Tribe Net V3 Research List

Introduction

This is a provisional list of topics that will be considered and reviewed on a case-by-case basis. In effect this means that I will respond to player requests (though should this result in a flood of requests the response time will be slow). Some of the listed topics might be modified depending on what happens with programming, play and general administration.

Should the running of a topic become too labour intensive I might have to adopt a cap (meaning that only a certain number of Tribes will be able to hold DL0 or better in the topic).

Where possible, players should supply the GM with the effects of their research (either in Orders - or in Combat Orders if these are more relevant). Most research processing is manual and over and above the standard processing - so the possibility of a rich range of research is contingent upon player co-operation re supplying figures, effects, equivalent numbers of workers etc. If this is not for you there are many topics that require little input from players, and you should look towards these instead.

In most cases where Research Prerequisites are required they have to be met within the same Tribe, and must be attained before the relevant research is commenced.

If a Tribe happens to complete all topics within a particular skill area there is no guarantee that more research will immediately be available in that area. In many cases though a default topic will be available, for example, Hunt11, Mining 11, Com13 etc.

Notes

Tribe Net is not restricted to a particular historical or cultural period (for example, from the outset you have Stone Axes alongside Iron Swords) though the aim is to reflect actual developments. The research is meant to represent vertical chronological developments in historical civilizations. However, if one were to look for an end point it would be found in the sort of technology that supports Siege Cannons, and Naval Siege Cannon. Combat related research will not progress into hand held gunpowder weapons, field Cannon, oil powered vehicles etc; ultimately the sword and shield will remain the focus of combat. While research nods in the direction of history it also adds to player interest and some items are constructed in the light of this. Thus any line drawn with respect to what is and what isn't appropriate development, what should be research and what should be standard, is going to be arbitrary to some extent and a fact of Tribe Net life.

There are currently 891 research topics in the database. Not all have been coded at this time. Some are legacy topics from the previous iteration. April 17th, 2018.

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Date Added	Changes
May 4th, 2018	**5 Logs/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **6 Logs/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **7 Logs/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **8 Logs/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **6 Stones/Person:** Added Text from Master Coder **7 Stones/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **8 Stones/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **9 Stones/Person:** Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder **Absinthe:** Added Text from Master Coder **Alliance MOTC:** Added Alliance MOTC research topic to Diplomacy and Leadership **Apiaries with Reusable Frames:** Added Text from Master Coder **Appropriate Mining Tool:** Added Text from Master Coder. Followup clarification needed **Astral Navigation 1:** Added Text from Master Coder **Barbican:** Added note that Barbicans built for other Clans may be used by other clans. **Barge Poles:** Added Barge Poles research topic to Shipbuilding and Woodwork **Bascinet:** Added Text from Master Coder **Basket:** Added Text from Master Coder **Board of Trade:** Fixed the numerical example to reflect actual BoT rules **Branded Alcohol:** Added clarification that each alcohol is a separate research topic **Branded Alcohol**: Added clarification that branded alcohol may be traded **Breed New Queens:** Updated benefit. Added Text from Master Coder. **Bronze Statue:** Added Text from Master Coder **Brothel:** Added Text from Master Coder **Burner Improvement:** Added Burner Improvement research topic to Forestry **Bush Lore:** Fixed Bush Lore 3 bonus **Capital:** Modified ability 3 **Catapult:** Added Text from Master Coder **Chain Barding:** Added Text from Master Coder **Colosseum:** Added text that it may be built for and used by other Tribes / Clans. **Crossbow:** Added Text from Master Coder **Dairy Cattle:** Added Dairy Cattle research topic **Drawbridge:** Added note about use of Drawbridges by other Clans. Master Coder. **Dungeon:** Added text that it may be built for and used by other Tribes / Clans. **Extra Movement 4:** Added Text from Master Coder **Extra Movement 6:** Added Text from Master Coder **Fences:** Added Text from Master Coder

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Flax: Added Text from Master Coder
Full Plate: Added Text from Master Coder
Gate House: Added text that it may be built for and used by other Tribes / Clans.
Greaves: Added Text from Master Coder
Hammer Mill: Added Hammer Mill research topic to Mining and Refining
Hashish: Added Text from Master Coder
Herb Plots: Added Text from Master Coder
Herding Dogs: Added Text from Master Coder
Hospital: Added Text from Master Coder
Horse Herders: Added Text from Master Coder
Janissary: Added Janissary research topic to Slavery
Katana: Added Text from Master Coder
Keep: Added Text from Master Coder
Knights: Added Knights research topic to Horsemanship
Managed Plantations: Added notes about multiple plantations and clarified restriction
Marble Statue: Added Text from Master Coder
Market Place: Added Text from Master Coder
Minting/Coin: Added Text from Master Coder
Mongol Hunt: Added Text from Master Coder
Mongol Hunt 2: Added Text from Master Coder
Mounted Herders: Added Text from Master Coder
Ore Cart: Added Text from Master Coder
Outpost: Added text that it may be built for and used by other Tribes only.
Pastries: Added Text from Master Coder
Plantation: Added Plantation research topic to Farming
Plate Barding: Added Text from Master Coder
Port Wine: Added text that it may be sold at fair (already on fair sheet), Master Coder
Propolis: Added Text from Master Coder
Repeating Arbalest: Added Repeating Arbalest research topic to Weapons
Salves: Added Recipe. Added Text from Master Coder
Scaffolding: Updated the verbiage to be clearer. Added Text from Master Coder
Scimitar: Added Text from Master Coder
Seam Wedges: Added Text from Master Coder
Smart Herding: Added Text from Master Coder
Spy 11: Added Spy 11 research topic to Spy
Stables: Added Elephant restriction**.** Added Text from Master Coder
Stew: Removed references to Chef and Master Chef (not currently in game)
Stonewall 25': Added text that it may be built for and used by other Tribes / Clans. Added Text from Master Coder
Stonewall 30': Added text that it may be built for and used by other Tribes / Clans.
Trappers: Added Text from Master Coder. Followup revision for next edition.
Trawler: Fixed a discrepancy between Recipe and description, fixed a name. Added Text from Master Coder
Trawling Net: Added second Recipe. Added Text from Master Coder
Ulfbehrt Sword: Updated Recipe to add Skill, Added Text from Master Coder
Watchtower: Added text that it may be built for and used by other Tribes / Clans.

	Whaler: Fixed a discrepancy between Recipe and description. Added Text from Master Coder **Wire Fences:** Added Text from Master Coder **Wire Mill:** Fixed Metalwork abbreviation **Notes:** Added note from Master Coder about Topics in Database. **Bottom Notes:** Removed reference to Fanatic Warriors and updated verbiage. **Orders for Research Attempts:** Replaced Religion skill based examples
April 8th, 2018	**Absinthe:** Added text about details coming. **Agriculture:** Clarified text for description and bonuses **Army:** Added text related recipe for Barracks **Barbican:** Updated Recipe, added note about bonus and added text that it may be built and used by other Tribes / Clans **Blasting Jar:** Clarified text related to bonus, usage, Sulphur **Bronze Statue:** Updated text related to recipe skill levels **Bush Lore:** Clarified text for description and bonuses **Canal:** Added text about eligible bodies of water to start a canal from **Close Order Infantry:** Added text related to actual bonus from research topic **Combat 11:** Added text about Combat Specialists **Cooking:** Updated Cook limitations. **Corps Diplomatique:** Added text related to Trade Routes/Depots and Goods Tribes **Drawbridge:** Added text that it may be built for, used by other Tribes / Clans and Recipe **Exotic Seekers:** Added text about applicability of Rich Seeking hexes **Fake Royal Seal:** Added Fake Royal Seal under Waxworks **Fast Fleets:** Added Fast Fleets research topic under Sailing **Geology:** Clarified text for description and bonuses **Harvest Bag:** Added weight **Herb Plot:** Clarified text about use and description of research topic. **Marble Statue:** Updated text related to recipe skill levels **Mining Ladder:** Added Mining Ladder research topic under Mining, Woodwork **Overwork:** Updated example numbers **Pastry:** Added Pastry research topic to Apiary **Port Wine:** Added text about further details coming **Religion:** Removed all research topics from Religion skill. Religion removed from game **Researcher:** Added Researcher research topic under Research **Scaffolding:** Clarified that scaffolds are inventory items and can be traded/used by Clans **Scholar:** Added Scholar research topic under Research **Stone Wall 30':** Added pre-req of Stone Wall 25' **Toll Gate:** Updated Recipe, benefit from building and restriction for building. **Trawler:** Added Trawler research topic under Fishing and Shipbuilding **Trellis:** Added Trellis research topic under Engineering, Farming and Woodworking

Acknowledgements

There are many players past and present who have contributed proposals and modifications to this document.   Your contributions are appreciated.

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Administration

Name	**Extra Element**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Entitles the Tribe to an immobile Element (Garrison = cost $0.70). The Garrison may move in order to take up it initial position. Once in position it may perform Activities as per an Element but is limited to 2 Activities per turn in addition to Hunting and Herding (Metalwork Traps and Metalwork Shovels counts as two Activities). However, it may perform Scouting over and above the normal entitlement of 8 parties per Tribe. That is, a Tribe with one Garrison may use up to 16 scouting parties (as long as 8 of them come from the Garrison). HOWEVER, only once per year may the scouting patterns be changed. Useful when used in combination with Outpost. May be taken 3 times per Tribe

Name	**Extra Movement 4**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Adds 4 MV points to the Tribe's movement. Applies to Elements (but not Fleets). ~~Note: when Elements are created this modifier needs to be added manually – so you will need to let me know. Should players absorb and then reform an Element with this research they need to inform me.~~ You can not opt in Orders to not use EM once it is in place – should you not want to move the full MV you should specify only the hexes you do want to move.

	(This has now been coded to automatically add in to the primary tribe. In movement, it picks up the primary tribes modifier and applies it to all sub groups)

Name	**Extra Movement 6**
DL	4
Pre-Req	Extra Movement 4 (Research)
Recipe	N/A
Description	Adds 6 MV (+2 to the above +4) points to the Tribe's movement.

Alchemy

Name	**Blasting Jar**
DL	5
Pre-Req	Saltpetre (Research, Refining/Farming)
Recipe	2 People, 1 Jar, 4 Sulphur, 10 Saltpetre
Description	Activity under Weapons (Wpn1). Also requires Qry10. Used in Siege Artillery (see below) During destructive Engineering Research projects such as Canals, removing Fords, etc, each person with a Blasting Jar does the work of 10 people. For example, to convert a Ford into a Canal normally requires 1000 Workers with tools (either Picks, Shovels, or Mattocks or combination), 20 Wagons, 10 Cattle/Horses. However, 100 workers with 100 Jars of BP (and with 100 tools) 20 Wagons, 10 Cattle/Horses will do the same job. Blasting Jars are sent to usage once used. Sulphur may be obtained from mining at Volcanoes. All Volcanoes have Sulphur. If your personal Volcano does not, contact the GM.

Apiarism

Name	**Apiaries with Reusable Frames**
DL	3
Pre-Req	N/A
Recipe	Eng6, Mtl3, Wd6 + Apiary Recipe
Description	Doubles the number of Hives received from Seeking in Spring 01. Apiaries built with reusable wooden frames use the same materials as regular apiaries. However the superior design involves reusable frames so the bees do not have to rebuild the structural elements (cones) of the hive after every harvest.

Name	**Pastry**
DL	4
Pre-Req	N/A

Recipe	Allows FOUR different types of Pastries to be made, each with its own recipe:
	  A) Baklava & Coffee – 2 people, 10 honey, 20 flour and 1 Coffee
	  B) Baklava & Tea - 2 people, 10 honey, 20 flour and 1 Tea
	  C) Napoleon & Coffee – 2 people, 10 sugar, 20 flour and 1 Coffee
	  D) Napoleon & Tea - 2 people, 10 sugar, 20 flour and 1 Tea

Description	Pastries cover a wide variety of desserts made with honey/sugar and flour. Making luxury foodstuffs such as desserts available to a tribe, should slightly increase its morale. Serving any of the above Pastries requires the tribe (or element/fleet) knowing Pastry to be co-located with the tribe (not an element/fleet) being served. Pastry can be served to any given Tribe no more than once per year and results in a morale increase of 0.01 when served. Pastry can be served to Tribes belonging to different clans. In this case, the unit that's making Pastry must be co-located with the Tribe (not an element or fleet) that's receiving the Pastry and gaining the morale benefit, as Pastry must be consumed on the same turn as it is made.

Name	**Propolis**

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DL	6
Pre-Req	N/A
Recipe	N/A
Description	Tribe may collect Propolis from Hives.
	Reddish Waxey Resin used by Bees to repair cells. Use as a healing agent - twice as powerful as Herbs.
	Note: Only Tribes (not Elements etc) can collect this. Weighs 1lb.
	Note: Coded

Name	**Breed New Queens**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	(Once per year in Spring 01 Bee Swarms produce 24 Hives). Only one Tribe per Clan may hold this research.
	Note: coding produces 6 Hives per year so you will need to show me the extra (18) only.

Apothecary

Name	**Hashish**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Requires 10 people per month to plant/maintain/cultivate the crop (for at least 6 months before first production). A crop (not in Desert, Arid, Snow) will produce 1000 Hashish in 03. Hashish may be traded at any of the major cities (for example, Shanghai will trade 100 Opium for 1000 Hashish). If a constant supply is maintained the rewards will be increased, however, do not be surprised if the city in question seeks help in eradicating this problem.

Archaeology

Name	**Relic**
DL	2
Pre-Req	Tomb Robbers (Research)
Recipe	N/A
Description	Works in the "Artefact" hex and is done by those already assigned to Excavation. Once per year a Relic will be found (the first the turn after research is completed). Players need to indicate when their annual find is due.

Name	**Tomb Robbers**
DL	7
Pre-Req	N/A
Recipe	N/A
Description	Works in the "Artefact" hex and is done by those already assigned to Excavation. Chance of discerning location of important tombs or other buildings while searching/studying ruins – and unusual/rare or valuable items may be found inside. Gold, Diamonds, Frankincense would probably be the most obvious finds in small amounts. Once per year one of Gold, Diamonds, Frankincense will be found (that is, any one will be found each 3 years). Note: if a Tomb has been robbed within the 3 year period will not yield these spoils to a second robber within the time period). Players need to indicate when their annual find is due.

Architecture

Name	**Architecture 1**
DL	8
Pre-Req	Eng10, Art10, Scroll1
Recipe	
Description	To be developed

Archery

Name	**Marksmen**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Marksmen can consist of 10% of a Tribe's warriors. A Marksmen adds +6 to Archery Skill level. Similar to Yeoman Archers but drawn from Warriors. Players will need to supply a weighted Archery figure if using Marksmen.

Name	**Yoeman Archers**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	5% of a Tribe's Actives can be used in combat as Archers.

Armour

Name	**Bascinet**
DL	5
Pre-Req	N/A
Recipe	2 People, 4 Iron, 25 Coal yields 1 Bascinet
Description	New Activity under Armour. Heavy Helm. Weighs 4lbs.

Name	**Chain Barding**
DL	5
Pre-Req	N/A
Recipe	3 People, 18 Iron, 30 Coal
Description	New Activity under Armour. Horse armour. This increases the chances of a Horse surviving a battle. Approximately 50% less casualties. Either Chain or Plate Barding may be used during Combat, not both. Weighs 35lb.

Name	**Full Plate**
DL	8
Pre-Req	N/A

Recipe	People 6, Iron 30, Coal 80
	Arm9
Description	New Activity under Armour.
	Heavy Plate, replaces body armour (Head, torso, over torso, legs) but may use any form of shield.
	May only be worn by Horse mounted troops.
	May be worn by Suppressors.
	Weighs 40lbs

Name	**Fluted Plate**
DL	9
Pre-Req	N/A
Recipe	People 6, Iron 30, Coal 80, Arm9
Description	New Activity under Armour
	Heavy Plate, replaces body armour (Head, torso, over torso, legs) but may use any form of shield.
	May only be worn by Infantry.
	Archers and Heavy Weapon troops may not wear this.
	Weighs 40lbs

Name	**Greaves**
DL	4
Pre-Req	N/A
Recipe	People 2, Iron 4, Coal 25
Description	New Activity under Armour

	Metal Leg Armour
	Weighs 10lb

Name	**Plate Barding**
DL	7
Pre-Req	N/A
Recipe	People 4, Iron 20, Coal 40, Arm8
Description	Horse armour. This increases the chances of a Horse surviving a battle. Approximately 75% less casualties. Either Chain or Plate Barding may be used during Combat, not both. Weighs 35lb.

Astronomy

Name	**Astral Navigation 1**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Once Nav Skill is at 10, Astral Navigation adds +2 to Nav Skill (making the 10 an effective 12). Astral Navigation2 (DL3) would add +4 (making the 10 an effective 16). Astral Navigation3 (DL4) would add +6 (making the 10 an effective 22) etc. AN3 is limit.

Art

Name	**Great Work**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Great Work research can be conducted when a tribe possesses ANY cultural skill = 10. In other words, any one of Cook=10 OR Dance=10 OR Art=10 OR Music=10 OR future Cultural Skill=10. Great Work DL5 – Allows a tribe to create a Great Work in which the tribe sacrifices points of any/all cultural skills to attract locals into joining the tribe. Each point of a cultural skill that is sacrificed attracts 30 locals who will become Hirelings OR 15 locals who become Mercenaries (NOT both). In addition a performing a Great Work raises the morale of the tribe by .01 per point sacrificed up to a maximum of .04. A tribe is limited to no more than ONE Great Work in a year. Only ONE tribe within a Clan may possess the Great Work research. The number of cultural skill points that this one Tribe can sacrifice in a single is limited to 1 for every 100 population in the tribe. Finally, the cultural skill which was used to develop the Great Work research (must be 10+ to do research) cannot be reduced below ten. For example, tribe 0775 knows the Great Work research and has Cook=10, Dance=6 and Art=4. Tribe 0775 performs a Great Work on turn 6-810 and sacrifices 2 skill points from its Dance and Art skills, reducing its cultural skills to Cook=10, Dance=4 and Art=2. Tribe 0775 could thus gain 60 Hirelings, 30 Mercenaries and .04 in morale and is prohibited from performing another Great Work until sometime in Year 811. The tribe performing the Great Work is free to reduce its cultural skills in whatever manner it deems best, other than retaining 10 in the cultural skill used to develop Great Work. For example, a tribe with Dance=8 could present a Great Work that reduces

	Dance to ZERO and leave all other cultural skills unchanged.

