ACT	6.0	1	2	Range 4	2 or (1)	1.2	(1.0)	-	Aircraft Factory
Heavy Bomber	AHB	12.0	1	8	Range 6	6	2.4	(3.0)	6.0	Aircraft Factory
Project: Jet Light										
Jet Fighter	JAF	5.0	1	2	Range 5	2	1.0	4.0	1.0	Aircraft Factory
Jet Bomber	JAB	8.0	1	4	Range 8	4	1.6	(4.0)	5.0	Aircraft Factory
Project: Jet Heavy										
Jet Cargo Transport	JCT	6.0	1	4	Range 8	2 or (1)	1.2	(2.0)	--	Aircraft Factory
Jet Heavy Bomber	JHB	12.0	1	16	R.12	6	2.4	(6.0)	10.0	Aircraft Factory
Rockets										
Project: Single-Stage Rocket										
Single-Stage Rocket	SSR	10.0	1	2	R 1-3	4	1.0	(1.0)	5.0	Rocket Factory
Project: Dual-Stage Rocket										
Dual-Stage Rocket	DSR	100.0	2	5	R 2-3LH	7	10.0	(2.0)	10.0	Rocket Factory
Project: Manned Capsule										
Manned Space Capsule	SMR	50.0	2	6	--		5.0	(2.0)	-	Rocket Factory
Project: Rocketplane										
Rocketplane	RPR	250.0	2	5r/16a	1-9LH		25.0	(3.0)	-	Rocket Factory + Aircraft Factory
Nuclear Weapons										
Project: Atomic Bomb										
Atomic Bomb	NAB	100.0	2	5	--	1	10.0	--	50	Nuclear Production Facilities

Notes

- ◆ **HM** : Unit can be built in the Homeland of the Nation, regardless of whether there is a city there or not.
- ◆ **FC** : Unit can be built at a Friendly city within the Homeland Build Zone of the nation.
- ◆ **CSR** : Unit type can be built at a Friendly Steppe region within the nation. This region does not have to be within the Homeland Build Zone of the nation.
- ◆ « **None** » : Unit cannot be built by normal means, but appear as a result of Holy Wars and Crusades.
- ◆ **CC** : Unit can be built in a controlled city with the exception of Non-Paying Tributary.
- ◆ **CR** : Unit can be built in a controlled region with the exception of Non-Paying Tributary.
- ◆ **CRH** : Unit can be built in a controlled region within the Homeland Build Zone of the nation.
- ◆ **PA** : Unit type can be built in a Port Area within the Homeland Build Zone of the nation.
- ◆ **PC** : Unit type can be built at a Port City within the Homeland Build Zone of the nation.
- ◆ **FA** : Unit type can be built at a controlled Ferry Arrow.
- ◆ **(Cargo)** : Carrying capacity of a ship, airship or aircraft unit.
- ◆ **Cargo** : Cost of the unit to be carried by a ship, airship or aircraft unit.
- ◆ **Marines** : Infantry carried on a warship (but not on transports) fight in any boarding actions and close combat as marines. Note however, that boarding actions and other naval combat are tough on marines. No other unit type can fight aboard a ship.
- ◆ **Galleon** : A Galleon represents a 'Great Ship' and a Ship of the Line 4th Rank.
- ◆ **Frigate** : A frigate represents a Ship of the Line 5th Rank.
- ◆ **Gunboat** : A gunboat can be built at a Dockyard or a Shipyard.
- ◆ **Torpedo Boat** : A Torpedo Boat can be built at a Dockyard or a Shipyard.

Note: Ship unit actual movements rates units are calculated by adding the Navigation Rating of your nation to the shown AP rate.