Name	**Heraldry**
DL	6
Pre-Req	Art8, Scroll
Recipe	Coat of Arms: 20 People, Mtl 5, Brass 20, Gold 2, Silver 200, Log 2 Standard: 20 People, Mtl 2, Shaft 1,Cotton 100, Silver 100
Description	Ransom <u>must</u> be offered to any Clan (with Heraldry) losing Slaves to another Clan in Combat. Ransom must be offered for up to 30% Slaves taken @ 1 Gold per 5 Slaves or 1 Jade or 200 Silver each (that is, you can regain 30% of your people lost, but only if you can pay for them). Slaves are returned to the Clan that lost them as 1/3 of each class. A Coat of Arms and a Standard (on the battlefield) is required for the Tribe with Heraldry. Only one Tribe per Clan may have Heraldry and this is sufficient for the whole Clan to benefit. However, for the actual Tribe (only) with Heraldry Leadership is improved by 2 if in combat. Coat of Arms: 5lb Standard: 5lb

Name	**Spring Arts Festival**
DL	6
Pre-Req	N/A
Recipe	Amplitheatre: Eng8, Stones 10k, Cloth 1k, Silver 5k
Description	The SAF may be initially researched under one of Music, Art or Dance. SAFA would be Art research etc. Once per Year at least 500 W/A participants will improve Morale by 0.02 for the Tribe. Having researched all 3 areas (allowing 0.06 with at least 1500 participants) will allow further research. At Adm10 you can research **Inter Spring Arts Festival, DL8** so that Tribes from other Clans

	(only) may participate. This will require an Amphitheatre. 10,000 Stones , 1000 Cloth, 5000 Silver, Eng8. Tribes from other Clans will require an audience of at least 1000 W/A and will not be permitted to Hunt in the hex.
	Any Tribe (even those from another Clan) may build the Amphitheatre.
	No Books

Name	**Bronze Statue**
DL	6
Pre-Req	N/A
Recipe	20 People, Mtl 6, Art 6, Bronze 1k, Coal 200, Silver 200
Description	Bronze Statue sells at Fair. Mtl6 must be held by the Tribe with the research.
	Weight: 1000 lb

Name	**Marble Statue**
DL	3
Pre-Req	N/A
Recipe	12 People, Stn 6, Art 6, Marble 200
Description	Marble Statues will serve as improvements to Palace etc. Stn6 must be held by the Tribe with the research.

Baking

Name	**Fine Bread**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Baking Activity. Increases Bread Production by 50 percent. Flour/Grain consumption increases accordingly. • is not coded (either on its own or in conjunction with Yeast). If you have FB using Yeast please assign an extra 50% equivalent workers. For example, 100 workers would show as 150 EqW or AM's (for main Tribe only). If using Fine Bread and Yeast in sub-Tribes you will need to show an extra 100% workers (that is, 200). You should monitor your figures when you first start using Fine Bread. See also Yeast below. Not Coded

Name	**Yeast**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Baking Activity Increases Bread Production by 50 percent. This is calculated after any Specialists have been added. Please show the Activity as Baking	Bread Yeast in your Orders (for the main Tribe only). When using Yeast in sub-Tribes you will need to show an extra 50% workers manually. Note, if you are using an Element to do Baking you will have to show a manual

	equivalent number of Bakers. Example, if you have 100 Specialists with Fine Bread and Yeast they are equivalent to 300 Bakers using Flour. Is Coded.

Banking

Name	**Minting / Coin**
DL	6
Pre-Req	N/A
Recipe	15 Nickel: 1 Person, Ref1, Nickel Ore 20, Coal 6, 15 Coins: 1 Person, Copper 25, Nickel 5, Coal 5
Description	**Refining Activity** Refine Nickel **Mining Activity** Mint Coin

Brickmaking

Name	**Brickmaking 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Allows Specialists

Name	**Improved Brickmaking Technique**
DL	4
Pre-Req	N/A
Recipe	Stone 45: 1 Person, Clay 20, Fodder 10, Coal 4
Description	A tribe with this research knowledge has a better understanding of firing bricks; as a result they gain a 50% bonus towards production of Brick. Within a Brickworks, each person assigned produces 180 Bricks using 20 Clay* 10 fodder and 4 coal. Orders are shown as Brickworks Stone Improved.

Name	**Advanced Brickmaking Technique**
DL	4
Pre-Req	Improved Brickmaking Technique (Brickmaking Research)
Recipe	Stone 60: 1 Person, Clay 20, Fodder 10, Coal 4, Silver 60
Description	A tribe with this research knowledge has a better understanding of firing bricks; as a result they gain a 100% bonus towards production of Brick. Within a Brickworks, each person assigned produces 240 Bricks using 20 Clay* 10 fodder and 4 coal and 1 Silver per 4 Bricks. Orders are shown as

	Brickworks Stone Advanced.

Captaincy

Name	**Naval College**
DL	8
Pre-Req	Gold (10 Gold / Year)
Recipe	N/A
Description	This research topic is valueless unless <u>the Tribe</u> (NB developed in one Tribe cannot service the whole Clan) has already developed Admiralty.

A Naval Academy represents a deliberate and systematic study of naval warfare and the training of a tribe's
naval leadership in how best to conduct naval warfare. The prerequisite of Admiralty insures that the tribe has possesses permanent naval leaders that can then benefit from the training provided by a "Naval Academy".

Benefits: <u>Admiralty</u> – For sea battle calculation purposes only:
      Captaincy = Captaincy + Admiralty
      Mariner = Mariner + (Admiralty /2)
      All other Admiralty benefits and restrictions are unchanged

Players should tell the GM what their Mariner, Admiralty etc. skills are for the purposes of each naval battle, thus it's up to each player to provide the correct data to the GM. If the player
doesn't he/she loses all benefit of this research topic.

Name	**Admiralty**
DL	7
Pre-Req	N/A
Recipe	N/A

Description	This adds a **new skill** (Category B) called Admiralty. A Tribe that has completed the Admiralty research topic may develop this skill. **Benefit:** The sum of (Admiralty and Captaincy + 2) skills together will replace the Leadership skill in all naval combat formulas. Players are responsible for supplying the adjustment. With Alliance (_see_ Diplomacy) Warriors, of a different tribes/clans, carried aboard a Fleet commanded by an Admiral are under the Admiral's command. They thus use the Admiral's captaincy/admiralty ratings rather than their own if they are involved in naval combat.

Combat

Name	**Assault Troops**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Specialised in Attacking fortifications - effectively add +2 to Combat Skill, and +2 AA (Assault Attack Terrain Prof).

Name	**Army**
DL	5
Pre-Req	Home Guard (Combat)
Recipe	1 Barracks, 100 Person, Eng 4, Logs 200
Description	A Tribe with Army research increases its combat effectiveness by a factor of 1.4. Any unit using Army in combat must be in MoTC with the Tribe with the research for it to apply to that unit. A Barracks (200 logs, Eng4 - Logs are installed at 2/person. Can only be built once Army research is completed) is required to house each 50 warriors in the Tribe with the research (and its

Elements). If the Army in full is not supported by Barracks then the Army bonus does not apply in combat. See Army Factor (1.4) in Spreadsheet.

Once Army is completed Home Guard becomes <u>redundant</u>.

Name	**Close Order Infantry**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Close Order Infantry provides a bonus in attack and defense and against missiles. Adds +4 to Combat skill. Increases the effectiveness of Shields by 25% against Ranged attacks (8% goes to 10%, 18% goes to 22.5%)

Name	**Combat 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Increases Combat skill to 11. Prerequisite for Combat 12. Combat Specialists do not exist.

Name	**Conscription**
DL	5

Pre-Req	Army (Combat) Diplomacy 4 (Skill)
Recipe	N/A
Description	10% of Actives from the Tribe(s) with the research may participate in combat as Warriors.

Name	**Home Guard**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	A unit using Army in combat must be in MoTC with the Tribe with the research. It is the starting research for those developing Army. Home Guard provides an Army Factor increase from 1.0 to 1.2.

Name	**Training**
DL	5
Pre-Req	Home Guard (Combat) Sergeant / Captain (*)
Recipe	N/A
Description	1. 50% of the Home Guard (that is, 5% of the Tribe's warriors) may be sent in an Element for training in the Field for terrain proficiency (which flows on to the whole Tribe). They must be assigned to Defence only in the hex in which they gain the TP - though they may do other Activities on the way. They are able to fight if attacked but may not attack in the turn of training. This may be done twice (in total for the Clan) per Calender Year. Training lasts for 3 months. Players should include, for example, "Training GH 1/3" in Orders. 2. Six months of Training will increase the base level of Militia from 0 (in Combat and Leadership) to 1 (in Combat and Leadership). The presence of a

	Sergeant allows increases up to Lvl5, a Captain is required to Lvl10, and a Colonel to Lvl15. (see also Militia Training)

Name	**Veterans Class I**
DL	5
Pre-Req	Army
Recipe	N/A
Description	The Veterans Class I topic allows 15% of a Tribe's Inactives to fight using ONLY missile weapons and/or heavy weapons. To qualify as Veterans Class I, 15% of the Tribe's Inactives AND AN EQUAL NUMBER OF normal WARRIORS must train (as an activity and do nothing else) three months every year and each training month must fall in a different season (for example, cannot do all the training in the winter). Players are responsible for keeping records of this Inactives include older warriors who are experienced, but too old to stand in the line of battle. However, they are still capable of wielding missile weapons or serving heavy weapons, especially if they keep "in training". Proposed by Steve Simmons

Cooking

Name	**Banquet**
DL	5
Pre-Req	N/A
Recipe	1 Banquet (Once per Year): Cattle 20, Barrel of Grog 20 per 1000 participants
Description	Once per year, the participating Tribe receives a Morale increase of 0.02. This uses 20 Cattle and 20 Barrels of Grog per 1,000 participants (the whole Tribe is deemed to participate but this is outside of normal activities and defense). The Host Tribe may invite one guest Tribe from either inside or outside the Clan. The guest is subject to the Morale increase. Cattle and drink must be shown as a Transfer to usage.

Name	**Great Work**
DL	5
Pre-Req	See Art Research
Recipe	See Art Research
Description	See Art Research

Name	**Stew**
DL	3
Pre-Req	N/A
Recipe	40 Stew (Provisions): 1 Cook, 5 Goats
Description	Cooking Activity 1 Person (Cooking) produces 40 Stew (provisions) using 5 Goats.

	Requires Cookhouse (requirements as per Meeting House). 1 Cookhouse services 10 cooks. Cannot have more than one Cook per 100 population in the ***Clan*** when cooking Stew. The player is obliged to note figures.

Dance

Name	**Great Work**
DL	5
Pre-Req	See Art Research
Recipe	See Art Research
Description	See Art Research

Name	**Spring Arts Festival**
DL	6
Pre-Req	See Art Research
Recipe	See Art Research
Description	See Art Research

Diplomacy

Name	Alliance MOTC
DL	4
Recipe	N/A
Description	Once completed, this research topic allows MOTC to be declared between Tribes within Allied Clans (Alliances must be established using Corps Diplomatique BEFORE Alliance MOTC can be used) as if they were all members of a single Clan. To enable an Alliance MOTC, **ALL** the involved tribes must know this research topic and then sacrifice the requisite commodities (as explained below) and state which other Allied tribe(s) they will be joining with in a MOTC. An Alliance MOTC between tribes within two clans requires that each tribe sacrifice 10 units of a desired commodity and an additional 10 units of another, different non-desired commodity. An Alliance MOTC between tribes from three different clans requires that each tribe sacrifice 10 units of a desired commodity and an additional 10 units each of two, different non-desired commodities; e.g. each tribe sacrifices 30 commodities (10 of a desired commodity, 10 of one non-desired commodity and 10 of another different non-desired commodity). Between four clans requires 10 units of a desired commodity and an additional 10 units each of three, different non-desired commodities and so forth. This sacrifice simply enables an Alliance MOTC (and this fact should be shown in each clan's turn results). Once enabled, an Alliance MOTC may be held unused indefinitely and then used when needed by simply declaring a normal MOTC except that this MOTC may involve tribes from different clans. All involved tribes must be in a common hex when the Alliance MOTC is declared. A sacrifice allows one and only one Alliance MOTC to be declared. Further Alliance MOTC declarations each require their own sacrifices. Alliance MOTC Limitations – When an Alliance MOTC is declared, one of the participating tribes must be specified (by all participants) as the leader. At no time can the warriors from the other Alliance MOTC participants exceed the number of _warriors_ in the leader's clan. This is enforced in a three-way MOTC, by limiting each of the other two (non-leader) participants' warriors to half the number of _warriors_ in the leader's clan. In a four-way MOTC, this limit is reduced to a third and so forth. _An Alliance MOTC operates as a normal MOTC. Battles skills are averaged (weighted averaging) across all warriors in the MOTC. The one exception is Generalship. If the Tribe leading the Alliance MOTC possesses the Gship skill, its benefits accrue to all as the General is in command of the entire MOTC._ Finally, all tribes (except the Leader) involved in an Alliance MOTC lose all of their Skill Attempts while the MOTC is active. Once ended, an Alliance MOTC can be reactivated ONLY by further sacrifices of commodities as described above.

Name	**Corps Diplomatique**

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DL	7
Pre-Req	N/A
Recipe	N/A
Description	Once a Tribe has completely researched Corps Diplomatique, it gains the ability to send Diplomats to other Clans, thus establishing diplomatic relations between the clans. The research is Tribe specific and Diplomats must originate from the Tribe (not Element) with the research. Diplomats are shown in your status – but they are also Inactive so transfer of Diplomat(s) means you must also transfer Inactive(s). Diplomatic Relations entail a variety of benefits, obligations and penalties as described below. **Benefit:** Diplomatic Relations are established by a Tribe, that possesses Corps Diplomatique, sending a diplomat to the main Tribe of another clan (not Element), and that tribe/village simultaneously accepting the diplomat. The Diplomat must be sent via an Element of the Tribe. Accepting the diplomat and thus Diplomatic relations, is ordered by the other Clan in the turn following the arrival of the Diplomat at that Clan. If both the send and accept orders are given in the same month, Diplomatic Relations are established between the two clans. Diplomatic Relations allows Trade Routes (see also Board of Trade as a requirement, see also Trade Routes/Depots) to be established between a village of one clan and a village of the other clan, as if both villages were part of one clan including Depots and Goods Tribe relationship. Declaring war on a clan with whom you have Diplomatic Relations is a two step process. On Turn X, the clan must withdraw/expel the ambassador. This causes all diplomatic benefits in trade to be lost. On Turn (X+1), war can be declared normally. In such cases, the tribe (only of the clan that declares war) that sent/accepted

	the diplomat suffers a morale penalty of 0.05.

Name	**Extra Tribe**
DL	4 / 5 / 6 / …·..
Pre-Req	N/A
Recipe	N/A
Description	Completion of this topic allows the Clan to spawn an extra Tribe. This Tribe must be immobile. Standard costs apply.

Name	**Fair 3**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Only one Tribe per Clan may use the Fair3 (must be able to Trade, that is, with TP or Eco). A third Fair may be held in the Year. The effect is that you may trade at double quantity limits in EITHER Fair 04 or Fair 10 (please nominate which). Slaves are at double limits for this Fair. If other modifiers to trading limits at Fair have already taken you to the x10 limit then Fair3 enables you to trade up to 20 times the limits (rather than 20 different trades) at Fair time. The reason for this is that Fair3 is actually a third Fair that has been bundled for administrative purposes.

Distilling

Name	**Absinthe**
DL	5
Pre-Req	N/A
Recipe	1 Barrel: People 5, Grain 100, Herbs 10, Silver 5
Description	Can be sold at Fair. Opening price at Fair is 500 Silver. Starting quantity at Fair is 20 Barrels. Further Details Coming

Name	**Branded Ale (Wine, Brandy, etc)**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Putting your own brand on an alcoholic beverage will enable your Branded <Alcohol> to sell at Fair for 1.5 normal prices. In combination with Eco research and later developments will see market competition, monopolies, guilds etccome into play. Each alcohol requires its own research topic. Branded Alcohol may be traded and sold by other Clans.

Name	**Port Wine**
DL	2
Pre-Req	N/A
Recipe	1 Barrel: People 5, Distilling 7, Grapes 100, Brandy 10

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Description	Fortified Wine.
	Can be sold at Fair. Effects unknown. Further Details Coming

Name	**Road House**
DL	3
Pre-Req	Tavern (Distilling)
Recipe	Road House: People 500, Eng 5, Logs 1000, Silver 2000
Description	A Roadhouse is a small inn or tavern for the local population. Road House allows the Clan to sell alcohol each turn to the Local population (shown <u>as an annual delivery and sale</u>) for Silver. Initially Road Houses are restricted to the 6 hexes that surround the Village owning the research, so 6 road houses in total can be operated – possibly further research could extend this range. Beverages that may be sold are restricted to Ale, Mead and Wine. 2 Barrels of each type of beverage may be sold per month per RH (that is, up to 24 Barrels per year with six operational Road Houses). The Tribe with the research must be involved in the building of the Tavern (but you can use Joint Project rules). You must nominate one of the Fair months (04 or 10) to sell your produce (at current Fair prices) and the goods must be incorporated into the Fair Trading Orders for that month. Proposed by Lucas Riley

Name	**Tavern**
DL	4
Pre-Req	N/A

Recipe	Tavern: People 250, Eng 4, Logs 500
Description	Requires 500 logs to build, at Eng4 installed @ 2 per. The Tavern allows the owner to sell 2 times the normal limits on alcohol at the Fair. You do not need a Trading Post to do this. The normal limit is x 6 with Pol 10 and TP). If the Tribe with Tavern research and the Tribe conducting the Fair are different they may work together as long as they share the one Village site. Tavern with Wholesale Trading will x8 limits at Fair (noting the overall limit for Fair trading is x10).
	Note, in the longer term there would be the possibility a tavern could be built elsewhere to generate monthly income from the sale of beverages. A site may have a maximum of 10 Taverns.

Economics

Name	**Board of Trade**
DL	8
Pre-Req	N/A
Recipe	N/A
Description	Once a Tribe has completely researched Board of Trade, it gains the ability to create Trade Routes (see Trade Route) without performing further research. Each created route requires 1 point of Admin skill over and above any Adm points spent on Elements and/or Fleets. Thus, a Board of Trade Tribe with an admin skill of 6 (and with no elements or fleets) could create and administer 6 trade routes. Only one Board of Trade is allowed per Clan. The research is Tribe specific but any units (and only) belonging to the Clan with BoT may use the so created Trade Routes. The Create and Administer Trade Route activity is ordered: **Activity** **Commodity** **Quantity** **People** **Note** Admin Trade Route 0999 1 5 100 silver from xxxx Turn 1/909 One end of the created trade route must always be the Village possessing Board of Trade, the other end is specified under commodity, in the example above, the village "0999". Quantity of "1" specifies that this is the first created trade route. Each created trade route requires 5 actives to administer it and 1500 silver and 10 of a desired commodity annually. <u>These 5 people must be committed on every turn to keep the trade route active.</u> "Turn 1/909 specifies when the trade route was created. <u>Players must track this data</u> as a trade route can be changed only every two years. The orders for a tribe that's created and is administering three trade routes would be: **Activity** **Commodity Quantity** **People** **Note**

Admin Trade Route	0999	1	5	1500 silver & and 10 com from xxxx
				Turn 6/908
Admin Trade Route	1888	2	5	1500 silver from xxxx
				Turn 4/909
Admin Trade Route	3777	3	5	1500 silver from xxxx
				Turn 5/909

The above orders would require three points of admin skill.

Terminating a Trade Route is ordered:

Activity	Commodity	Quantity	People	Note
End Trade Route	-	1	-	Turn 6/908

In this example, trade route 1 could be recreated on any following turn, whose date is Turn 6/910 or later
(trade routes can be created only once in a two year period).
The movement of Elements (and Fleets, if sea-borne trade has also been researched) along created trade routes is <u>doubled to 80 mv points</u>. The maximum length of land-based trade routes is also doubled to 240 MV points while the maximum length of sea-borne trade routes is unlimited.

Miscellaneous Notes:
1. Units may not be absorbed and created via TR's.
2. The research may be commenced and completed prior to placing a unit at the other end of the Trade Route. However, to use the route the second unit must be in place – and it must have a Meeting House.
3. Movement along TR is shown as, for example, 40/120 to 0250e1. Movement is unaffected by Weather.
4. Board of Trade allows land-based TRs of up to 240 Movement Points. The combination of Board of Trade and Sea-borne Trade allows water-based TRs of infinite length.
5. However, water-based TRs must be divided into segments (and the

maximum span of a segment is 40 hexes) and each segment must start and end at a Port (a village or garrison with a MH, Jetty and Boatshed).

Counters: Destroy the village with Board of Trade, see Hijacking Caravans.

Name	**Brothel**
DL	5
Pre-Req	N/A
Recipe	Brothel: People 1000, Eng 6, Logs 2000
Description	Engineering Activity A Brothel houses 30 Courtesans @300 Silver (30 Actives) need to be assigned during the Fair. Enables the sale of sex as a Trade Fair item generating up to 9000 Silver and does not count against Fair limits. One brothel per Fair. Can lead to the research of higher class establishments such as the Bordello (in Shanghai or other NPC National Capitals) whereupon the research may be linked with Spying and/or the generation of more valuable commodities such as Gold, Silk etc. Note: Is coded

Name	**Carnivale**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	A Carnivale replaces the Fair. Once per year the Tribe may hold a Carnivale at Fair prices. Normal Fair limits for buy and sell are multiplied by 4. If a Carnivale is used instead of Fair and other modifiers (such as Castle are in play) the Carnivale multiplies limits by 6 (not 8). Normal limitation on Activities.

Name	**Hire Security**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Once per year a Tribe (ONE Tribe only per Clan may have this research) may hire up to 50 Security per Security level for a 12 month period @ 20 Silver each for the Year. Need to be equipped but not fed. Act at Tribe levels and are shown in addition to Warrior numbers.

Name	**Market Place**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	The number of items traded at the Fair may be increased from 10 to 15. You need the research to use, but do not need it to build.

Name	**Sea-Borne Trade**
DL	8
Pre-Req	N/A
Recipe	N/A
Description	Once a Tribe has researched Sea-Borne Trade, it gains the ability to create a water borne trade route. This route must consist only of hexes and hexsides that are passable by a fleet, thus requiring both the starting and ending villages to be accessible by water. **Benefit:** Sea-borne trade operates under all the rules and restriction of land-borne trade routes. Of course carrying capacity is determined by the vessels

assigned to the trade fleet, rather than by land-based conveyances. Historically, sea-borne trade was more efficient than land-borne trade. Thus the movement of a trade fleet is 60 MV points. The maximum distance permitted for sea-borne trade is 360 MV points before a Village base with Jetty is required. Ocean (or Lake) hexes cost 3 Movement Points for all trade route purposes.

It needs to carry with enough provs to travel the distance.
A maximum of 5 distinct items may be traded this way.
Counters: Naval patrol in the hex of arrival.

Name	**Supply**
DL	8
Pre-Req	Generalship (Leadership)
Recipe	N/A
Description	Mercenaries may be used offensively.

Name	**Trade Element – Increased Movement**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Adds 4 MV to the Clan's Trade Element.

Name	**Trade Routes**
DL	6
Pre-Req	N/A
Recipe	N/A

Description	Each Trade Route needs to be researched separately *(but see Board of Trade)*. A Trade Route must be specified as between two Villages – that is, units with at least a Meeting House (this will also determine the Movement point requirements between the two Villages).
	A Trade Route can be a maximum of 120 MV points one way. Once the Trade Route has been identified it can be used by any Tribe in the Clan (as long as the conditions below are satisfied).
	A designated Element (which is in addition to the Tribe's Adm allowance) becomes the Trade Element/Unit (players must notify me when this is created). The Trade Element must contain at least 20 Warriors (otherwise no restrictions on population) with metal weapons and armour with enough provs to travel the distance. I do not have an objection to allowing multiple Trade Elements to be using TR's at this stage – but this will have to be subject to practice – if this appears to be creating processing problems it will need to be reviewed.
	The Trade Element (Caravan – one per Trade route) may move 40 MV points per turn (there is no distinction between mounted and foot Elements). Trade Elements move overland - but may not travel through impassable terrain. Movement of the Trade Element is shown as directly to the unit at the other end of the leg (for routes of 40 or under) or 40/120 etc, (this means that the Trade Element has moved 40 points of the required 120 to reach the destination Village) if the route is greater than 40 mv points long. There is no terrain report etc.
	The Trade Element is "invisible" and is not noted as present as it moves along the Trade Route. However, Economics research (for example, Bribery) may enable the hijacking of a Trade Element or other subversive Activities that might be dreamed up by players. A hostile Tribe may hijack the Caravan by being in the hex of arrival when the Caravan arrives with the Order "Hijack Caravan".

Goods carried are limited by Carrying Capacity and are limited to 5 distinct item types. Animals need to be Herded. Your units using TR's should take all reasonable steps to hold the number of transfers they perform to a minimum. If not I will probably have to impose a limit, maybe 5 transfers per unit per turn.

Board of Trade allows you to change the Trade Route once every two game years. Non-Clan Villages require additional research (Corps Diplomatique). Clans that have established diplomatic relations with one another can use each other's trade routes as well as create a trade route that include each other's villages.
Essentially, FOR TRADE ROUTE PORPOSES ONLY, diplomatic relations allows two different clans to be treated as a single Clan. (Trade Routes may be established with multiple Clans).

You have to explicitly state what the route is. For example N x5, NE x6 etcand you also have to state every Village along the route. For example, Trade Route 1 starts at Village xxxx and goes Nx5, NEx6 to Village 2 (yyyy) - a total of xyz MPs.

It is up to the player to be exact in their description of how you are using a TR, that is, the onus is on the player to make things perfectly clear and simple for me. Examples of how Orders will need to be shown.

Unit	Movement	MV Points	Notes	
0250e1 Trade Element	**Follow 0250e4**	40		

Trade Route **2** will still start at Beb and go to Ceb. From Ceb, it will proceed

NE, SEx4, NE to "Dee Flat", a total of 20 movement points. It will then proceed Nx3, NW, Nx2, NWx3 (another 40 movement points) to the hex containing 0250e2 (Deb). Finally, Trade Route **2** will continue from Deb to Portsea (**0250e4**) by the route, SE, Sx4 (a final 20 movement points). **Total 80 MP's.**

Depot

A Depot is part of the Trade Route research (that is, it is not a separate research topic).

A unit may declare another unit of the same clan as its Goods Tribe, even if the two units are not in the same or adjacent hexes, if and only if the two are connected by a land based Trade Route (ships may not be moved using this method). The unit that becomes the Goods Tribe must have constructed a Depot (Eng=7, 10,000 Stone, 500 Log, 200 Parchment) before it can be named as a Goods Tribe by any Trade Route connected unit.

Arms and Armour must be held by each unit using the depot (that is, not held by the GT) - this can only be adjusted from the Depot once every six months – and player must clearly indicate when this happens. In addition, units using TR must carry 100 Silver per person in the unit up to a maximum of 10,000 Silver (representing extra booty that any attacker might receive for defeating the unit).

For combat purposes units using the TR's are deemed to always be at one end of the TR or the other (not in between) – they may take shelter behind walls but may not be in Meeting of the Clan.

No more than 300 people can be transferred using a Depot. This includes Slaves, Hirelings, Mercenaries etc.

Name	**Traders Guild 20**
DL	1
Pre-Req	N/A

Recipe	N/A
Description	**Description** The effect of a Traders Guild is to allow a limited degree of short- range transfers between Guild Members' units along nominated Guild Routes, which represent well travelled paths amongst a stable trading community. Such transfers are facilitated by locals, i.e. no player element needs to be assigned or moved. **Formation and Governance** Anyone who completes the research may choose to become a Guild Master by starting a Guild (done by informing the GM by email). Guilds are always public: the formation of new ones will be published in TribeNews and currently active ones will be listed on public TN portals. Membership of any Guild is limited to 10 Clans in total, including the Guild Master. A Clan may be a member of only one Guild. Membership is by invitation from the Guild Master to anyone they choose, cc'd to the GM: a clear acceptance to the offer must be sent to the Guild Master, cc'd to the GM. Players may seek membership once the formal invitation is issued. The Guild Master is not obliged to accept any particular appliacton for membership. It is incumbent on the Guild Master to maintain the list of the membership in their Guild. Players may leave a Guild at any time by notifying the Guild Master by email, cc'd to the GM. Benefits to the departing player lapse effective from the date of the resignation email. Players may be voted out of the Guild via 60% of membership in favour (the Guild Master counts as two members with two votes). Any Guild may choose to write a Constitution, which must agreed with the GM. Any such document is always public knowledge and must be made available on public TN portals. It is the Guild Master's responsibility to ensure that this happens. Should a Guild Master lose the capacity to run a Guild, a deputy can be

appointed by the GM from amongst remaining Guild members. This deputy may continue to run the Guild as previously run but must immediately undertake any skill development and research necessary to support it. If no-one is able to act as deputy the Guild is dissolved and all benefits are lost

Operation and benefits

A Guild Route runs between two Caravanserai (Eng 2, requires 200 logs installed at rate of 2/person) belonging to member Clans of the Guild (both Caravanserai may be owned by the same Guild member). A Guild Route consists of up to 20 contiguous land hexes (including the destination but not the start, so adjacent hexes represent a 1-hex Guild Route). Rivers, Hill and Low Mountain hexes may be freely crossed by a Guild Route . Lake, Ocean or High Mountain are impassable to a Guild Route. Each Guild Route must be individually approved by the GM. Any member creating a new Guild Route must provide the GM with a graphical map showing the location of the units with Caravanserai and the proposed path in hexes. *NB Guild Route details are between the individual members involved and the GM. The Guild Master and other members need not have knowledge of all Guild Routes.*

During Trade Fair months (Turns 04 and 10) each Guild Member may conduct a single Guild Trade along an approved Guild Route. Such a Guild Trade is in addition to the normal fair; it does not count toward trade fair limits in any way. A Guild member may receive goods from as many members as are in their Guild, but may send goods only from a single Caravanserai.

For each member of the Guild, the Guild Master receives 5 Gold annually (from locals), received on Turn 1 of each game year. For computational purposes the total membership in the Guild is determined at the time the preceding turn 12 TribeNews is published. The Guild Master must show this remittance as a Transfer.

Initial limits

1. A Guild member may possess at most 2 Caravanserai at any one time.

2. A Guild member may possess at most 2 approved Guild Routes at any one time.

3. A Guild member may nominate a new Guild Route only once per game year. If already at the limit for Guild Routes, such a new proposal must nominate which route it is replacing.

4. A single Guild Trade may have at most 8 distinct items (plus barrels/containers for liquids). Only one of these may be a research item; otherwise items must be available on the public fair list or be an Exotic good such as Jade, Tea, Frankincense, etc. Books, Artefacts, Relics, Scrolls, people in any form (population, slaves, locals, hirelings, mercenaries, etc.) and boats or ships of any kind cannot be traded in this way.

5. The total quantity of goods transferred in a single Guild Trade is limited to the capacity of 100 Wagons (it is up to the player to calculate this – if the GM discovers an error the player will be notified, a second error and the player is forever barred from any Guild membership). Wagons capable of carrying the quantity of goods transferred must be held at the sending Caravanserai, but do not need to be moved.

6. Animals may be traded this way at a rate of 2 wagons = 2 elephants, 5 horses/cattle/dogs (untrained only), 20 goats (NB the equivalent wagons still need to exist in the sending Caravanserai).

7. Caravanasarai are buildings and must be built in a village.

__Possible Future developments__
Depending on the popularity of this topic and GM workload, there may be considerable scope for additional research topics to improve member benefits, e.g. by increasing the number of Caravanserai belonging to a Guild Member, or quantity of goods (not number of items) transferred in a Guild

Trade, or possibly even the number of Guild Routes a single member may possess, preferential rates at Trade Fairs or indeed just about anything else you can think of! Once multiple Guilds exist there may be scope to form one or more Associations of Guild Masters with the power to set rules affecting all Guilds whose Masters join the Association, and which may be able of offer additional benefits. The details of any of these ideas (or any others you may have!) are yet to be negotiated with the GM, however all agreed research topics relating to developing Traders Guild benefits will always be on the public Research List.

Note: No books

Name	**Traders Guild 25**
DL	3
Pre-Req	Traders Guild 20 (Economics) Politics 10 (Skill) Economics 10 (Skill)
Recipe	N/A
Description	A clan with highly developed Pol skill influences locals out to a longer range than one without. Effect is the same as TG20 but with a 25-hex range. Any Guild Master completing this research automatically upgrades the trading range of any Guild member who also possess Pol 10. *25 hexes is the maximum possible range of a Guild Trade.*

Name	**Toll Gate**
DL	3
Pre-Req	N/A
Recipe	Toll Gate: Eng 6, Stone 2000, Logs 500, Iron 500
Description	A City with a stone wall surrounding it may build toll gates (2 required). These toll gates enable the gathering of taxes from the locals.

Name	**Wholesale Trading**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Once a tribe has completely researched Wholesale Trading, the quantity of a good that it may buy or sell at a Trade Fair is doubled. For example, normally a tribe may buy only 5 hives at a single Trade Fair. With Wholesale Trading it may buy 10 hives (this consumes one slot). If other adjustments to Fair limits are in place then WT will double these limits. For example, a Nation with TP is allowed 4x trading limits. With WT this becomes 8x. With Castle this becomes 16x. However, the cap on trading limits is 10x (see Politics rules).

Engineering

Name	**Barbican**
DL	4
Pre-Req	Drawbridge (Engineering) Gatehouse (Engineering)
Recipe	Barbican: Eng 10, Stone 4000, Logs 500, Iron 500, Silver 10000
Description	A Barbican commonly was made up of 4 Stone Towers with a seamless structure in-between the towers, which housed a garrison, the winch mechanisms for the drawbridge and portcullises, its own wells, etc. In effect a Keep that defended the gate. It takes 4 x damage to standard Stone Tower to destroy them. Adds + 4 to the effective Archery Skill for defenders in combat. (This incorporates the +2 from Drawbridge) Barbicans may be built for other Clans. Barbicans may be used by other Clans in their villages. Barbican solved the problem of defence by turning the Gatehouse into a Keep-like structure that had 2 sets of gates and portcullises (an steel-reinforced wooden latticed gate - the lattice "holes" were big enough to put a polearm through, but not a body part), a common tactic was to let the enemy in by the first, putting up a weak defence and letting them "break through" the outer gates. Then when their initial press of enemy infantry was in the entrance tunnel/passage, both portcullises would slam shut at the front and the back for the entrance tunnel trapping the enemy. Thus allowing the defenders to slaughter the enemy troops trapped in-between the front and back portcullises through the murder-holes in the roof of the passage-way and firing arrows in through the rear portcullis. The enemy army would also be

powerless to stop the slaughter and (as was intended) would suffer a morale loss from having seen their best troops (who had led the charge) slaughtered in front of them.

Proposed by Paul Malone

Name	**Canals**
DL	7
Pre-Req	N/A
Recipe	Canal (One Hex-Side): People 40000 in flat or swamp Canal (One Hex-Side): People 50000 in all other terrain. Remove Ford (One Hex-Side): People 1000 w/ Tools, Wagons 20, Cattle/Horses: 10
Description	Note: Cannot build a Canal adjacent to Mountains. A Canal is treated (and shown) as a River in all respects but must start from a body of water (River, Lake or Ocean). 40,000 AM's can turn a hexside (30,000-40,000 yards) into a Canal in flat terrain or swamp (a single Prairie hex next to the hexside is all that is needed to be regarded as flat), 50,000 in all other terrain. Where flat abuts other terrain the higher manpower cost applies. A shovel doubles output. Canals are 40' wide. Fords cannot be left in the newly created Canal as part of their construction. To convert a Ford into a Canal (that is, the Ford is removed) - 1000 Workers with tools (either Picks, Shovels, or Mattocks or combination), 20 Wagons, 10 Cattle/Horses can convert a Ford into a River/Canal.

Name	**Colosseum**
DL	8

Pre-Req	Dungeon (Engineering)
Recipe	Colosseum: People 2000, Eng 8, Stones 10000
Description	Once per Year 500 Slaves may entertain a Tribe. 100-300 will die. Morale will increase 0.05. This structure may be built in other Clans' villages and used by that Clan. A Clan may only gain the bonus once per year.

Name	**Crenellations**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Once a tribe has completely researched Crenellations, the Tribe may build crenellations on walls of 20 foot or higher. Crenellations are assumed to be part of any wall construction and any existing wall, but the Tribe occupying the site must have the research for it to be effective. Adds 5% to defensive factor.

Name	**Drawbridge**
DL	5
Pre-Req	N/A
Recipe	Drawbridge: Engineering 10, Logs 100, Iron/Brass/Bronze 50, Coal 400, Rope 10
Description	Engineering Activity A wooden reinforced bridge that can be lowered to form a ramp over the Ditch or Moat, eliminating the need for a permanent crossing over the Ditch or Moat. Adds + 2 to the effective Archery Skill for defenders in combat. Drawbridge may be built for other Clans. Drawbridges in another Clan's village

	may be used by that Clan.

Name	**Dungeon**
DL	4
Pre-Req	N/A
Recipe	Dungeon: People 400, Eng 7, Stones 2000
Description	200 Slaves per Dungeon may be held requiring only 1 Overseer (but requires a Whip). Prerequisite for some Torture and other research topics. Can only be built in established Villages. This structure may be built in other Clans' villages and used by that Clan.

Name	**Fords**
DL	5
Pre-Req	N/A
Recipe	Ford to River: Eng 3, People 500 w/ Tools, Wagons 20, Cattle/Horses 10 River to Ford: Eng 6, People 2000 w/ Tools, Wagons 20, Cattle/Horses 10
Description	ords to Rivers (Eng3 if using Joint Project) 500 Workers with tools (either picks, shovels, or mattocks or combination), 20 Wagons, 10 Cattle/Horses can convert a Ford into a River. Rivers to Fords (Eng6 if using Joint Project) 2000 Workers with tools (either picks, shovels, or mattocks or combination), 20 Wagons, 10 Cattle/Horses can create a Ford in a River. Cannot be done adjacent to Mountains. Note: while both of these take effect at the end of the turn unless you are the builder you should not assume they will be present during your MV Orders. For example, if your MV is processed before a Ford is built (by another Clan) no Ford will be shown at the time of your MV and you will not be able to cross.