Yard Cost Type	Source of Capacity
Dockyard	Dockyard + PC
Airship	Airship Factories + HM
Steamship or Improved Engines Ship	Shipyards + HM
Submarine or Submersible	Submarine Yards + HM
Ship	PC generic Yard
Heavy Unit	FC generic Yard
Artillery	FC generic Yard
Mechanized, Motorized and AFV	FC generic Yard
Aircraft	Aircraft Factories + HM
Rockets	Rocket Factories + HM
Nuclear Weapons	Nuclear Production Facilities + HM

Table 8-4. Optional Unit Construction Chart

Unit Name	Code	GPc	NFPc	Indust C	AP	Cargo	Support	Combat	Siege	Build At...
Miscellaneous										
Elephants	EL	5.0	1	1	8	4	0.5	1.5	0.5	Hm,Fc
Elephant Archers	ELM	6.0	1	1	8	4	0.5	1.5	1.0	Hm,Fc
Prerequisite - TL 5										
Heavy Chariot	HCH	10.0	1	1	8	4	1.1	2.0	-	Fc
Catapults	CAT	5	1	1	5	6	0.8	-	1.0	Fc
Siege Tower	STO	6	2	1	5	8	1.0	-	5.0	Fc
Artillery										
Prerequisite - TL 9										
Elephant Artillery	ELG	8.0	1	2	7	5	0.6	2.0	2.0	Fc
Hussite War Wagon	WW	9.0	1	2	8	4	0.5	2.5	0.5	Hm, Fc
Horse Artillery	HG	6	1	2	9	7	0.6	2	1	Fc
Project: Mechanized Troops										
Mechanized Artillery	MFG	10.0	2	6	18	6	4.0	5.0	4.0	Fc
Project: Medium Tank										
Mechanized Siege Artillery	MSG	14.0	2	6	18	6	4.1	3.0	6.0	Fc
Ships										
Prerequisite - TL 5										
Nordic Longship	NRW	15	0.1	1	18+Nav	(1)	1.5	1.0	0	HBZ Pa
Roman Roundship	RRT	20	0.1	3	15+Nav	(4)	2.0	(0.0)	(0.0)	HBZPc
Trireme	RW	12	0.2	2	12+Nav	(0)	1.2	1.0	0	HBZ Pc
Bireme	XRW	10	0.1	1	12+Nav	(0)	1.0	0.5	0	HBZ Pa
Prerequisite - TL 6										
Galleass	HRW	14	0.3	2	11+Nav	0	1.4	1.5	1.0	HBZ Pc
Dhow	DW	13	0.2	3	13+Nav	(1)	1.3	0.5	0.5	HBZ Pc
Prerequisite - TL 9, Navigation 4+										
Ship of the Line - 2nd Rank	GW	60	2	12	18+Nav	(2)	6.0	10	10	Dockyard
Frigate - 6 th Rank	FFW	9	0.5	2	24+Nav	(1)	0.9	1.5	1.5	HBZ Pc
Frigate - 7 th Rank	EFW	6	0.3	1	24+Nav	0	0.6	1.0	1.0	HBZ Pc
Project: Airship Carrier										
Airship Carrier	ACW	60	1.5	2	40+Nav	2zs/1z	6.0	0.0	0.0	Shipyard
Project: Modern Warships										
Anti-aircraft Cruiser	CLA	80	2	8	48+Nav	(1)	8.0	16	15	Shipyard
Destroyer Escort	DE	30	0.5	2	40+Nav	0	3.0	6.0	8.0	Shipyard
Modern Corvette	CE	20	0.2	1	48+Nav	0	2.0	4.0	6.0	Shipyard
Project: Aircraft Carrier										
Escort Carrier	CVE	40	1.5	2	36+Nav	1a/c	4.0	4.0	0.0	Shipyard
TL15, Project: Aircraft Carrier										
Battle Carrier	CAB	250	8	12	42+Nav	4a/c	20	25	0.0	Shipyard
TL15, Project: Amphibious Warfare Vessel										
Attack Cargo Ship	VKA	40	0.1	3	32+Nav	(8)	2.5	(4.0)	(2.0)	Shipyard
Airships										
Project: Balloons										
Draken	D	5	0.1	2	8	1	0.5	(0.0)	(0.0)	Fc
Project: Airships										
Airship	Z	10	0.1	2	Range 4	0	1.0	3.0	3.0	Airship Yard
Scout Airship	ZS	5	0.1	1	Range 3	0	0.5	1.0	0.0	Airship Yard
Projects: Large Airships										
Heavy (Bomber) Airship	ZH	15	0.1	3	Range 6	0	1.5	6.0	9.0	Airship Yard
Transport Airship	ZT	15	0.1	3	Range 8	(1)	1.5	(1.0)	(0.0)	Airship Yard

- Elephant units are particularly effective against cavalry.
- The bireme, trireme and galleass are not open-ocean vessels and will be lost with all hands if they attempt to cross an open ocean arrow or a hostile sea zone.