	In short you should not make your MV depend upon the completion of a Ford in the turn.

Name	**Fences**
DL	4
Pre-Req	N/A
Recipe	1 Fence: People 50, Eng 4, Logs 100
Description	Engineering Activity Each Fence holds 50 Horses or 50 Cattle or 100 Goats (no Elephants), halves Herders required (which you must show manually). May be built for other Tribes/Clans. Fences are considered to be outside Village walls (and may be built independent of Village for example, in an adjacent hex). With fences 1 person herds 20 cattle. With dogs 1 person herds 19 cattle and the dog. So a person with a fence and a dog herds 38 cattle and a dog. 1 Smart Herder with a dog and a fence will herd 50 cattle and the dog. You can have both Stables and Fences but an animal can only take advantage of one at a time. Smart Herding would be applied to herders first. Note: Fences are not coded into the Module and so your Herders required shown will not include this.

Name	**Fen Drainage**
DL	5
Pre-Req	Canals (Engineering)
Recipe	N/A
Description	With the knowledge gained under **Fen Drainage**; and by means of a system of canals, ditches and drains; it is possible to drain a Swamp hex, turning it into

a more useful piece of land. The target hex must be adjacent to at least one body of fresh water (River or Lake). 40,000 AM's will create the network of ditches required to drain away sufficient water that will convert the Swamp hex, into a Prairie hex. The process of draining requires a year after the ditches have been dug.

A shovel doubles output.

Fen Drainage cannot be used to drain a Swamp Hex that is adjacent to salt water.

Name	**Gate House**
DL	6
Pre-Req	N/A
Recipe	Gatehouse: People 1250, Stone 5000, Logs 500, Iron 100, Coal 400
Description	The Gatehouse requires 5000 Stone, 500 Logs, 100 Iron and 400 Coal. Logs may be substituted for stone at normal rates for buildings and may only be installed in 20' Stone Walls or better. Adds + 2 to the effective Archery Skill for defenders in combat. This structure may be built in other Clans' villages and used by that Clan.

Name	**Keep**

DL	7
Pre-Req	N/A
Recipe	* See Description
Description	A basic keep requires 4000 stones per 1000 square yards capacity for a Keep1 (1 layer). A Keep may have additional layers of stones added to provide thicker, harder to penetrate walls. Each additional layer of stones uses the same quantity of stones as the original (8000 per 1000 square for a Keep2 etc). If a keep with a thicker wall is expanded, all layers must be increased. In keeps half normal village capacity restraints apply and each 1000lbs of non animal/person requires 5 square yards. You may not house Elephants, Cattle or Goats in a Keep. Capacity calcs relate to the Keep OR to normal fortified defence, not both. Your Keep will be shown as capacity. For example, 4000Keep1 means it is a single thickness Keep capable of storing 4000 sq yards capacity. * you may choose to enter the Keep at the start of any combat turn – but if you do you give up all external buildings – so no Refining etc. And you may not return to use external defences on subsequent continuos combat turns. The Keep is perhaps more useful for supporting smaller units in positions away from the main Tribe/population base. Remember that the Keep is still subject to siege.

Name	**Mining Ladder**
DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	(Also Under Mining, Metalwork and Woodwork) Each ladder (implement) doubles the base output of 10 people performing Mining and Digging (Clay, canals, sand, moats, etc.) activities before implements. Mining Ladders

can be used in conjunction with other tools, but increases are additive and are not

compounded. For example, 1 Miner with both a Pick and a Mine Ladder produces his

base output x 3 (not x 4).

These wood and metal ladders and ramps are used to for more advanced vertical mining

and to facilitate the movement of personnel and ore up mine shafts when they occur due

to following veins. These would not be standard wood ladders or ramps but would have

iron reinforcement to handle the added weight of the ore and wagons. We have called it

Mining Ladders research to shorten the name but it would really be both ladders and

ramps.

1 Mining Ladder weighs 50 lbs.

Name	**Outpost**
DL	8
Pre-Req	N/A
Recipe	Outpost: People 500, Eng 9, Stn 8, Stones 8000, Logs 200
Description	Fortified towers for lookouts to help in the protection against being surprised by invaders

An Element containing at least 20 Warriors – cannot be overrun via Locate, and will report Locating scouts - but cannot Suppress enemy Scouts either – must be within 6 hexes of the main Village.

Can be Assaulted as a 15 Stone Wall or Sieged as normal attack. However, the Outpost may build 20 etc Stone Walls (see also Keep) for better protection in combat. It cannot build towers of any sort. |

	This structure may not be used by Clans without the research topic.

Name	**Roman Crane**
DL	7
Pre-Req	N/A
Recipe	1 Roman Crane: People 6, Eng8, Wdw10, Logs 20, Iron 40, Rope 10
Description	(Also under Woodwork) Description: Wood crane comprised of a modest size boom, a base plate, and a large diameter barrel shaped "wheel" on its side built around and attached to a centre axle (like a hamster wheel). One or more people walk inside the wheel providing mechanical power to drive the winch and thereby raising or lowering loads. Benefit: Increase worker productivity by 50% on Engineering projects and Shipbuilding so 2 workers do the work of 3. Each crane enables up to 20 workers to gain benefit. The Crane applies to raw workers that is, before other items such as Wheelbarrows. Player must show equivalent workers in their orders. Cranes are inventory item and transportable once constructed and thus may be used by Clans without the research. Proposed by Brian Whitesell

Name	**Sappers**
DL	5 or 7
Pre-Req	N/A
Recipe	*See Description
Description	Sappers reduce the effectiveness of defensive fortifications. *Uses 500 Logs each time deployed.* Sappers come from troops not engaged in combat. Requires 1 Sapper per 20 yards wall.

	?

Name	**Scaffolding**
DL	5
Pre-Req	N/A
Recipe	1 Scaffold: People 2, Wdw 6, Logs 3
Description	Woodwork Activity
	A worker with a scaffold does the work of 1.5 effective workers for Shipbuilding or Engineering work. Every worker requires their own scaffold. Examples:
	1 Worker, 1 Scaffold = 1 Effective worker
	2 Workers, 2 Scaffolds = 3 Effective workers
	100 workers, 100 scaffolds = 150 Effective workers
	The Scaffolding, once made, is transportable. At this stage of coding players will need to show this. For example, if you are using 20 workers with Scaffolding you would show them as 30. Scaffolds are inventory item and transportable once constructed and thus may be used by Clans without the research.
	Weight: 50 lbs

Name	**Stables**
DL	4
Pre-Req	N/A
Recipe	Stable: People 50, Logs 50
Description	Engineering Activity
	Holds 30 Horse or 30 Cattle, or 60 Goats. Halves herders required. If using an adjacent hex Goods Tribe relationship Stables are best with the Goods Tribe

(that is, the Tribe that holds the buildings).

Elephants are not able to be housed in a stable.

As with some other Herding topics you will have to show equivalent numbers.

This structure may be built in other Clans' villages and used by that Clan.

Name	**Stone Wall 25'**
DL	7
Pre-Req	N/A
Recipe	*See Description
Description	Engineering Activity Needs the prior three layers to exist. 75 stones per yard – 12 people to install 1 yard. 25' Walls 30 (18+12) people 210 stones per yard (if previous walls do not exist). 25' wall 8 Damage points Total 20 This structure may be built in other Clans' villages and used by that Clan.

Name	**Stone Wall 30'**
DL	9
Pre-Req	Stone Wall 25' (Engineering)
Recipe	*See Description
Description	Engineering Activity Needs the prior four layers to exist. 30' Walls 18 people 90 stones per yard (if 25' wall exists) 30' Walls 48 (30+18) people 300 stones per yard (if 25' wall does not already exist)

30' wall	10 Damage points Total 30
	This structure may be built in other Clans' villages and used by that Clan.

Name	**Superior Canals**
DL	7
Pre-Req	Canals (Engineering)
Recipe	*See Description
Description	A Superior Canal; like a regular Canal; is treated (and shown) as a River in all respects but must start from a body of fresh water (River or Lake). 80,000 AM's can turn a hexside (30,000-40,000 yards) into a Superior Canal. Superior Canals are permitted adjacent to Mountains, but may not travel <u>through</u> any Mountains. A shovel doubles output. Canals are 40' wide. Fords cannot be left in the newly created Canal as part of their construction. To convert a Ford into a Canal (that is, the Ford is removed) - 1000 Workers with tools (either picks, shovels, or mattocks or combination), 20 Wagons, 10 Cattle/Horses can convert a Ford into a River/Canal.

Name	**Trellis**
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	Woodwork Activity Requires Farm 6 to use Trellis to reduce AM for grape harvesting A structure to support vines and hold them in optimal position to encourage growth and enable easier harvesting of the grapes.

The trellis can be installed on a vineyard (during or after planting) and then is permanently associated with that acreage. Trellis can be built for another clan if the unit
is permitted into their village hex, but once built cannot be moved.
The effect of a trellis is reducing the work required harvesting grapes to 1/4 of normal.
In other words, 1 person can harvest up to 4 acres of grapes which have trellis installed.
Combines lineally with other research (so treat as +3 workers not x4, if in conjunction
with other research).
Players need to track the trellised acres and show effective workers adjusted for trellis in
their orders, for instance show 100 workers harvesting 400 trellised acres as 400
effective workers.

Name	**Watchtower**
DL	4
Pre-Req	N/A
Recipe	Watchtower: People 300, Eng 6, Logs 600
Description	A Village with a Watchtower adds 2% per tower to the chances of Security and Suppressors detecting Spies, Scouts, Raiders and Locating groups. Watch Towers are 30' high. A Village may have a maximum of 6 Watchtowers. Requires 2 observers per WT. This structure may be built in other Clans' villages and used by that Clan.

Name	**Wire Fences**
DL	4
Pre-Req	N/A

Recipe	Wire Fence: People 4, Logs 4, Wire 10
Description	Wire Fences = Fence. A Wire Fences can be constucted with 4 logs and 10 wire. Logs installed at 2 per person, wire at 5 per person. Wire Fences = Fence

Excavation

Name	**Expert Dig**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Two Artefacts may be dug per turn. Requires 20 people with implements. A unit with Expert Dig may carry unlimited Artefacts.

Name	**Holy Artefact**
DL	6
Pre-Req	Expert Dig (Excavation) Religion 10 (Skill)
Recipe	N/A
Description	Once per year Clan may conduct a search for a Holy Artefact at its excavation site. A Holy Artefact when found will add 0.05 Morale to one tribe in the clan. The Holy Artefact if lost in ANY WAY will remove this 0.05% bonus. A Holy Artefact may be used in the same way as normal artefacts but is worth 12 normal artefacts. Proposed D Thacker

Name	**Tomb Robbers**
DL	7
Pre-Req	N/A
Recipe	N/A
Description	*See Archaeology

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Farming

Name	**Agriculture 1, Agriculture 2, Agriculture 3**
DL	1, 2, 3
Pre-Req	Farming 11
Recipe	N/A
Description	Agriculture may be attempted at Farm11. The effect of gaining an Agriculture topic is to add levels to your Farm Skill. Agr1 adds one level (for example, Farm11 to Farm12), Agr2 adds 3 levels (for example, Farm12 to Farm15), Agr3 adds 5 levels (for example, Farm15 to Farm20). Once Agriculture 1 Research Topic has been achieved, the Tribe may learn a new skill, Agriculture (Group C). Once Agriculture skill reaches 10, further Agriculture research topics (4, 5, 6…) may be researched. Each Agriculture research topic (4, 5, 6…) adds 5 Levels to Farming skill. Books may be written.

Name	**Flax**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Farming Activity Best location is flat/temperate, each person plants 3 acres, harvests 2 (1 flax = 1 cotton). Harvesting returns should automatically convert Flax to Cotton.

Name	**Herb Plot**

DL	4
Pre-Req	N/A
Recipe	N/A
Description	Herb Plot Research introduces a new crop, Herbs. Herbs are permanent crops like Grapes. Upon successfully completing Herb Plot Research Topic, the Tribe gains access to a new skill – Herbing (Group C). Herbing only affects how many people may plant Herb plots in a single month. Planting: - Limited to: 10 Population / Level of Herbing Skill - Must be planted in Spring Months - May be planted in all Spring Months 1 Population with Hoe plants 5 Herb plots - Hoes are required for Planting - Every Herb plot planted requires the use of 1 Herb (Transfer to Usage) Maintaining: - Limited to: No limit to the number of Population able to Maintain. - Must be maintained each Summer (except the year initially planted). 1 Population maintains 5 Herb plots 1 Population with Hoe maintains 10 Herb plots Harvesting: - Limited to: No limit to the number of Population able to Harvest. - Must be harvested in Month 12. 1 Population harvests 5 Herb plots 1 Population with Hoe harvests 10 Herb plots - Produces annual Yield of 2 Herbs per Acre. - Weather does not affect Herbs. **NOTE:** Not Coded. Player must transfer the appropriate amount of Herbs from 0263 on Month 12.

Crop	Plant/Person	Harvest/Person	Tools
Herb	5	5	Hoe required for Planting. Hoe doubles Harvest acres.

Alternate Description

"somedays, herbers rouse themselves from slumber (face down in ashtray) and prosecute craft with poetic ambivalence." Courtesy of E. Waugh. Can substitute "GM's" for "herbers" with little change to meaning! Note: Not Coded

Name	**Inactive Workers**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Inactives can perform up to one-third of the farming activities labour. If not doing this they "work" for the public service. During planting and harvesting, everybody, in the tribe worked. During planting, young children could plant seeds into furrows and the elderly could push the soil back over the seeds. During harvest young and elderly people could bundle scythed gain stalks into sheaves and collect the actual grain kernels as the grained was threshed. Would require coding from Jeff. Until this is done Chief, please add Actives/Warriors and Inactives into a single figure in Activities (showing the Inactives in notes).

Name	**Plantation**
DL	5

Pre-Req	N/A
Recipe	1 Plantation: People 200, Eng 6, Farm 6, Logs 400 (May be substituted with stone)

Description	Plantations provide a 50% increase in Effective Workers for purposes of all farming activities (Plowing, Planting and Harvesting). This requires extra tools and improvements for this increase in effective workers. (*Example: 100 Workers plowing would be 150 Effective Workers. They would require 150 Plows and Cattle. This represents swapping out tired animals and allowing used tools to be maintained*). Each Plantation affects 100 Workers. To gain the benefit of the Plantation, the Farming Clan must have a unit in the farming Hex that either has the skill Slavery 10 or Economics 10. Plantations may be built for other Tribes/Clans. Plantations are not considered inside defensive walls of a village / city.
	
	Plantations are large-scale farms that consists of a main house, the symbol of the plantation, and is surrounded by a small walled set of land. Stone markers indicate plowing rows, planting distances and designated areas are setup for harvest drop off. Designated areas for tool maintenance and swapping animals are also included. "The latifundia of the Roman Empire were the earliest examples of plantations."
	Examples:
	  Plowing: 100 Workers with 1 Plantation would count as 150 Effective Workers and would require 150 Plows (and appropriate Cattle for those Plows). They would plow 150 * 8 = 1,200 Acres.
	  Planting: 100 Workers with 1 Plantation would count as 150 Effective Workers and would plant 300 acres of Tobacco (150*2) or 450 acres of Sugar (150*3)
	  Harvesting: 100 Workers with 1 Plantation would count as 150 Effective Workers and would Harvest 150 acres of Tobacco (150*1) or 300 acres of Sugar (150*2). If the Workers had 150 Scythes they would Harvest 600 Acres of Sugar (150*4) just as if 150 workers with Scythes were harvesting Sugar.

Name	**Trellis**
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	Woodwork Activity Requires Farm 6 to use Trellis to reduce AM for grape harvesting A structure to support vines and hold them in optimal position to encourage growth and

enable easier harvesting of the grapes.

The trellis can be installed on a vineyard (during or after planting) and then is permanently associated with that acreage. Trellis can be built for another clan if the unit
is permitted into their village hex, but once built cannot be moved.

The effect of a trellis is reducing the work required harvesting grapes to 1/4 of normal.
In other words, 1 person can harvest up to 4 acres of grapes which have trellis installed.
Combines lineally with other research (so treat as +3 workers not x4, if in conjunction
with other research).

Players need to track the trellised acres and show effective workers adjusted for trellis in
their orders, for instance show 100 workers harvesting 400 trellised acres as 400
effective workers.

Fishing

Name	**Trawler**
DL	6
Pre-Req	N/A
Recipe	1 Trawler: People 160, ShB8, Wdw8, Mtl7, Logs 160, Brass 40, Coal, 200, Sheath 150, Silver 3000, Leather 30, Cloth 15, Rope 20, Oars
Description	Increases size of catch (but not the chances).

	Ship B	Wood	Mtl	Logs	Brass	Coal	Sheath	Silver	Leather	Cloth	Rope	O/P	Weight
Trawler	8	8	7	160	40	200	150	3000	30	15	20	O	20000

	Sail Movement				Row Movement								
Vessel Type	MP	Nav	Sea	Sail	Crew	MP	Nav	Sea	Row	Crew	MEF	Sail	Hull	Max People
Trawler	20	2	2	4	10+7	15	.5	.5	2	20+7	12	16	16	60

Defense Points: 16
Cargo: 20,000
Weight: 20,000

Trawlers may be used by Tribes / Clans without the research.

Name	**Trawling Net**
DL	4

Pre-Req	N/A
Recipe	1 Trawling Net: People 4, Wv7, Cotton 30, Silver 25
Description	Counts as 0.75 units when Fishing. The number of Trawling Nets may not exceed the number of people fishing. Weight: 5lb

Forestry

Name	**5 Logs / Person**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	A forester can cut down 5 logs.

Name	**6 Logs / Person**
DL	6
Pre-Req	5 Logs / Person (Forestry Research)
Recipe	N/A
Description	A forester can cut down 6 logs.

Name	**7 Logs / Person**
DL	7
Pre-Req	6 Logs / Person (Forestry Research)
Recipe	N/A
Description	A forester can cut down 7 logs.

Name	**8 Logs / Person**
DL	8
Pre-Req	7 Logs / Person (Forestry Research)
Recipe	N/A

Description	A forester can cut down 8 logs.

Name	**Burner Improvements**
DL	2
Pre-Req	Charcoal Specialists (Forestry Research)
Recipe	1 Burner Improvement: People 50, Eng 6, Stn 4, Mtl 4, Brk 4, Stones 150, Iron 50, Fodder 50, Clay 50
Description	Burner Improvements are improvements made to existing burners. Burner Improvements double the effective workers assigned to the Charcoal Making activity (Section 12.6) only. Each Burner Improvement affects a single burner (10 people). They are themselves counted as buildings. You can never have more Burner Improvements than you have Burners. They may be built in other Villages and transferred but are not transportable. They must be built in place. The bonus from Burner Improvements follows the standard rules for TribeNet multiplication. With Charcoal Specialists (Special Research topic) giving a 50% increase and Burner Improvements giving a 100% improvement, the each worker would have an effective worker value of 2.5, not 3. *Charcoal Specialists felt that their knowledge of the process was such that they needed to find new and better ways to make charcoal. After much experimenting, they discovered a series of improvements that would assist in controlling oxygen to the process and also maximize the amount of charcoal produced in each burner, thus lessening the amount of work each person allowing them to watch additional burns.*

Name	**Managed Plantations**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Normal Forestry activities can be performed in GH or PR but only after 1 full year after initial planting to allow young trees to take root. 50 people are required to setup the plantation but once setup, it looks after itself. 10 people may practice Forestry per Forestry Level (until level 10) and with

normal returns (Only the Tribe with the research may use it). Multiple Managed Plantations may be setup for the Clan but the Automatic Transfer spreadsheet must be used if a Clan has more than one Managed Plantation. Managed Plantations may **not** be made or used for/by other Clans.

Twice per year (in Fair months) the player receives a shipment of Logs/Bark based on the previous 6 months activity. Players are responsible for indicating the amount of Logs and Bark produced each turn, keeping a running tally and showing this in Orders in the Fair months when the shipment is due.

Note: This is Forestry research and will not produce weapons like Staves and Shafts.

Name	**Charring Specialists**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	2 people do the work of 3.

Name	**Saw**
DL	5
Pre-Req	N/A
Recipe	1 Saw: People 3, Mtl5, Iron 5, Coal 40
Description	Metalwork Activity Saws multiply logging rates x 4. <u>Cannot</u> be used with Adze. A Forester with no tools cuts 4 Logs

A Forester with Adze cuts 8 Logs A Forester with Saw cuts 16 Logs	

Name	**Scraper**
DL	2
Pre-Req	N/A
Recipe	1 Scraper: Person 1, Mtl1, Iron 1, Coal 4
Description	Metalwork Activity Doubles rate for Bark Stripping Weight: 1 lb

Furrier

Name	**Advanced Trap**
DL	4
Pre-Req	Improved Trap (Forestry, Metalwork)
Recipe	1 Advanced Trap: People 2, Mtl 10, Iron 2, Coal 8
Description	An Advanced trap is a continued evolutionary refinement of the Research topic Improved Trap and functions much as a standard trap. One Hunter/Furrier may use 1 Advanced Trap (with no standard Traps or Improved Traps) – this improves Hunting by 1.0 (i.e. one hunter counts as two).

Name	**Improved Trap**
DL	2
Pre-Req	N/A
Recipe	1 Improved Trap: People 1, Mtl 3, Iron 1, Coal 6
Description	An Improved Trap functions much as a standard trap, but allows a 15% bonus instead of 10% bonus. <u>Standard limit of 5 traps per hunter apply</u>. I Hunter/Furrier may use up to 5 Improved Traps (with no standard Traps) – this improves Hunting by 0.15 per IT or 0.75 per 5 ITs.

Name	**Winter Furs**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Furriers will be able to identify higher quality furs. They will sell for double the price of ordinary Furs at Fair. During Winter months (only) a Furrier with 5 Traps (or better) will furry 4 Winter Furs. This Activity is over and above ordinary Furrying and must be shown as a Transfer, for example, "400 Winter

	Furs to 0250" using 100 Actives with 500 Traps.

Glasswork

Name	
DL	
Pre-Req	
Recipe	
Description	

Generalship

Name	**Field Marshall**
DL	7
Pre-Req	Generalship 11
Recipe	N/A
Description	This adds a **new skill** (Category B) called Field Marshall. A Tribe that has completed the Field Marshall research topic may develop this skill. A Tribe that possesses Field Marshall has its Generalship skill increased by one-half of its Field Marshall skill, rounded down, for all combat calculations. In addition, when two Clans are attacking the same target (or defending against two attackers) the Clan with Field Marshall may determine the order of attacks (that is, which Clan attacks or is attacked, first). This also applies when multiple units of a single Clan are attacking or defending. The Clan with the highest Field Marshall level will prevail should there be more than one Clan with Field Marshall (it outranks Generalship).

Name	**Generalship 11**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	N/A

Name	**Generalship 12**
DL	7
Pre-Req	N/A
Recipe	N/A

Description	N/A

Healing

Name	**Hospital**
DL	8
Pre-Req	N/A
Recipe	Hospital: People 1250, Eng9, Stones 5000, Logs 500
Description	Improves population growth (0.5%), and adds +4 to Healing Skill in combat conducted in the Village where the Hospital is present. A single Hospital serves all Tribes of the one Clan in the site. Can be built for other Tribes but they require Healing research to use. Once built, all population benefits currently allowed will be automatically credited each turn (that is, the modifier is hard coded). Heal skill must be at least Lvl1 for this to happen.

Name	**Salves**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	1 Herb and 2 Silver can be made into 1 Salve (Healing activity) 1 Salve is equal to 2 Herbs during Healing in combat. 1 person can make 10 Herbs into 10 Salves. Weight as Herbs.

Name	**Seek Herbs**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Increase Herb returns when Seeking - triple finds during Seeking using the same number of people. Note, you show me triple figures <u>after</u> Horses, Backpacks etc have been applied.

Heavy Weapons

Name	**Breaching Walls**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	To be developed. The effect of creating breaches is to reduce defensive factor. ..¥Combat¥Breaches¥BreachesSteveSimmonsSheetVII.xls One yard or breach repaired of wall requires the following:

ITEM	SKILL	TYPE	PEOPLE	LOGS/STONES
10'	Eng 4	Palisade	1 Person	3 Logs
10'	Eng 7	Stonewall	3 Person	30 Stones
15'	Eng 8	Stonewall	6 Person	45 Stones
20'	Eng 9	Stonewall	9 Person	60 Stones

Name	**Slave Crews**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Use of Slaves to fire siege weapons. 1 Warrior oversees 2 Slaves (so a Catapult needs 6 slaves, 3 warriors and a Trebuchet needs 10 slaves, 5 warriors). Operate at Skill and Morale level of Tribe. Slaves are not available for any other activity during the turn (that is the slaves must be put on defense like the warriors). The player shows Slaves as ordinary Warriors in combat orders and must calculate weighted losses at the end of combat.

Herding

Smart Herding, Herding Dogs and Fences have cumulative effects.

You work out how many animals that the Herding Dogs can herd, take that from the total animals to be Herded and then calc the rest. Fences are used next, then Stables, then Smart Herding, then Specialists.   Horse herders (and other Herding researched benefits like Mounted Herders) are at this stage are a linear benefit. That is, modifiers do not multiply up. For instance, a Mounted Herder who is a Specialist does not exist. Note that Herding Specialists do not apply to herding Dogs.

Name	**Dairy Cattle**
DL	6
Pre-Req	N/A
Recipe	100 Milk: 1 Person, 10 Cattle (Reusable) 30 Cheese: 1 Person, 90 Milk
Description	Dairy allows the use of the Milking and Cheesemaking activities. 　　Milking (Group A): This new skill allows 10 Milkers per level (limited to 10,000 at Milk10) to perform the Milking activity. Milk must be used in the turn produced or it will be lost. Milk is not produced in desert or arid terrain. Milk may be used a provs or water. 10 Milk is consumed as 1 Prov. One person milks 10 cattle to produce 100 milk. 　　Cheesemaking (Group C): This new skill allows 10 Cheesemakers per Cheesemaking level. Cheese is consumed as Provs. 1 Cheese is consumed as 1 Prov. 1 Person makes 30 Cheese using 90 milk. 1 person uses 90 Milk to make 30 Cheese.

Name	**Expert Breeding**
DL	6
Pre-Req	N/A
Recipe	N/A

Description	Add 3 to the Herding skill for purposes of Herd Growth. Players need to tell me when this research <u>first</u> comes in so I can manually adjust the Herd skill to 13. Note this does not mean you have achieved Herd11 for the purposes of Specialists etc. Herd11 needs to be attained separately but if it is your effective Herd level is 14.

Name	**Fences**
DL	*See Engineering
Pre-Req	*See Engineering
Recipe	*See Engineering
Description	*See Engineering

Name	**Guard / War Dogs**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Particularly useful in Security Conversion to Guard dogs from the Dog pack can occur at any time, but is non-reversible.

Name	**Herding 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Herding 11 Prerequisite for Herding 12

Name	**Herding 12**
DL	6
Pre-Req	Herding 11
Recipe	N/A
Description	Herding 12
	Prerequisite for Herding 13

Name	**Horse Herders**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Each herder herds 20 Horses.

Name	**Hunting Dogs**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Hunter with a Dog counts as 3 Hunters (you will need to show this to me – for example if you have 50 Hunters with 10 Dogs show this as 70 Hunters). You may convert Dogs to Hunting Dogs (which may then not be transferred to other Clans).

Name	**Herding Dogs**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	A person assigned a dog herds twice as many animals (including the dog). Herding Dogs can help herd Elephants. Players need to show equivalent Herders when using Dogs. Conversion to Herd Dogs from the Dog pack can occur at any time, but is non-reversible (you Order "convert xx Dogs to Herd Dogs"). The dogs are non-transferrable (the research includes the ability to handle). Dog 3 provs, 1 skin, 1 gut eats 0.5 provs per turn Weighs 50 lb

Name	**Mounted Herders**
DL	8
Pre-Req	N/A
Recipe	N/A
Description	Doubles the number of animals herded. Mounted Herders require a Saddle and Rope. Mounted Herders affect all animals, regardless.

Name	**Veterinarian Medicine**
DL	7
Pre-Req	Herd 11 (Herding) Expert Breeding (Herding)

	Scroll
Recipe	N/A
Description	This adds a new skill (Category B) called Veterinarian Medicine. A Tribe that has completed the Veterinarian Medicine research topic may develop this skill. A Tribe that possesses Veterinarian Medicine has its Herding skill increased by one-half of its Veterinarian Medicine skill, rounded down. In addition, its Horsemanship skill is increased by one-half of its Veterinarian Medicine skill, rounded down for the purposes of determining Horse casualties for a battle. Herding skill is changed on once per year. Note: it is up to the player to tell me when this happens. For example, on turn 8/946 tribe 2999 completes the Veterinarian Medicine research topic and can start developing the Veterinarian Medicine (VetM) skill. ONE YEAR later on 8/947, 2999's VetM has reached 5 (and its Herd skill still = 11). Thus on turn 8/947, you would set 2999's Herd skill = 13. On the following year, if VetM has reached 8, Herd would be set = 15. Books may be written but each Book requires a Scroll.

Name	**Smart Herding**
DL	2
Pre-Req	N/A
Recipe	4 Crooks: People 1, Wdw 2, Log 1
Description	1 Herder herds 11 Horses, 13 Cattle, 25 Goats Requires a Crook. Crooks may be made by anyone. Specialist Smart Herders herd 22 Horses, 26 Cattle, 50 Goats. Weight: 2lbs

Name	**Stables**

DL	4
Pre-Req	N/A
Recipe	1 Stables: People 50, Logs 100
Description	Holds 30 Horse or 30 Cattle, or 60 Goats. Halves herders required. Prerequisite for some Cavalry related troops (for example, Knights).

Herding Process

(written by the coding guy)

Check Herding Limit

Identify the number of animals requiring herders broken down by the requirement for 5, 10 or 20 herders

Check for research

Fences – number

Stables – number

Smart Herding – number of crooks

Horse Herders = Y or N

Mounted Herders = Y or N

Herding Dogs – number of herding dogs

Specialists -number of specialist herders – definitely no allowance for specialist smart herders

Reduce herders available based on the above

Fences – reduce herders required for each fence for 20 then 10 herds

Stables - reduce herders required for each stable for 20 then 10 herds

Smart Herders (Crooks) - reduce herders required for each crook for 20 then 10 herds (assumption that at least 1 herder is required per crook)

Herding Dogs – reduce herders required for each 20, then 10, then 5 herds (assumption that at least 1 herder is required to manage the dogs)

Specialist - reduce herders required for each 20, then 10, then 5 herds

Note: the code assumes that Fences and Stables do not require a herder to operate them, also no fodder is required, etc, etc

Now determine the number of herders still required

Horsemanship

Name	**Close Formation (Close Order Cavalry)**
DL	4
Pre-Req	Horsemanship 10 (Skill) Tactics 5 (Skill)
Recipe	N/A
Description	+4 to Horsemanship, in addition to, not exclusive of, all other bonuses applicable.

Name	**Horsebow**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Allows half your Cavalry to use a Horsebow during the missile phase <u>in addition</u> to normal melee attack. It does not allow the Horsebow to be manufactured however. Horsebows are available but you have to find them so best not to attempt the research til you have a source.

Name	Knights
DL	8
Pre-Req	Heraldry in One Tribe in Clan (Art) Stables (Herding) Combat 10 (Skill) or Leadership 10 (Skill)
Recipe	N/A
Description	A Knight can only fight as a Cavalry unit. Attributes of Knights: • Ongoing maintenance of 1 Gold paid per year in month 12 per Knight sent via transfer. If funds are not available, the knighthood will lapse for those who are short. • Knights have a Combat Factor of x2.4 Cavalry, meaning they perform as if they

	were 2.4 cavalry. • Warriors are converted to Knights and once converted may do nothing else. • Knights may not comprise more than 25% of a Tribe's total Warriors. • For example, a Tribe with 1200 Warriors may have up to 300 Knights. If this Tribe was involved in combat it would be able to assign 400 troops to combat. However, up to 300 of these could be Knights. • Janissaries and Knights may not participate in the same combat (on the same side).

Hunting

Name	**Hunting Dogs**
DL	6
Pre-Req	*See Herding
Recipe	*See Herding
Description	*See Herding

Name	**Mongol Hunt**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Requires at least 1000 Hunters - increases Hunt by 1.2 (that is, 1000 Hunters will hunt as if they are 1200). 1.2 affects people not equipment (that is, if you are using 100 traps with 1000 people the MH has the effect of 100 traps with 1200 people). For the purposes of the Spreadsheet you multiply ordinary Hunters by 1.2, insert this figure into Hunters, then add implements.

Name	**Mongol Hunt 2**
DL	4
Pre-Req	Mongol Hunt (Hunting)
Recipe	N/A
Description	Requires at least 1000 Hunters - increases Hunt by 1.4 (that is, 1000 Hunters will hunt as if they are 1400). 1.4 affects people not equipment (that is, if you are using 100 traps with 1000 people the MH2 has the effect of 100 traps with 1400 people). For the purposes of the Spreadsheet you multiply ordinary Hunters by 1.4, insert this figure into Hunters, then add implements.

Name	**Trappers**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Hunters may use up to 10 traps/snares each. Can also use 10 Improved Traps and 2 Advanced Traps.

Intelligence

Name	**Organized Intelligence Analysis (OIA)**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Allows any ONE Tribe of the Clan (this tribe must have INTELLIGENCE Skill = 10) to also ask ONE question per year about another player clan. The tribe with OIA need not be the same tribe as the tribe that asks the questions. Only questions with short simple answers are permitted. For example, what is the population of 0888? – Answer is "99,999". All the stated limitations of Intelligence apply to this extra question. For example, for a site which is 20 hexes away the answer given should be within 2 hexes of the actual location. The question will be vetted by the GM. Rationale – Gathering Intelligence (e.g. the Intelligence Skill) is valuable in and of itself. However, this value can be greatly enhanced by an organized effort (e.g. the Research Skill) to analyze the various clues and hints that are gathered with the Intelligence Skill. Developing this research topic represents training the researchers (that do the analysis) to work with the intelligence gathers and to develop their abilities to "put the puzzle pieces together" to gain useful data about others clans.

Leadership

Name	**Alliance MOTC**
DL	4
Recipe	N/A
Description	Once completed, this research topic allows MOTC to be declared between Tribes within Allied Clans (Alliances must be established using Corps Diplomatique BEFORE Alliance MOTC can be used) as if they were all members of a single Clan. To enable an Alliance MOTC, **ALL** the involved tribes must know this research topic and then sacrifice the requisite commodities (as explained below) and state which other Allied tribe(s) they will be joining with in a MOTC. An Alliance MOTC between tribes within two clans requires that each tribe sacrifice 10 units of a desired commodity and an additional 10 units of another, different non-desired commodity. An Alliance MOTC between tribes from three different clans requires that each tribe sacrifice 10 units of a desired commodity and an additional 10 units each of two, different non-desired commodities; e.g. each tribe sacrifices 30 commodities (10 of a desired commodity, 10 of one non-desired commodity and 10 of another different non-desired commodity). Between four clans requires 10 units of a desired commodity and an additional 10 units each of three, different non-desired commodities and so forth.
	This sacrifice simply enables an Alliance MOTC (and this fact should be shown in each clan's turn results). Once enabled, an Alliance MOTC may be held unused indefinitely and then used when needed by simply declaring a normal MOTC except that this MOTC may involve tribes from different clans. All involved tribes must be in a common hex when the Alliance MOTC is declared. A sacrifice allows one and only one Alliance MOTC to be declared. Further Alliance MOTC declarations each require their own sacrifices.
	Alliance MOTC Limitations – When an Alliance MOTC is declared, one of the participating tribes must be specified (by all participants) as the leader. At no time can the warriors from the other Alliance MOTC participants exceed the number of _warriors_ in the leader's clan. This is enforced in a three-way MOTC, by limiting each of the other two (non-leader) participants' warriors to half the number of _warriors_ in the leader's clan. In a four-way MOTC, this limit is reduced to a third and so forth. _An Alliance MOTC operates as a normal MOTC. Battles skills are averaged (weighted averaging) across all warriors in the MOTC. The one exception is Generalship. If the Tribe leading the Alliance MOTC possesses the Gship skill, its benefits accrue to all as the General is in command of the entire MOTC._ Finally, all tribes (except the Leader) involved in an Alliance MOTC lose all of their Skill Attempts while the MOTC is active. Once ended, an Alliance MOTC can be reactivated ONLY by further sacrifices of commodities as described above.

Name	**Generalship**

DL	7
Pre-Req	N/A
Recipe	N/A
Description	This adds a **new skill** (Category B) called Generalship. A Tribe that has completed the Generalship research topic may develop this skill. A Tribe that possesses Generalship has its Leadership skill increased by one-half of its Generalship skill, rounded down, for all combat calculations. In addition, when two Clans are attacking the same target (or defending against two attackers) the Clan with Generalship may determine the order of attacks (that is, which Clan attacks or is attacked, first). This also applies when multiple units of a single Clan are attacking or defending. The Clan with the highest Generalship will prevail should there be more than one Clan with Generalship. **Counters:** Generalship is the only counter for Generalship. If units on more than one than one side possesses Generalship, the order of combats etc are determined exactly as if no one had Generalship. However, the Generalship increase to Leadership, as well as common Leadership (e.g. one set of battle orders issued by the general and all use the general's Leadership rating) is still retained.

Name	**Battle Groups**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	When in Combat, a Clan that has completed researching Battlegroups may, if in a Meeting of the Clan, deploy Battlegroups consisting of Archery and/or Heavy Weapons troops from only a single Tribe (that is, your best Archers may be deployed in the Missile phase). For example, ordinarily two Tribes A and B in Meeting of the Clan would use Archers at a weighted average of A and B.