Table 8-5. Artillery Unit Capabilities

Unit Name	Code	Armor	Anti-Aircraft Strength	Combat	Siege	Ranged
Bombard	BG	0	0	0.5	2.0	0.0
Horse Artillery	HG	0	0	2.0	1.0	0.0
Siege Artillery	SG	0	0	2.0	4.0	0.0
Artillery	G	0	1	3.0	2.0	1.0
Super-Heavy Artillery	SHG	0	0	(10.0)	10.0	(10.0)
Motorized Field Artillery	TFG	0	2	4.0	3.0	4.0
Motorized Siege Artillery	TSG	0	0	2.0	5.0	2.0
Mechanized Artillery	MFG	3	3	5.0	4.0	5.0
Mechanized Siege Artillery	MSG	3	0	3.0	6.0	3.0

- The Armor represents the combination of armor and structural strength.
- Siege artillery consists of heavy guns – howitzers and heavy mortars.
- Motorized artillery consists of towed guns. Mechanized are self-propelled.

Table 8-6. Cavalry, Infantry & Engineer Unit Capabilities

Unit Name	Code	Armor	Anti-Aircraft Strength	Combat	Siege	Ranged	Scouting Factor
Cavalry	C	0	0	2.3	0.8	0.0	0
Heavy Elite Cavalry	HEC	0	0	3.4	1.1	0.0	0
Inexperienced Cavalry	IC	0	0	0.8	0.3	0.0	0
Light Cavalry	XC	0	0	0.8	0.3	0.0	1
Light Elite Cavalry	XEC	0	0	1.1	0.4	0.0	1.5
Heavy Elite Infantry	HEI	0	0	2.3	3.4	0.0	0
Infantry	I	0	0	1.5	2.3	0.0	0
Inexperienced Infantry	II	0	0	0.5	0.8	0.0	0
Light Elite Infantry	XEI	0	0	0.8	1.1	0.0	0
Light Infantry	XI	0	0	0.5	0.8	0.0	0
Motorized Infantry	TI	0	0	2.0	2.3	0.0	0
Mechanized Infantry	MI	3	1	4.0	2.5	0.0	1
Parachute Infantry	PI	0	0	0.8	1.0	0.0	0
Airmobile Infantry	AMI	0	0	3.0	1.5	3.0	2
Siege Engineers	S	0	0	0.5	4.0	0.0	0
Motorized Engineers	TS	0	0	1.0	5.0	0.0	0
Mechanized Engineers	MS	2	1	2.0	7.0	0.0	0

- The Armor represents the combination of armor and structural strength.
- Ranged indicates the long range Combat factor of the unit.
- Scouting Factor in the Modern Era is a function of Helicopter units offering an overview of the battlefield. It does not include the effects of radar if present.

Table 8-7. Ship Unit Capabilities

Unit Name	Code	Armor	Torpedo Attack	Anti-Aircraft Strength	Combat	Siege	Ranged	Scouting Factor
Cog	CT	0.5	0	0	(0.0)	(0.0)	(0.0)	-1
Light Transports	XT	0.5	0	0	(0.0)	(0.0)	(0.0)	-1
Light Warship	XW	0.5	0	0	0.5	0.5	0.0	-1
Nordic Longship	NRW	0.5	0	0	1.0	0.0	0.0	-1
Roman Roundship	RRT	0.5	0	0	(0.0)	(0.0)	(0.0)	-3
Trireme	RW	0.6	0	0	1	0.0	0.0	-2
Bireme	XRW	0.5	0	0	0.5	0.0	0.0	-1
Caravel	W	0.6	0	0	2.0	1.0	0.0	-2
Galleass	HRW	0.5	0	0	1.5	1.0	0.0	-2
Dhow	DW	0.5	0	0	0.5	0.5	(0.0)	-3
Carrack	CW	0.7	0	0	4.0	3.0	0.0	-2
Ship of the Line - 1st Rank	HW	4	0	0	11	11	0.0	-2
Ship of the Line - 2nd Rank	GW	4	0	0	10	10	0.0	-2
Ship of the Line - 3rd Rank	FW	4	0	0	9.0	9.0	0.0	-2
Galleon	EW	3	0	0	4.0	4.0	0.0	-2
Heavy Frigate	HFW	3	0	0	7.0	7.0	0.0	-1
Frigate	GFW	2	0	0	3.0	3.0	0.0	-1
Frigate – 6 th Rank	FFW	1	0	0	1.5	1.5	0.0	-1
Frigate – 7 th Rank	EFW	1	0	0	1.0	1.0	0.0	-1
Corvette	VW	1	0	0	0.5	0.5	0.0	0
Ordinary Transports	T	1	0	0	(0.0)	(0.0)	(0.0)	-1
Light Transports	XT	0.5	0	0	(0.0)	(0.0)	(0.0)	-1
Wooden Steam Battleship	XSW	4	0	0	12	24	6.0	-1
Wooden Steam Cruiser	SCW	2	0	0	8.0	16	3.0	0
Wooden Steam Transport	ST	1	0	0	(0.0)	(0.0)	(0.0)	0
Gunboat	GB	1	0	0	1.0	0.6	0.5	1
Ironclad Cruiser	SFW	9	0	1	12	20	12	0
Steel Hulled Battleship	HSW	12	0	1	16	30	12	-1
Ironclad Battleship	SW	10	0	1	16	30	12	-1
Metal Hulled Transport	MT	1	0	0.6	(0.0)	(0.0)	(0.0)	0
Battleship	BW	16	0	2	24	36	24	0
Armored Cruiser	AC	12	1	2	20	32	20	0
Protected Cruiser	PC	6	1	1	16	20	16	0
Steel Transport	MS	2	0	0.7	(0.0)	(0.0)	(0.0)	0
Airship Carrier	ACW	2	0	0.7	0.0	0.0	0.0	1
Torpedo Boat Destroyer	TBD	2	3	1	4.0	1.0	4.0	1

Unit Name	Code	Armor	Torpedo Attack	Anti-Aircraft Strength	Combat	Siege	Ranged	Scouting Factor
Torpedo Boat	XTB	2	3	1	2.0	0.8	2.0	1
Submersible	SB	1	8	0.6	1.0	0.0	0.0	0
Modern Merchantship	MM	2	0	0.7	(0.0)	(0.0)	(0.0)	0
Modern Battleship	BB	24	0	5	48	36	48	0
Battlecruiser	BC	20	0	4	40	32	40	1
Heavy Cruiser	CA	16	8	3	30	24	30	0
Light Cruiser	CL	12	8	2	20	20	20	1
Anti-aircraft Cruiser	CLA	12	6	5	16	15	16	1
Destroyer	DD	6	6	1	8.0	10	8.0	1
Destroyer Escort	DE	4	4	1	6.0	8.0	6.0	1
Modern Corvette	CE	2	0	1	4.0	6.0	4.0	1
Submarine	SS	2	12	0.7	2.0	0.0	0.0	1
Aircraft Carrier	CV	14	0	3	16	0.0	16	6
Light Carrier	CVL	10	0	2	8.0	0.0	8.0	5
Escort Carrier	CVE	6	0	1	4.0	0.0	4.0	4
Battle Carrier	CAB	24	0	5	25	0.0	16	6
Fleet Carrier	CVA	15	0	4	26	0.0	20	7
Attack Cargo Ship	VKA	2	0	1	(4.0)	(2.0)	(0.0)	0
Amphibious Assault Ship	VPH	12	0	2	(8.0)	(4.0)	(6.0)	1

- The Armor represents the combination of armor, structural strength, compartmentalization, damage control, etc., as it applies to gunnery, torpedoes and bombing.
- The Torpedo Attack Factor is gained with the completion of the **R&D: Torpedoes** project
- Scouting Factor in the Modern Era is a function of shipboard aviation (scout planes) which all ships of cruiser class and above are assumed to possess. Aircraft Carriers are assumed to possess one or more scout planes or to devote one or more of their attack plane compliment to scouting duties. It does not include the effects of radar if present.
- Ranged indicates the long range Combat factor of the unit.