	Under Battle Groups the archers may be taken from the Tribe with the highest Archery (or Heavy Weapons) Skill. Note – that if you want to use more Archers than are available in one of the Tribes then a weighted average will come into play (players must calculate this).

Name	**Junior Officer**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Adds +2 to Leadership for all purposes in Combat.

Name	**Recruitment**
DL	1, 2, 3, etc….
Pre-Req	N/A
Recipe	N/A
Description	Allows an additional 500 Mercenaries per research attained to your Mercenary limits.

Leatherwork

Name	**Harvest Bag**
DL	3
Pre-Req	N/A
Recipe	1 Harvest Bag: People 2, Ltr 4, Leather 3
Description	A Harvest Bag is worn over the shoulder, used to assist in harvesting cotton, grain, flax, herbs, potatoes, sugar, and tobacco (not grapes because they would be crushed). <u>Doubles the number</u> of acres harvested (that is, increases the number of effective workers by 100%). May be combined with any other harvesting implement allowed for the type of crop being harvested (e.g. scythe, machete but not Basket); however the effect is linear, not cumulative. For example, a farmer with both a scythe and a harvest bag will harvest 9 acres of grain, not 12. Thus a farmer with Scythe and Harvest Bag is shown as 3 equivalent Farmers. A Tobacco Farmer with Harvest Bag and Machete would be shown as 5 equivalent workers (not 8). It is incumbent on the player to show equivalent workers in Orders. Weight: 1 lb Proposed by Patrick Travers

Name	**Leatherwork 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Leatherwork 11

Name	**Whip**

DL	3
Pre-Req	N/A
Recipe	1 Whip: People 1, Ltr 3, Leather 1
Description	A Warrior with a whip controls 50% more Slaves.

Literacy
(Books may not be written about these topics)

Name	**Ghost Writer**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Allows one Tribe to aid another tribe of the SAME CLAN in writing books (BUT NOT reading books)
	Allows a tribe with a HIGHER Literacy skill to aid another tribe of the SAME CLAN to write (but not read) books.
	Restrictions:
	1) Both tribes must be in the same hex
	2) Only the Tribe itself counts; Elements may not be used for this. For example, 4777 and 3777 must be together in the SAME hex for 3777 to use Ghost Writer to help 4777.
	3) Max improvement is doubling the skill of the tribe being aided. For example, Tribe 4777 has Lit = 4, Ghost Writer can improve this to Lit =8.
	4) Max improvement can go no higher than 10. For Example, Tribe has Lit = 6, Ghost Writer improves this to 10.
	5) Books requiring Scrolls, Artifacts, Relics, etc. CANNOT benefit from Ghost Writer
	Proposed by S Simmons

Name	**Haiku**
DL	6

Pre-Req	N/A
Recipe	N/A
Description	Completion of Haiju addds 0.05 to Morale. Books may be written.

Name	**Sensai (Master)**
DL	6
Pre-Req	Scroll
Recipe	*See Below
Description	There are <u>five</u> separate areas in which the Sensai may work. A single Sensai per Clan covers all Tribes and may work with more than one Tribe at a time. For example at Archery11 a Tribe using Sensai Master of Archery may immediately attempt to research Archery13 and is completed at DL4 (cf DL7 under normal progression). The fee is paid upon completion. The player must indicate to the GM when the required DL has been achieved. **Prerequisite** Lvl 11 in the Skill in question. Master of Archery 13 DL4 50 Gold Master of Security 13 DL4 30,000 Silver Master of Combat 13 DL4 100 Frankincense Master of HvyWeapons 13 DL4 100 Jade Master of Horsemanship 13 DL4 100 Diamonds Allows the skill to operate at level 13. **Prerequisite** Lvl13 in the Skill in question.

Master of Archery 15   DL5   75 Gold

Master of Security 15   DL5   45,000 Silver

Master of Combat   15   DL5   150 Frankincense

Master of HvyWeapons   15   DL5   150 Jade

Master of Horsemanship 15   DL5   150 Diamonds

Allows the skill to operate at level 15.

Sensai can work in combination with War College (WC bonuses apply after Sensai adjustments). Players should tell the GM what their Combat or Horsemanship skills are for the purposes of each battle, thus it's up to each player to provide the correct data to the GM. If the player doesn't he/she loses all benefit of this research topic.

Elite Troops

A Sensai Master may teach elite troops two skill levels per year.   Troops of different nationality must be trained separately that is, not at the same time. However, a Master of Archery could teach Arc levels to one nationality of elite troop while Master of Combat might teach another.

Master of Archery 10 Gold per level

Master of Security 6,000 Silver per level

Master of Combat   20 Frankincense per level

Master of HvyWeapons   20 Jade per level

Master of Horsemanship 20 Diamonds per level

Name	**Sensai Dan 1**
DL	7
Pre-Req	Sensai (Literature) Scroll
Recipe	N/A

Descriptio n	Allows the next two progressions (to Lvls 17 and 19)

Maintain Boats

Name	**Amphibious Warefare I**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Allows an increase of 25% to the total people (people space – which can be converted in order to transport animals) that can be carried. For example, a Longship could carry 125 people maximum (this also applies to units from other Clans being transported).

Name	**Amphibious Warefare II**
DL	4
Pre-Req	Amphibious Warfare I
Recipe	N/A
Description	Allows an increase of 50% to the total people that can be carried. For example, a Longship could carry 150 people maximum (this also applies to units from other Clans being transported).

Name	**Shipboard Animal Maintenance**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Tribes (and their fleets and elements) that know Animal Maintenance are allowed to pack twice as many animals into the same space when aboard vessels. **Benefit:** Aboard vessels, animals carrying capacities are: Goat = 0.5 person; cattle = 2.5; horse = 4, elephant = 6.

	A vessel may carry animals in both people space and in cargo space (Goat = 250; Cattle = 1,250; Horse = 2,000; Elephant = 3,000). Each vessel in the fleet requires twice as many people performing the Maintain Boats activity (unless you have MB10).

Mariner

Name	**Professional Sailor**
DL	4
Pre-Req	Expert Sailors (Mariner) Navigation 10 (Skill) Captaincy 10 (Skill) Sailing 10 (Skill)
Recipe	N/A
Description	Effect is 1 professional sailor = 1.5 for crewing purposes. That is, crew requirements are reduced by 33% Proposed by Darren Thacker

Metalwork

Name	**Advanced Trap**
DL	4
Pre-Req	Improved Trap (Metalwork, Hunting)
Recipe	1 Advanced Trap: People 2, Mtl 10, Iron 2, Coal 8
Description	An Advanced trap is a continued evolutionary refinement of the Research topic Improved Trap and functions much as a standard trap. One Hunter/Furrier may use 1 Advanced Trap (with no standard Traps or Improved Traps) – this improves Hunting by 1.0 (i.e. one hunter counts as two). Weight: 1 lb

Name	**Bronze Statue**
DL	6
Pre-Req	N/A
Recipe	20 People, Mtl 6, Art 6, Bronze 1k, Coal 200, Silver 200
Description	Bronze Statue sells at Fair. Mtl6 and Art6 must be held by the Tribe with the research. Weight: 1000 lb

Name	**Chisel**
DL	2
Pre-Req	N/A
Recipe	1 Chisel: People 1, Mtl 3, Iron 1, Coal 4
Description	A worker with a Chisel doubles his quarrying output (to 10 stones) and may also use a Mattock (the combination nets 15 stones per worker). A

worker may also use a Chisel to double output with the skills Stonework and Art (stone items only). In the latter case players will need to show, for example, 1 worker with Chisel as 2 workers.

Weight: 1 lb

Name	**Improved Trap**
DL	2
Pre-Req	N/A
Recipe	1 Improved Trap: People 1, Mtl 3, Iron 1, Coal 6
Description	An Improved Trap functions much as a standard trap, but allows a 15% bonus instead of 10% bonus. Standard limit of 5 traps per hunter apply. I Hunter/Furrier may use up to 5 Improved Traps (with no standard Traps) – this improves Hunting by 0.15 per IT or 0.75 per 5 ITs.

Name	**Knife**
DL	2
Pre-Req	N/A
Recipe	1 Knife: People 1, Mtl 3, Iron 1, Coal 6
Description	Metalwork Activity

A person using a Knife doubles skinning, gutting and boning (that is, allows SGB twice during Activities). Farmers using knives can harvest double the number of acres (players need to show a farmer with a knife as equivalent to 2 farmers when submitting orders).

Weight: 1 lb |

Name	**Kegs**
DL	3

Pre-Req	N/A
Recipe	1 Keg: People 2, Mtl4, Log 1, Coal 8, Iron 5
Description	Holds 400 lbs. Weighs 20lbs

Name	**Machete**
DL	3
Pre-Req	N/A
Recipe	1 Machete: People 2, Mtl 4, Iron 3, Coal 15
Description	Metalwork Activity Long, heavy, slightly curved knife mounted on a sturdy wooden handle wrapped with strips of leather, used to assist in harvesting tobacco. A farmer with a machete harvests four acres (instead of one). Please give equivalent workers if using Machetes. For example, 100 workers with 100 Machete = 400 equiv workers.

Name	**Mining Ladder**
DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	(Also Under Engineering, Mining and Woodwork) Each ladder (implement) doubles the base output of 10 people performing Mining and Digging (Clay, canals, sand, moats, etc.) activities before implements. Mining Ladders can be used in conjunction with other tools, but increases are additive and are not compounded. For example, 1 Miner with both a Pick and a Mine Ladder produces his

	base output x 3 (not x 4).
	These wood and metal ladders and ramps are used to for more advanced vertical mining
	and to facilitate the movement of personnel and ore up mine shafts when they occur due
	to following veins. These would not be standard wood ladders or ramps but would have
	iron reinforcement to handle the added weight of the ore and wagons. We have called it
	Mining Ladders research to shorten the name but it would really be both ladders and
	ramps.
	1 Mining Ladder weighs 50 lbs.

Name	**Saw**
DL	5
Pre-Req	N/A
Recipe	1 Saw: People 3, Mtl5, Iron 5, Coal 40

Description	Metalwork Activity
	
	Saws multiply logging rates x 4. Cannot be used with Adze.
	
	    a Forester with no tools cuts 4 Logs
	    a Forester with Adze cuts 8 Logs
	    a Forester with Saw cuts 16 Logs

Name	**Seam Wedges**
DL	4
Pre-Req	N/A

Recipe	1 Seam Wedge: People 1, Mtl 2, Iron 5, Coal 15
Description	Metalwork Activity
	1 Person adds 50% to mining with Pick or Shovel.
	Weight: 1 lb

Name	**Scraper (Metal)**
DL	1
Pre-Req	N/A
Recipe	1 Scraper: People 1, Mtl1, Iron1, Coal 4
Description	Metawork Activity
	Doubles rate for bark stripping

Name	**Water Tank**
DL	3
Pre-Req	N/A
Recipe	1 Water Tank: People 4, Mtl 6, 40 Metal (Bronze, Brass, Tin, Copper), 80 Coal
Description	Holds 1000 lbs of water.

Name	**Wire Mill**
DL	6
Pre-Req	N/A
Recipe	1 Wire Mill: Logs 500, Steel or Iron 500
	120 Wire: People 10, Mtl 5, Stel 120
Description	A Wire Mill requires 500 logs, and 500 steel or Iron to construct. Used by up

n	to 100 people. 10 people using a Wire Mill can produce can turn 120 steel into 120 Wire at Mtl5.

Milking

Name	
DL	
Pre-Req	
Recipe	
Description	

Milling

Name	**Windmill**
DL	3
Pre-Req	N/A
Recipe	1 Windmill: Eng 10, Wdw 4, Stn 4, Logs 500, Stones 1000, Iron 500, Coal 1000, Millstones 2, Materials installed at normal rates
Description	A new method of Milling. Although initial construction costs are significant with the power coming from wind not animals fewer people can mill much more grain.
	Each Windmill grinds 8000 grain into 12000 flour each month and requires 40 millers keep it supplied with grain and remove the flour.
	Windmills are restricted to 1000 per site.
	Milling using Windmills and using Grain Hoppers require separate Orders showing these items are being used - else normal Milling will be assumed.
	May be built under Joint Project rules.

Mining

Name	**Appropriate Mining Tool**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	A miner may use both a Pick and a Shovel in the same turn. Note: Coded

Name	**Geology**
DL	1, 2, 3
Pre-Req	Mining 11 (Mining)
Recipe	N/A
Description	Geology may be attempted at Mining 11. The effect of gaining an Geology topic is to add levels to your Mining Skill. Geology 1 adds one level (for example, Mining11 to Mining12), Geology 2 adds 3 levels (for example, Mining12 to Mining15), Geology 3 adds 5 levels (for example, Mining15 to Mining20). Once Geology 1 Research Topic has been achieved, the Tribe may learn a new skill, Geology (Group C). Once Geology skill reaches 10, further Geology research topics (4, 5, 6...) may be researched. Each Geology research topic (4, 5, 6...) adds 5 Levels to Mining skill. Books may be written.

Name	**Hammer Mill**
DL	5
Pre-Req	N/A

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Recipe	1 Hammer Mill: People 11, Wd 5, Eng 6, Logs 20, Iron 5, Coal 10, Leather 2
Description	The Hammer Mill (or Stamp Mill) is a hydraulic or manually operated series of weighted "pistons" which pulverize various ores into finer pieces, and sift out more unusable rock, for more efficient refining, and portage of raw materials.

Each Hammer Mill can service 20 AMs assigned to Mining OR Refining, allowing 2 AMs to do the work of 3 (identical to the effect of Scaffolds for Engineering and Shipbuilding, so it is, essentially, a "Scaffold" for Mining and Refining). Hammer Mills may be used by other Clans.

For Mining purposes, the additional AMs would be shown as "Effective Workers" in orders.

For Refining purposes, the additional AMs would be shown as "Effective Workers" in orders, and would require additional Smelters to cover the increased AMs.

If operated on a river hexside, cattle or horses need not be available, as the mill would be hydraulically powered via river current. If operated on a hex with no river hexsides, 2 Horses or Cattle are required to operate.

Weight: 2000 lbs

Proposed by Chris S. |

Name	**Mining 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Mining Skill to 11.

Name	**Mining Ladder**
DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	Each ladder (implement) doubles the base output of 10 people performing Mining and Digging (Clay, canals, sand, moats, etc.) activities before implements. Mining Ladders can be used in conjunction with other tools, but increases are additive and are not compounded. For example, 1 Miner with both a Pick and a Mine Ladder produces his base output x 3 (not x 4). These wood and metal ladders and ramps are used to for more advanced vertical mining and to facilitate the movement of personnel and ore up mine shafts when they occur due to following veins. These would not be standard wood ladders or ramps but would have iron reinforcement to handle the added weight of the ore and wagons. We have called it Mining Ladders research to shorten the name but it would really be both ladders and ramps. 1 Mining Ladder weighs 50 lbs.

Name	**Ore Cart**
DL	5
Pre-Req	N/A
Recipe	1 Ore Cart: People 12, Wdw 3, Log 10, Iron 15, Coal 100

Description	Doubles output of miners (prior to other implements being added – so Picks, Shovels etc add after Ore Carts). For example, 10 miners with 1 Ore Cart count as 20 miners. Must be pulled by 2 cows or 1 Elephant (services 10 miners) when used in Mining. Can be used in place of Wagon, same capacity, and may be carried by Elephants when empty. Note: Ore Carts are not coded for Movement – if you are relying on Ore Carts to move you need to show this in a note in MV Orders. Weight: 300lb

Name	**Salt Panning (See Salting)**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Completion of this research creates a Salt Mine in any one Prairie Hex that the Clan chooses.

Name	**Seam Wedges**
DL	4
Pre-Req	N/A
Recipe	1 Seam Wedge: People 1, Mtl2, Iron 5, Coal 15
Description	1 Person adds 50 percent to mining with Pick or Shovel.

Mobilisation

Name	**Mobilisation 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Raises Mobilisation Skill to 11

Music

Name	**Bagpipes**
DL	4
Pre-Req	Military Band (Music)
Recipe	1 Bagpipes: People 1, Sew5, Bladders 2, Flute 1
Description	Enhances the performance of the Military Band. Morale is raised an additional 0.02 (to 0.06) if the players are each equipped with Bagpipes. Make under Sewing.

Name	**Great Work**
DL	5
Pre-Req	*See Art
Recipe	*See Art
Description	*See Art

Name	**Military Band**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	20-30 Actives all equipped with standard instruments and assigned to Defense will raise the Morale of any units in their Clan by 0.04 during battle.

Name	**Spring Arts Festival**
DL	*See Art
Pre-Req	*See Art

Recipe	*See Art
Description	*See Art

Navigation

Name	**Astral Navigation 1**
DL	*See Astronomy
Pre-Req	*See Astronomy
Recipe	*See Astronomy
Description	*See Astronomy

Politics

(Books may not be written on these topics)

Name	**Banqueting Hall**
DL	4
Pre-Req	Pol 10 (Skill) Government level 1 or Higher (Politics)
Recipe	1 Banqueting Hall: Stone 5000, Logs 500, Gold 20, Silver 10000, Copper 500, Cloth 200, Pewter 1000
Description	A Banqueting Hall is built by the occupying tribe as a means of encouraging the locals to join their Tribe and also as a means of raising Morale providing a feast for the people of the Tribe as well as Locals. The Banqueting Hall is impressively built and decorated in fine wrought materials and decor so as to impress the Locals. A feast is normally held in the last long month of winter (12) to enliven the long nights and to bring joy when it is coldest. It allows the hosting Tribe a Morale boost (+0.01) plus to recruit a number of Actives according to the amount of food laid on (max 10,000 provs, @ 1 Active per 100 provs will join your Tribe as of 12/800). Note – if a Banquet (see Banquet) is also held by any Tribe in the Clan using the Banquet Hall , the effect of Banquet and Banqueting Hall is cancelled and replaced by. The host Tribe may invite one guest Tribe from either inside or outside the Clan." The guest is subject to Morale increase.

Name	**Boat People**
DL	4

Pre-Req	Government Level 1 (Politics)
Recipe	N/A
Description	Boat People allows you to take in Immigrants (Recruits) as if any Ocean or Lake hex under your control is a land hex.

Name	**Capital**
DL	8
Pre-Req	Government Level 2 (Politics) Daimyo (Politics)
Recipe	N/A
Description	Once a tribe, with a Politics 10 Village, has completely researched Capital, the tribe may declare its Politics 10 Village as its Capital, once the following prerequisites are met: 1. The Politics 10 Village must contain a Courthouse as defined in the rules. Courthouse (Eng7, Wood3, Stn4, 12,000 stones, 500 logs, installed at normal rates). 2. The Politics 10 Village must have at least San8. 3. The Politics 10 Village must have sufficient water sources (Wells, Jetty, Cistern, taking into account its Sanitation level) to maintain its population during a siege. These conditions must be maintained to obtain the benefits of a Capital. **Benefit:** The political benefits for States with a Capital are increased to the levels shown below: 1. A Morale bonus of 20% vs. invaders (+ 10% standard for States) 2. Taxation yields twice much as for a standard State (number of collectors per hex is the same) for the 12 hexes around the inner six (and any beyond). 3. The number of population (which includes Actives, Hirelings, Locals and Mercenaries) that joins the Politics 10 Village, once per year, is tripled. 4. All Trade is tripled.