Table 8-8. Mechanized Unit Capabilities

Unit Name	Code	Armor	Anti-Aircraft Strength	Combat	Siege	Ranged	Scouting Factor
Light Tank	AFX	3	1	2.0	0.5	2.0	1
Medium Tank	AFV	5	2	4.0	1.0	4.0	0
Heavy Tank	AFH	7	3	8.0	1.5	8.0	0
Battle Tank	AFB	10	4	12.0	2.0	12.0	0
Mechanized Artillery	MFA	3	3	5.0	4.0	5.0	0
Mechanized Siege Artillery	MSG	3	0	3.0	6.0	3.0	0
Mechanized Infantry	MI	3	1	4.0	2.5	0.0	1
Mechanized Engineers	MS	2	1	2.0	7.0	0.0	0

- The Armor represents the combination of armor and structural strength.
- Ranged indicates the long range Combat factor of the unit.

Table 8-9. Airship & Aircraft Unit Capabilities

Unit Name	Code	Combat	Siege	Scouting Factor
Draken	D	0.0	0.0	0.5
Airship	Z	3.0	3.0	1
Scout Airship	ZS	1.0	0.0	2
Heavy (Bomber) Airship	ZH	6.0	9.0	0
Transport Airship	ZT	(1.0)	(0.0)	1
Biplane Fighter	BF	1.0	0.1	1
Biplane Bomber	BIB	(1.0)	1.5	1
Biplane Cargo Transport	BIT	(1.0)	-	1
Biplane Carrier Fighter	BCF	1.0	-	1
Biplane Carrier Bomber	BCB	(1.0)	1.0	1
Fighter	AF	2.0	1.0	2
Bomber	AB	(2.0)	3.0	1
Cargo Transport	ACT	(1.0)	-	2
Carrier Fighter	CVF	1.5	0.1	2
Carrier Bomber	CVB	(1.5)	2.0	1
Heavy Bomber	AHB	(3.0)	6.0	1
Jet Fighter	JAF	4.0	1.0	3
Jet Bomber	JAB	(4.0)	5.0	2
Jet Cargo Transport	JCT	(2.0)	--	3
Jet Carrier Fighter	JCF	3.0	1.0	3
Jet Carrier Bomber	JCB	(3.0)	4.0	2
Jet Heavy Bomber	JHB	(6.0)	10.0	2

- Scouting Factor is the function of airships or aircraft offering an overview of the battlefield. It does not include the effects of radar if present.

Table 8-10. Rocket Unit Capabilities

Unit Name	Code	Combat	Siege	Nuclear Capable	Space Port
Single-Stage Rocket	SSR	(1.0)	5.0	No	No
Dual-Stage Rocket	DSR	(2.0)	10.0	Yes	Yes
Manned Space Capsule	SMR	(2.0)	-	No	Yes
Rocketplane	RPR	(3.0)	-	No	Air Base

- Rockets have a Combat value only to allow for Anti-Ballistic Missile systems at later Tech Levels.

Table 8-11. Unit Class and Effects

Unit Name	Code	Weight
Cog	CT	M
Light Transports	XT	XX
Light Warship	XW	XX
Nordic Longship	NRW	X
Roman Roundship	RRT	M
Trireme	RW	M
Bireme	XRW	X
Caravel	W	M
Galleass	HRW	M
Dhow	DW	M
Carrack	CW	M
Ordinary Transports	T	M
Ship of the Line - 1st Rank	HW	H
Ship of the Line - 2nd Rank	GW	H
Ship of the Line - 3rd Rank	FW	M
Galleon	EW	M
Frigate	GFW	X
Frigate - 6 th Rank	FFW	X
Frigate - 7 th Rank	EFW	X
Corvette	VW	XX
Heavy Frigate	HFW	M
Wooden Steam Battleship	XSW	H
Wooden Steam Cruiser	SCW	M
Wooden Steam Transport	ST	M
Gunboat	GB	XX
Ironclad Cruiser	SFW	M
Steel Hulled Battleship	HSW	H
Ironclad Battleship	SW	H
Metal Hulled Transport	MT	M
Battleship	BW	H
Armored Cruiser	AC	M
Protected Cruiser	PC	M
Steel Transport	MS	M