	5. The number of Militia available to the Home City is doubled.
	The political benefits for Nations with a Capital are increased to the levels shown below: 1. A Morale bonus of 30% vs. invaders (+ 20% standard for states) 2. Taxation yields twice much as for a standard Nation (number of collectors per hex is the same) 3. The number of actives that joins the Capital Politics 10 Village, once per year, is tripled 4. All Trade is quadrupled. 5. The number of Militia available to the Home City is doubled. The benefits of the Capital do combine with the benefits of a Castle. A doubling for the Castle becomes a tripling (not quadrupling) when a Capital contains a Castle. For example, Castle increases tithes by 100% Capital increased tithes by 100%. Assume silver tithes are 2,000 per month. Castle makes them 4,000. Capital makes them 6,000. When multiple States join together in Nationhood, the treaty of Nationhood must specify which State's Politics 10 Village will become the Nation's Capital (a Nation may have only one Capital). Other State Capitals become cities that retain the same benefits as being a capital of a state. **Counters:** Destruction of the Capital by an enemy clan causes all Capital benefits to be lost. The state/nation then reverts to the standard benefits for a state or for a nation. Players are responsible for keeping precise figures. If you cannot do this do not bother with this research.

Name	**Castle (Details may be modified)**
DL	8

Pre-Req	25' Stone Wall in same Tribe as Castle (Engineering)
Recipe	1 Castle: Pol10, Eng10, Stones 120000, Logs 2000, Bronze/Iron 500, Lead 500, Gold 50. Normal installation rates of materials apply.
Description	A Castle is essentially a fortified or strengthened building (acts as a 30' Stone Wall for the purposes of Siege and Assault) and capable of housing up to 6000 people and all Goods held by the Clan occupying the site (apart from Animals). If you have more than 6000 people in the site you can opt to house them behind lesser fortifications but doing so will mean likely lowering your Defensive Factor. Stables (via research) may be incorporated into the Castle to house Horses and Dogs. The effect of a Castle is to double/increase any advantages that Statehood/Nationhood confer.

The Castle is <u>impervious</u> to Catapults and Trebuchets (Siege Cannon will do damage as per vs 30' Wall). Researched Siege Equipment does normal damage.

At the end of any turn the Defender may opt to use the Castle rather than the external walls as their fortified defense (effectively sacrificing x-6000 people to the attacker). In this sense the first Castle maybe symbolic but it is a prerequisite for many usefuls research options).

Since the attacker is deemed to be inside the outer walls no Village type Activities like Milling, Refining etc may be done (Baking is an exception), nor are external Activities, such as Hunting, Miming etc possible (Armour and Weapons may be made – common sense dictates what is possible). All herd is lost unless incorporated stables are present.

<u>Only one Castle</u> may be built in a hex.
A Castle increases the number of Special Hexes that a Clan may build in.

Players should give their Castle a name – this will become the name of the hex.

Name	**Daimyo**
DL	8
Pre-Req	Government Level 2 (Politics) Palace (Politics)
Recipe	N/A
Description	A Clan may have only one Daimyo. The celebration of the Daimyo costs 20,000 silver. **Benefit:** The Home City gains the following benefits from a Daimyo: A Morale bonus of 15% (of existing Morale) vs invaders - that is, combat within a Home City controlled hex. (This combines with the Morale bonus for State or Nation status). Once per year a number of Inactives drawn from the local population will join the Home City. 10 Inactives per controlled hex – in addition to previous immigrants bonuses. This occurs on the same turn that the population increases for Governing Levels via immigrants. If the Home City is involved in Siege/Assault the Leadership value of each Tribe involved is increased by +4 for the duration of the combat. Any Tribes or Elements of a Clan containing a Daimyo gain the Morale and Leadership bonus of the Daimyo if combat occurs within a Home City controlled hex. Militia may also be assigned to the combat @ the rate of 20% of available Militia. That is, 20% of available Militia may fight beyond the HC hex.

Name	**Doomsday Book**
DL	2
Pre-Req	Government Level 2 (Politics)
Recipe	1 Doomsday Book: Lit4, Gold 1, Leather 1, Parchment 10

Description	The Doomsday Book allows the City to become more efficient at tax collection. A Doomsday Book must be created for each hex that will be taxed. These books must be kept in the Home City.
	Benefit: With the Doomsday Book you will be entitled to 400 Silver per controlled hex (beyond GL2) per month, due to be paid in month 12. Players will need to indicate the total amount of Silver to be paid at this time – and should not claim for hexes under the control of another City. A Castle will increase the amount of Silver collected per Tax Collector by 50%.
	The Doomsday Book was the first official census of Norman England. Among other uses, it was used for Tax Collection.
	Proposed by David Steinheilper
	Weight: 10

Name	**Emigration**
DL	N/A
Pre-Req	N/A
Recipe	N/A
Description	In the initial stages Emigration is not a research project as such.
	Players need to alert the GM when their population hits 400,000 and then monitor as it approaches 500,000.
	If ands when the overall population in a Clan reaches 500,000 all population growth for the Clan reverts back to 1% regardless of research or religious benefits. At this point Emigration becomes possible (that is, optional) whereupon you may send up to 100,000 people as migrants (via Element or sub-Tribe) to a distant place (this is done automatically for the initial migration). The emigrants will establish (a second) Political center (or a first

if they do not already have one). Should the settlement established by the emigrants reach 500,000 a third/second Political centre may be established, but research into "Emigration" is required to proceed to this part of the process. However, all population growth will be capped at 1% so in practice it is likely that you will need the physically transport people to do this. If your "mother" population suffers losses due to combat such that the population falls below 500,000 all applicable growth modifiers are restored until the 500,000 is reached again. This will only be applicable if attack is initiated against you (and not if you initiate an attack). Pol10 will be granted automatically in any sub-Tribe involved in the emigration and research for GL levels will need to be conducted through this sub-Tribe or its Element in the ordinary way.

GM see ..¥Rules¥Miscellaneous¥Emigration.doc

Name	**Feudal Security**
DL	8
Pre-Req	Government Level 1 (Politics) Close Order Cavalry (Horsemanship) Courthouse (Building) Scroll (Item) Relic (Item)
Recipe	N/A
Description	300 Local Feudal Horsemen act as remote Security forces. They are considered to occupy each politically controlled hex (extra research can increase this number). They are housed in a stone fort (500 yard 10' wall and moat with barred gate, and Barracks) which must be built by the owning player. The Feudal Security is considered to have permanent Security orders. They will attempt to stop any hostile forces "raiding" the Kingdom by encountering raiders in any hex "raided

through". The effect is to diminish raiding forces by 300 enemy raiders per hex raided through. For example, if a Raiding party of 2000 passes through 2 controlled hexes on its way to Raiding the central State hex then the effective Raiding numbers are reduced to 1400. A hostile force occupying a controlled hex will have its numbers reduce by twice this (and includes the hex occupied). For example, a raiding party originating from a hex adjacent to the central hex will have its effective Raiders diminished by 600. Note, the Feudal Security is effective against any and all Clan Raiding regardless of the numbers of Clans involved (counter research aside).

The locals will provide the provs for the Feudal Security.
Note Feudal Security are independent of Militia and do not come to the defence of the State nor do they act as Suppressors. They are useful against Raids only. Upon completion players need to remind me to name the surrounding hexes 0250FS1 etc, these names will override names previously assigned to the hex.

Name	**Fortress**
DL	8
Pre-Req	Castle (Politics) Scroll (Item) Relic (Item)
Recipe	*See Castle, Gold 60 / Year
Description	The Fortress requires the same materials as a Castle (that is, you can build one anywhere) and capable of housing up to 6000 people and all Goods (apart from Animals, Stables (via research) – but it does not control surrounding hexes. That is, it acts purely as a fortification. It cannot recruit Militia as a Pol10 hex does but you may deploy up to 20% of your Pol10 Militia to this hex (as a defensive force only) – leaving 80% behind. Must be built 6 hexes from your Castle. A second Fortress may be built 6 hexes from the first (a third and fourth Fortress require further research). Cannot be built in any hex under Pol control of another Clan unless a Nation is in play.

Name	**Government Level 1 (to 5 and beyond)**
DL	1, 2, 3, 4, 5
Pre-Req	Previous Government Level (Politics)
Recipe	N/A
Description	The start of the Empire (See Politics Rules)

Name	**Great Wall**
DL	9
Pre-Req	Government Level 3 (Politics) Castle (Politics) Engineering 10 (Skill) Stonework 10 (Skill)
Recipe	1 Gatehouse, 3 Watchtowers per hex side and 1 Relic to consecrate each hexside. 100,000 stones plus 3 Watchtowers per hex side for a 10' wall. 150,000 stones for 15' wall – that is, 250,000 stones total per hex side for 15' wall. Etc for higher walls. No differentiation for terrain. Not possible/required in hex sides bordered by impassable mountains.
Description	The Player must specify, before beginning the Great Wall, the wall's start- and end-points which form a "closed loop". Must be a minimum of 6 hexes distant from the main builders Pol10 centre at all points (if more than one Clan is participating in construction the main builder must be specified). For practical purposes the Great Wall will not considered to be operative until the loop is completed/closed (once completed it may be expanded but new

portions will not count til the next loop is completed etc) – a loop may include river, oceans, lakes and impassable terrain. Indeed, a completely new loop may be started beyond the existing loop.

The GW effectively takes up a whole hex which once built becomes impassable terrain. Should the hexes externally adjacent already be named, or contain Locals etc these will need to be either renamed, destroyed or relocated. A relocation requires a 100 Gold tribute. Such hexes will be dealt with on a case by case basis.

A GW can be built on the same hex side (that is, alongside) a river but if built "across" a river then river Travel "through" the wall is possible. A unit may build on one hex side only in the turn.

Benefits

Completion of the GW allows free range Herding – all Herders operating from a Home City within the loop are reduced to 10% of normal requirements as long as each of the herders are mounted (it is up to the player to note this – including other Clans affected which must also show this on their Orders).

The HC Clan gains 10 gold and 200 Silk per hex side of Great Wall per year as tribute.
Where two or more Clans combine to enclose an area the Gold tribute is divided equally among those Clans.. * a state of Alliance, Statehood or Nationhood must prevail.

Effective Seeking Skill is increased +5 for units seeking inside their GW.

Any combat conducted by the owner of the GW inside its loop gains 20% of assigned troops as additional locals. For example, 500 troops assigned to combat will be bolstered by an additional 100 (loses are in ratio) for the duration of the combat.

	Research may be proposed that demolishes a section of the wall (effectively a hex side) which will allow passage through this hex side – but the research will need to be commensurate with the research required to build the GW.

Name	**Ho Chi Minh Trail**
DL	8
Pre-Req	Control of at least two "Locals" hexes Hone City cannot be in Prairie or Tundra hexes
Recipe	Ho Chi Minh Trail: People 2000, Eng7, Silver 20000, Gold 200, Relic 1
Description	If your Pol10 centre (Home City) is placed under Siege or otherwise attacked you may move people or goods to any other of your units within 12 hexes of the Pol10 centre. This can be activated in the turn of the attack. The attacker may immediately take ownership of any Village works/site left behind. The Trail includes a system of underground passages at the Pol10 centre. With the assistance of Locals you are able to move people unobserved by the enemy. * 1500 in 0939, 1800 in 0940, 2100 in 0941 etc.

Name	**Local Trade Routes**
DL	4
Pre-Req	Politics 10 (Skill) Government Level 1 (Politics)
Recipe	Establish: Silver 10000 Transfer (1000 lbs): Silver 1
Description	This research allows city-states to make use of the local merchant and trade routes that are present in its vicinity to transfer goods in the local area. Local trade routes allow up to 4 transfers to be made between a city state and any units within a radius of GL+2 hexes (i.e. a GL0 city state can transfer to or from any 4 units within a 2 hex radius). The units engaged in LT can be from a different clan but must also be serviced by Pol10 and GL1 or better. Transfer range is not affected by weather.

	Transfer type is shown as "Local Trade Route" in transfer orders: 0250 to 0250e1 Logs 2000, Bark 8000 (408,000 lbs) Local Trade Route. It is up to the player to calculate weights and transfer sufficient silver every month to 1263. Local trade routes cannot be used if the sender or recipient is under Siege or DEVA.

Name	**Logistics 1**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Logistics1 is a Group B Skill. It allows 1% per Logistics level of Militia available to the Home City to defend any hex under the control of the Home City that falls under attack within the "A" zone (generally 10 hexes away). Costs 5 Silver per Militiaman deployed. It is incumbent upon the player to show that the attack in question occurs within a controlled hex. Logistics2 and beyond will enable joint Militia to defend with respect to attacks vs zones further from the Home City. Costs 10, 15 Silver per Militiaman deployed etc.

Name	**Marshals**
DL	3
Pre-Req	Government Level 3 Sheriffs
Recipe	N/A
Description	Marshals work like Pacifiers and Sheriffs, except more efficiently. One Marshal will replace three Sheriffs. Marshals must be equipped with Shields, Full Plate, Swords, Spears and Horsebows. If better armor or weapons are obtained they may be used. (For example, Lance may replace Spear.) Marshals must be mounted on Horses with Saddles. Marshals are housed in a Hall of Justice, 100 Marshals to each Hall. Marshals are considered to always be on defense and will automatically contribute to the number of defenders assigned. If the Politics 10 city is under siege, the Sheriffs may be dismounted and assigned to any of the defensive positions. Fluted Plate may be substituted for Full Plate during combat.

	Counters: Loss of Governing Level 3

Name	**Militia Training**
DL	5
Pre-Req	Capital
Recipe	Yearly: Silver 1 per Militia each Year (12 months after completion)
Description	(see also Training)
	Once a tribe researches Militia Training, its Home City may initiate the training of Militia.
	One year after the MT the military skills of Militia increases to (Arc3, Hor3). A year after this Archery and Horse are increased to 6. Etc to a maximum of 12. Players are responsible for prompting the GM, for showing costs etc.

Name	**Mission**
DL	4 (First)
	5 (Second)
	etc.
Pre-Req	Castle
Recipe	As per Temple
Description	Mission raises Morale by 0.02. A mission must be at least 12 hexes from the Castle and cannot be built where a Village already exists. Once per year (at least 12 months after the Mission is built) the Castle owner may contribute up to 8,000 Silver to the local community in return for 80 Inactives joining any unit present at the Mission site. Note that a Mission may be offered to some Clans without the research but in this case there is no control over where it may be built and it is unlikely that the number of Missions offered will be more than one.

Name	**Palace (may be modified)**
DL	6
Pre-Req	Castle (Politics)
Recipe	1 Palace: Eng10, Stone 50k, Logs 5k, Silver 10k, Carpet 50, Tapestries 50,

	Statues 5, Sculptures 20, Gold 150, Diamonds 50
Description	The home of the Daimyo. One per State. See also "Locals" in the Mandate. A Palace increases the number of Special Hexes that a Clan may build in. It also attracts a one-off contingent of Elite Troops.

Name	**Palace Renovation Gardens**
DL	8
Pre-Req	Palace (Politics) Daimyo (Politics)
Recipe	PRG: Eng10, Stone 80k, Logs 8k, Silver 50k, Iron 1k, Gold 50, Tigers 2, Sculptures 10, Relics 2
Description	The Palace Gardens are, among other things, a place for the Daimyo to rest, relax and entertain guests or even do a bit of recreational hunting. Built within the safety of the Palace walls and taking up an area of 1000 000 square yards the Palace Gardens provide the Daimyo with a variety of entertainment options. The Palace Gardens contain many smaller building such as stages for artisic performances, enclosures for the Tigers and quarters suitable for guests such as visiting a Daimyo his entourage (up to 600 people). To accrue the benefits the garden must be maintained in pristine condition and staffed, there must be artisans available to perform at any time and the number of Tigers must be maintained at 10 or more. Basic garden maintainance 200 actives per month Herding of Tigers 1 herder per animal Artisans At least 20 performers (from a Tribe with a completed research topic in a cultural skill per month) Security as per pacifying a controlled hex (if sheriffs or marshals are used they do not require horses)

Benefits:

1. A further Morale bonus of 10% (of existing Morale) vs invaders - that is, combat within a controlled hex (see Politics). This combines with the Morale bonus for State or Nation or Daimyo status.

2. Once per year a number of Inactives drawn from the local population will join the Home City. 10 Inactives per controlled hex – in addition to previous/other immigrants bonuses. This occurs on the same turn that the population increases for Governing Levels via immigrants.

3. Having Palace Gardens provides an alternative method of obtaining a treaty. Rather than having to research a treaty the Daimyo of another state can be invited to visit. Together, in the tranquil environment of the Palace Gardens the two Daimyo's are able to work out the details of a treaty there and then. Daimyo is a prerequisite.

4. Once the Gardens are established (with Tigers) locals will be attracted to surrounding areas. The result will be the immediate offer to build two Local structures (see Locals).

5. A one off of 1000 Hirelings will be attracted to the Home City.

Proposed by Mark Ryan

Name	**Posse**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	For each 5 warriors assigned to Security a Local may be added if and when required.

Name	**Sheriffs**
DL	4

Pre-Req	Government Level 2
Recipe	N/A
Description	Sheriffs work like Pacifiers, except more efficiently. One Sheriff will replace three Pacifiers. Sheriffs must be equipped with Shields, Helms, Chain, Breastplate and Trews or better. No Bronze, Ring or Scale armor is allowed. Minimum weapons must be both Swords and Spears. Any type of bows may be used. If better armor or weapons are obtained they may be used. (For example, Lance may replace Spear and Full Plate may replace component pieces.) Sheriffs must be mounted on Horses with Saddles. Sheriffs are housed in a <u>Hall of Justice (10,000 Stones, Eng9 and may be built with the attainment of Sheriff)</u>. 100 Sheriffs to each Hall. If the Politics 10 city is under siege, the Sheriffs may be dismounted and assigned to any of the defensive positions. **Counters:** Loss of Governing Level 2

Name	**Treaty**
DL	3
Pre-Req	Government Level 1 (Politics)
Recipe	N/A
Description	Treaties formally define control of disputed Political territories (that is, the point at which two or more States become <u>overlapping States).</u> Each new treaty must be researched separately. Either party can develop treaties and must be announced by each party to the treaty in the same turn (like Truces). The terms must be finalised within 2 turns of development. The treaty will become operational following the turn in which both parties accept the terms of the treaty (expending 6 parchment each). If any party formally rejects the treaty at any stage after the terms are finalised, it is destroyed. A Treaty need not address all hexes in dispute, but if it does, this aim needs to be specified at the time of researching, and the hexes specified. The terms of a treaty may not be extended to encompass territories either not in dispute or omitted at the time the research was successful. <u>Breaking Treaties:</u> Terms may be renounced in several ways. One party can research a new

Treaty and, if agreed between the parties, this can replace the old one. One party could leave the area (or the game) abandoning their State. Otherwise, Research could be performed to declare an existing Treaty invalid with respect to one or more Territories, which would then return them to disputed status.