Unit Name	Code	Weight
Airship Carrier	ACW	H
Torpedo Boat Destroyer	TBD	X
Torpedo Boat	XTB	XX
Submersible	SB	X
Modern Merchantship	MM	M
Modern Battleship	BB	H
Battlecruiser	BC	H
Heavy Cruiser	CA	H
Light Cruiser	CL	M
Anti-aircraft Cruiser	CLA	M
Destroyer	DD	X
Destroyer Escort	DE	M
Modern Corvette	CE	M
Submarine	SS	M
Aircraft Carrier	CV	H
Light Carrier	CVL	M
Escort Carrier	CVE	M
Battle Carrier	CAB	H
Fleet Carrier	CVA	HH
Attack Cargo Ship	VKA	M
Amphibious Assault Ship	VPH	H

Weight Classification	Code
Super-Light	XX
Light	X
Medium	M
Heavy	H
Super-Heavy	HH

Notes:

- Riverine Traffic:** Only “XX” and “X” class ships can move up Rivers. This includes Transports assigned to inter-nation or inter-city trade.
- Canals:** Only “XX”, “X” and “M” class ships may pass through the Lower Nile/Nile Canal sea zone between Gulf of Cyprus and Red Sea and the Panama Canal in Guayami between Gulf of Venezuela and Sea of Panama. Only “XX” and “X” class ships may pass through the Kiel, Lagoda and Niagara Canals.
- The Panama Canal Upgrade:** To allow the passage of “H” and “HH” class ships through the Panama Canal, it must be substantially upgraded to larger locks, deeper drafts in the channel bottoms and so on. This is a level three (3) Megalithic Project, during which time the Canal is closed to all traffic.
- The Queta Canal Upgrade:** To allow the passage of “H” and “HH” class ships through the Queta Canal, it must be substantially upgraded to larger locks, deeper drafts in the channel bottoms and so on. This is a level two (2) Megalithic Project, during which time the Canal is closed to all traffic.
- The Suez Canal:** The Suez Canal can carry all kinds of ship traffic.

Table 8-12. 24 AP Renaissance Action Chart

AP	J	F	M	A	M	J	J	A	S	O	N	D
1							X					
2						X	X					
3					X	X	X					
4					X	X	X	X				
5				X	X	X	X	X				
6				X	X	X	X	X	X			
7			X	X	X	X	X	X	X			
8			X	X	X	X	X	X	X	X		
9			X	X	X	X	X	X	X	X	X	
10		X	X	X	X	X	X	X	X	X	X	
11		X	X	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X	X	X	X
17	X	X	X	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X	X	X	X
19	X	X	X	X	X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X	X	X	X	X	X
21	X	X	X	X	X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	X	X	X	X	X	X
23	X	X	X	X	X	X	X	X	X	X	X	X
24	X	X	X	X	X	X	X	X	X	X	X	X

Table 8-13. 48AP Renaissance and Early Industrial Action Chart

AP	J	F	M	A	M	J	J	A	S	O	N	D
1							X					
2						X	X					
3					X	X	X					
4					X	X	X	X				
5				X	X	X	X	X				
6				X	X	X	X	X	X			
7			X	X	X	X	X	X	X			
8			X	X	X	X	X	X	X	X		
9			X	X	X	X	X	X	X	X	X	
10		X	X	X	X	X	X	X	X	X	X	
11		X	X	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X	X	X	X
15	X	X	X	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X	X	X	X
17	X	X	X	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X	X	X	X
19	X	X	X	X	X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X	X	X	X	X	X
21	X	X	X	X	X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	X	X	X	X	X	X
23	X	X	X	X	X	X	X	X	X	X	X	X
24	X	X	X	X	X	X	X	X	X	X	X	X
25	X	X	X	X	X	X	X	X	X	X	X	X
26	X	X	X	X	X	X	X	X	X	X	X	X
27	X	X	X	X	X	X	X	X	X	X	X	X
28	X	X	X	X	X	X	X	X	X	X	X	X
29	X	X	X	X	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X	X	X	X
31	X	X	X	X	X	X	X	X	X	X	X	X
32	X	X	X	X	X	X	X	X	X	X	X	X
33	X	X	X	X	X	X	X	X	X	X	X	X
34	X	X	X	X	X	X	X	X	X	X	X	X
35	X	X	X	X	X	X	X	X	X	X	X	X
36	X	X	X	X	X	X	X	X	X	X	X	X
37	X	X	X	X	X	X	X	X	X	X	X	X
38	X	X	X	X	X	X	X	X	X	X	X	X
39	X	X	X	X	X	X	X	X	X	X	X	X
40	X	X	X	X	X	X	X	X	X	X	X	X
41	X	X	X	X	X	X	X	X	X	X	X	X
42	X	X	X	X	X	X	X	X	X	X	X	X
43	X	X	X	X	X	X	X	X	X	X	X	X
44	X	X	X	X	X	X	X	X	X	X	X	X
45	X	X	X	X	X	X	X	X	X	X	X	X
46	X	X	X	X	X	X	X	X	X	X	X	X
47	X	X	X	X	X	X	X	X	X	X	X	X
48	X	X	X	X	X	X	X	X	X	X	X	X

Table 8-14. 60AP Industrial Action Chart (Partial)

AP	M				J			J			A		
1								X					
2					X			X					
3	X				X			X					
4	X				X			X			X		
5	X				X			X			X		
6	X				X			X			X		
7	X				X			X			X		
8	X				X			X			X		
9	X				X			X			X		
10	X				X			X			X		
11	X				X			X			X		
12	X				X			X			X		
13	X				X		X	X			X		
14	X		X		X		X	X			X		
15	X		X		X		X	X		X	X		
16	X		X		X		X	X		X	X		
17	X		X		X		X	X		X	X		X
18	X		X		X		X	X		X	X		X
19	X		X		X		X	X		X	X		X
20	X		X		X		X	X		X	X		X
21	X		X		X		X	X		X	X		X
22	X		X		X		X	X		X	X		X
23	X		X		X		X	X		X	X		X
24	X		X		X		X	X		X	X		X
25	X		X		X		X	X	X	X	X		X
26	X		X		X		X	X	X	X	X		X
27	X		X		X		X	X	X	X	X		X
28	X		X		X	X	X	X	X	X	X		X
29	X		X		X	X	X	X	X	X	X	X	X
30	X		X	X	X	X	X	X	X	X	X	X	X
31	X		X	X	X	X	X	X	X	X	X	X	X
32	X	X	X	X	X	X	X	X	X	X	X	X	X
33	X	X	X	X	X	X	X	X	X	X	X	X	X
34	X	X	X	X	X	X	X	X	X	X	X	X	X
35	X	X	X	X	X	X	X	X	X	X	X	X	X
36	X	X	X	X	X	X	X	X	X	X	X	X	X
37	X	X	X	X	X	X	X	X	X	X	X	X	X
38	X	X	X	X	X	X	X	X	X	X	X	X	X
39	X	X	X	X	X	X	X	X	X	X	X	X	X
40	X	X	X	X	X	X	X	X	X	X	X	X	X
41	X	X	X	X	X	X	X	X	X	X	X	X	X
42	X	X	X	X	X	X	X	X	X	X	X	X	X
43	X	X	X	X	X	X	X	X	X	X	X	X	X
44	X	X	X	X	X	X	X	X	X	X	X	X	X
45	X	X	X	X	X	X	X	X	X	X	X	X	X
46	X	X	X	X	X	X	X	X	X	X	X	X	X
47	X	X	X	X	X	X	X	X	X	X	X	X	X
48	X	X	X	X	X	X	X	X	X	X	X	X	X
49	X	X	X	X	X	X	X	X	X	X	X	X	X
50	X	X	X	X	X	X	X	X	X	X	X	X	X
51	X	X	X	X	X	X	X	X	X	X	X	X	X
52	X	X	X	X	X	X	X	X	X	X	X	X	X
53	X	X	X	X	X	X	X	X	X	X	X	X	X
54	X	X	X	X	X	X	X	X	X	X	X	X	X
55	X	X	X	X	X	X	X	X	X	X	X	X	X
56	X	X	X	X	X	X	X	X	X	X	X	X	X
57	X	X	X	X	X	X	X	X	X	X	X	X	X
58	X	X	X	X	X	X	X	X	X	X	X	X	X
59	X	X	X	X	X	X	X	X	X	X	X	X	X
60	X	X	X	X	X	X	X	X	X	X	X	X	X

For clarity only the May to the end of August portion of the 60AP Action Chart is shown above.

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