Name	**Zealots**
DL	6
Pre-Req	N/A
Recipe	5 Zealots: 1 Jade 10 Zealots: 1 Gold
Description	Immediately after a battle local enthusiasts for your cause may join your Clan. The number of Zealots who will join are up to 20% of those of your Warriors (only – that is, will not replace Mercenaries etc) killed in the battle. Zealots act as ordinary Warriors (and may be assigned to work during Activities in subsequent turns) however they do not breed and do not need feeding. Furthermore Zealots may **not** be assigned to defense when in attack mode – that is, they may **only** be assigned if a unit has "Defend" Orders in combat (and will not be available if these Orders are changed). As with Mercenaries, Zealots killed in battle are killed pro rata. In the battle the GM will deal only with Warriors – it is up to the player to translate losses into Warriors, Mercenaries, Zealots etc lost and give me the new numbers. Numbers that can be held are limited by Lodging requirements. Zealots are also available (independent of the 20% rule) from certain Special hexes. However, at no time may the Zealots in a unit exceed 50% of Warriors in the unit.

Pottery

Name	**Advanced Pottery**
DL	5
Pre-Req	N/A
Recipe	2 Ewers: People 1, Silver 5 each 2 Jars: People 2, Silver 10 each 2 Urns: People 4, Silver 10 each
Description	Clay and Coal consumption remain the same.

Name	**China**
DL	6
Pre-Req	N/A
Recipe	1 China: People 2, Kaolin 4, Coal 20, Silver 10, Requires Kiln
Description	Commodity

Name	**Terracotta Army**
DL	9
Pre-Req	Daimyo (Politics)
Recipe	1000 Terracotta Warriors: Eng8, Rel 10, Stones 10k, Logs 1k
Description	A leader such as a Damiyo desires security in the afterlife befitting his stature. The stones and logs are for the housing for the terracotta army and are installed at 5 stones and 2 logs per person. Benefits:

	1. The terracotta army is a clear physical symbol of the leaders belief in religion and the afterlife and naturally this effects the entire population. Completion of the terracotta army by a clan allows a combat bonus of +6 Combat when in combat if the Terracotta warriors are present. Proposed by Mark Ryan Weight: 100 lbs each

Quarrying

Name	**6 Stones / Person**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Each quarrier can quarry 6 stones. Please note, the module will automatically upgrade Tribe quarrying figures. However, this may not happen with Elements and will need to be done manually – you need to refer to this ONLY when the first attempt at Qry with new figures is done. Mattocks and other implements use 6 Stones as the base number instead of 5. A Craftsmen with 6 Stones / Person and a Mattock would quarry 12 stones.

Name	**7 Stones / Person**
DL	6
Pre-Req	6 Stones / Person (Quarrying Research)
Recipe	N/A
Description	Each quarrier can quarry 7 stones. Mattocks and other implements use 7 Stones as the base number instead of 5. A Craftsmen with 6 Stones / Person and a Mattock would quarry 14 stones.

Name	**8 Stones / Person**
DL	7
Pre-Req	7 Stones / Person (Quarrying Research)
Recipe	N/A
Description	Each quarrier can quarry 8 stones. Mattocks and other implements use 8 Stones as the base number instead of 5. A Craftsmen with 6 Stones / Person and a Mattock would quarry 16 stones.

Name	**9 Stones / Person**
DL	8
Pre-Req	8 Stones / Person (Quarrying Research)
Recipe	N/A
Description	Each Quarrier can quarry 9 stones. Mattocks and other implements use 9 Stones as the base number instead of 5. A Craftsmen with 6 Stones / Person and a Mattock would quarry 18stones.

Name	**Extra Quarrying Tools**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	A person sent Quarrying produces 5 Stones, and if equipped with a Mattock they produce +5 Stones (10 in total; in effect working as two people). A Tribe that knows Extra Quarrying Tools understands that by providing extra tools; and training; they can get better returns on quarrying. If equipped with a Shovel in addition to a Mattock; they will produce an extra +5 Stones (15 in total; in effect working as three people). The bonus is only effective when a person is equipped with both tools. You must show Quarriers as equivalent workers, for example, 100 workers using 100 Mattocks, 100 Shovels and 100 Wheelbarrows are shown as 400 Quarriers (the Wheelbarrows adding an equivalent 100 to the 300).

Name	**Masons**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	A Tribe with this research knowledge has a better understanding of the nature

| n | and preparation of quarried stone; as a result they gain a 10% bonus towards production of Stones. Effectively 1000 people will do the work of 1100 people. Needs to be shown as an equivalent number of workers. For example, 1000 workers with 1000 Mattocks = 2200 equivalent workers. |

Name	**Master Masons**
DL	4
Pre-Req	Masons (Quarrying)
Recipe	N/A
Description	A Tribe with this research knowledge has a better understanding of the nature and preparation of quarried stone; as a result they gain a 25% bonus towards production of Stones (this replaces the bonus gained under Masons). Effectively 1000 people will do the work of 1250 people.

Refining

Name	**Coke**
DL	8
Pre-Req	N/A
Recipe	15 Coke: People 1, Coal 20
Description	Refining Activity Coded Makes more efficient use of coal for Refining and Armour and Weapons production (1 Coke = 2 Coal). Also required for Steel to be made. These are the items that can be made using Coke instead of Coal (all will require Silver). Conventional Items: Breast Plate, Helm, Shield, Chain, Sword, Research: Full Plate, Greaves, Bascinet Refining: Copper, Iron, Steel (necessary)

Name	**Hammer Mill**
DL	5
Pre-Req	N/A
Recipe	1 Hammer Mill: People 11, Wd 5, Eng 6, Logs 20, Iron 5, Coal 10, Leather 2
Description	The Hammer Mill (or Stamp Mill) is a hydraulic or manually operated series of weighted "pistons" which pulverize various ores into finer pieces, and sift out more unusable rock, for more efficient refining, and portage of raw materials. Each Hammer Mill can service 20 AMs assigned to Mining OR Refining, allowing 2 AMs to do the work of 3 (identical to the effect of Scaffolds for Engineering and Shipbuilding,

so it is, essentially, a "Scaffold" for Mining and Refining). Hammer Mills may be used by other Clans.

For Mining purposes, the additional AMs would be shown as "Effective Workers" in orders.

For Refining purposes, the additional AMs would be shown as "Effective Workers" in orders, and would require additional Smelters to cover the increased AMs.

If operated on a river hexside, cattle or horses need not be available, as the mill would be hydraulically powered via river current. If operated on a hex with no river hexsides, 2 Horses or Cattle are required to operate.

Weight: 2000 lbs

Proposed by Chris S.

Name	**Increased Output**
DL	Increased Output 10%: 4 Increased Output 50%: 6
Pre-Req	Increased Output 10%: None Increased Output 50%: Increased Output 10%
Recipe	N/A
Description	Increased Refining Output by 10%/50%. Assign extra (paper) people to the refining process. For example, if you deploy 100 refiners they would do the work of 110. You would show this as 110 equivalent Refiners (with the 100 mentioned in notes).

Name	**Saltpetre Refining**
DL	2
Pre-Req	N/A
Recipe	Saltpetre Refinery: Eng5, Stn5, Logs 100, Stone 100
Description	Installed at 2 logs and 5 stone per person, for 70AM). A Saltpetre Refinery can service up to 100 cattle. Uses Refining Skill for limits. 1 person can gather 10 Saltpetre from 2 cattle per turn, that is, 50 people can refine Saltpetre per standard refinery.

Name	**Steel**
DL	8
Pre-Req	Coke (Refining) in same Tribe
Recipe	Steel 15: People 1, Iron 20, Silver 15, Coke 10
Description	Coded Better Armour and Weapons - Steel to Iron is like Iron is to Bronze. Working with Steel requires 1 skill level higher than working with Iron (and some Gold and Silver to pay for expertise and materials). At this stage some steel items are Chain (30 Silver), Breast (Gold 1, 40 Silver), Helm (15), Shield (15), Sword – Katana and Scimitar (Gold 2, 20 Silver), Spear (0) and some research such as Full Plate (Gold 2, 50), Fluted Plate (Gold 2, Silver 40), Bascinet (20) and Greaves (20). Not Arrows. The Romans could make Steel around 900 AD.

Religion   Religion no longer exists. Some Research topics may be moved to other Skills.

Name	**Archbishop**
DL	6
Pre-Req	Bishop (From Cathedral) Gold 20 (Item) Relic (Item)
Recipe	N/A
Description	The AB enables the primary Tribe to recruit crusaders. Each member of the Religion may contribute up to 20% of its Warriors and up to 5% of its Actives to the Crusading Element (CE) which is under the authority and command of the ArchBishop (it works at the skill levels of the ArchBishop Tribe, that is, the Primary Tribe – except that its Ldr Skill is the sum of Ldr+Rel skill). The number of Warriors in the crusading Element cannot exceed the number of Inactives in the AB's Clan. Players are responsible for keeping track of how many people it sends to the CE – and, in consultation with the Head of Religion, for noting how many people should be redistributed if the CE is disbanded or takes losses in combat. To join the CE the recruited crusaders must physically march to do so. Normal 33% limits on combat apply.

Name	**Blessing**
DL	4
Pre-Req	Scroll (Item) Parchment 10 (Item) Silver 2000 (Item)
Recipe	N/A
Description	No books allowed This confers a Morale bonus of +0.10 when the CE is in battle.

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Name	**Convert Seeking**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	This religious research allows a Tribe to Seek for Converts on Spring 1 turns. The upshot is that the number of Recruits normally found is tripled. Religion or Seeking ability is used for Actives only (whichever is the higher). Note: if you use Rel Skill you will have to enter this as your Seeking Skill in the spreadsheet – but be sure to use your Seeking Skill for all other goods.

Name	**Fanatic Warriors**
DL	7
Pre-Req	N/A
Recipe	N/A
Description	Once a Tribe has completely researched Fanatic Warriors, its warriors become religious fanatics who gain certain benefits in battle. DL7 represents the DL at which this topic affects the developing Tribe (and nobody else). For purposes of battle calculations, the unit's Combat skill = Combat Skill + (0.5 * Religion Skill). The player needs to show this.

Name	**Frankincense Smoking**
DL	1
Pre-Req	N/A
Recipe	N/A
Description	Tribe smokes 1 Frankincense per 500 people once per year for 0.02 morale boost.

	Proposed
	Darren Thacker

Name	**Holy Standard**
DL	2
Pre-Req	N/A
Recipe	1 Holy Standard: People 20, Mtl2, Shaft 1, Cotton 100, Silver 200, Gold 5
Description	The Holy standard increase the morale in combat by 0.05. The player needs to show this.

One HS per unit is required or one per all units in motc.

Holy standards can be used and transferred only between Tribes that belong to the same Clan. |

Name	**Home Guard**
DL	4
Pre-Req	*See Combat
Recipe	*See Combat
Description	*See Combat

Name	**Janissaries**
DL	8
Pre-Req	Combat 10 (Skill)
Leadership 10 (Skill)
Recipe	N/A
Description	A Janissary can only fight as an Infantry unit.

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| | A Janissary incurs an ongoing maintenance cost of 1 Jade paid each year in month 12 as a Transfer. If these funds are not available the Janissary will leave. The effect of the Janissary is effectively that of 2.4 ordinary Infantry and are thus a potent combat unit. Slaves are converted to Janissary and once converted may do nothing else. Janissary may not comprise of more than 25% of a Tribe's total Warriors. For example, a Tribe with 1200 Warriors may have up to 300 Janissary. If this Tribe were involved in combat it would be able to assign 400 troops to combat. However, up to 300 of these could be Janissaries. |
| | Janissaries and Knights may not participate in the same combat. |

Name	**Knights**
DL	8
Pre-Req	Heraldry in One Tribe in Clan (Art)
	Stables (Herding)
	Combat 10 (Skill) or Leadership 10 (Skill)
Recipe	N/A
Description	A Knight can only fight as a Cavalry unit.
	A Knight incurs an ongoing maintenance cost of 1 Gold paid each year in month 12 as a Transfer. If these funds are not available the knighthood will lapse for those short. The effect of the Knight is effectively that of 2.4 ordinary Cavalry and are thus a potent combat unit. Warriors are converted to Knights and once converted may do nothing else. Knights may not comprise of more than 25% of a Tribe's total Warriors. For example, a Tribe with 1200 Warriors may have up to 300 Knights. If this Tribe was involved in combat it would be able to assign 400 troops to combat. However, up to 300 of these could be Knights.
	Janissaries and Knights may not participate in the same combat (on the same

	side).

Name	**Military Orders**
DL	6 or 9
Pre-Req	Fanatic Warriors – Tribe Fanatic Warriors - Clan
Recipe	N/A
Description	Once a tribe has completely researched Military Orders, its Fanatic warriors are organized in military focused religious orders. Military Orders are permanent and professional armies and, as such gain additional benefits in battle. DL6 represents the DL at which this topic affects the developing Tribe. DL9 represents the DL at which this topic affects the developing Clan. For purposes of battle calculations, the tribe's Leadership skill = Leadership Skill + (0.5 * Religion Skill).

Name	**Missionaries**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Increases 2 fold the number of Recruits that might be found during Spring Seeking. May be added to Monastery to produce xx fold. Missionaries also double Inactives obtained from a Mission which is a Special hex (if you have one).

Name	**Monastery**
DL	7
Pre-Req	N/A
Recipe	1 Monastery: People 2k, Eng9, Stones 10k
Description	Increases 5 fold the number of Recruits that might be found during Spring

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n	Seeking (the Tribe with the research may seek on behalf of the Clan). The research topic is required in order to use "Monastery".

Name	**Theocracy**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Essentially a Religious State. Upon completion of this research topic the Tribe receives Politics 10. One Clan per Religion may do this. No Books

Research

Name	**Golden Age**
DL	7
Pre-Req	University (Building) Library (Building) – In same space as University Scroll (Item)
Recipe	N/A
Description	Any settled Village, (not a nomadic Tribe). Encouraging a Golden Age is expensive. Once this research topic reaches DL0 it costs 10 Gold per turn (over and above any normal research costs) to continue to seek a Golden Age. Completion of Golden Age allows the Tribe with GA to obtain 1 Category A, 1 Category B and 1 Category C skill may be raised by one each, but not above 8. Two other research projects being undertaken by the Village, that has reached DL0 or higher, is advanced by one DL but not to completion. Thus, a Golden Age allows a substantial one-off benefit, but no permanent benefits. Only one Tribe per Clan may research Golden Age at a time – but once completed may be researched again. Many ancient and medieval societies enjoyed Golden Ages that were marked by a flowering of the arts & sciences from Athens under Pericles to the Franks under Charlemange. Historically, almost every Golden Age was supported by large expenditures to encourage the arts & sciences, hence the 300 silver per turn requirement. No Books

Name	**Research Team**
DL	6

Pre-Req	University (Building)
	Library (Building) – In same space as University
	Scroll (Item)
Recipe	N/A
Description	Once a Tribe has completed Research Team, it gains the ability to initiate a subsequent research project <u>once its prequisite topic has reached DL1</u>. For example, the research topic "Steel" has "Coke" as its prerequisite. Normally Coke must be completely researched before any attempt to research Steel can be started. Research Team allows Steel to be attempted once Coke has reached DL1. One topic at a time may be dealt with in this way.
	Rationale: Research is often done in teams. A "scientist" team focuses upon making new discoveries. An "engineer" team focuses on turning the new scientific discoveries into something that can be used. Once a discovery is made, the "scientists" go on to attempt a new set of discoveries while the "engineers" turn the existing discovery into something practical. In game turns, once DL1 is reached, the scientists go on to the next research topic while the engineers complete the research topic. For example, a Tribe that knows Research Team that also has two (or more) partial topics (For example, Steel DL7/8 and Home Guard DL1/3) could start only ONE new topic early, (e.g. Steel allows Superior Weapons to be started early OR Home Guard allows Army to be started early).

Name	**Researcher**
DL	5
Pre-Req	Scholar (Research)
Recipe	N/A
Description	Can only be researched by Scholar Tribe. On completion of Researcher, the Scholar Tribe can transfer research under the same physical conditions as Scholar. Each transfer, though, requires a scroll to be transferred to usage.

Name	**Scholar**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Upon completion of Scholar, a new Tribe is formed. This Tribe represents the new Scholar and consists of 1 Active and Research 10 (the Parent Tribe keeps its Res 10 as well). This Tribe may do no activity except Meditation. The Scholar Tribe can move only by using the Follow order (ie it must always be attached to another unit). It may not accept Transfers of Population (without additional research). The Scholar Tribe attempts skills in the same way as any other Tribe. It may, at the end of a turn, transfer any of its skills to another Tribe of the same Clan - not an Element - provided the receiving Tribe has a unit in the same hex as the Scholar. This new skill level replaces the current skill level for that skill in the receiving Tribe. The transfer requires the Scholar to be at a Library or to be in possession of a Scroll. Skills cannot be transferred to the Scholar Tribe. The Scholar can attempt research topics in any skill that it has a level 10 for, but cannot transfer the research. It cannot itself research Scholar. It can only use its Research 10 for topics that have Scholar as its prerequisite. It cannot, for example, use Research 10 to build a university or to research Research Teams. The Scholar may not transfer Research 10 skill to another tribe.

Name	**War College**
DL	7
Pre-Req	University (Building) Library (Building) – In same space as University
Recipe	Maintenance: Gold 10 / Year

Description	This research topic is valueless unless <u>the Tribe</u> (WC developed in one Tribe cannot service the whole Clan) has already developed Generalship or Military Orders.
	
	A War College represents a deliberate and systematic study of warfare and the training of a tribe's military leadership in how best to conduct warfare. The prerequisite of Generalship or Military Orders insures that the tribe has possesses permanent military leaders that can then benefit from the training provided by a "War College".
	
	Benefits: <u>Generalship</u> – For land battle calculation purposes only:
	      Leadership = Leadership + Generalship
	      Combat = Combat + (Generalship/2)
	      Horsemanship = Horsemanship + (Generalship/2)
	      Tactics = Tactics + (Generalship/2)
	      All other Generalship benefits and restrictions are unchanged
	
	      <u>Military Orders -</u> For land battle calculation purposes only:
	      Leadership = Leadership + Religion
	      Combat = Combat + (Religion/2)
	      Horsemanship = Horsemanship + (Religion/2)
	      Tactics = Tactics + (Religion/2)
	      All other Military Orders benefits and restrictions are unchanged
	
	Players should tell the GM what their Combat, Leadership etc. skills are for the purposes of each battle, thus it's up to each player to provide the correct data to the GM. If the player doesn't he/she loses all benefit of this research topic.

Sailing

Name	**Expert Sailors**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	+3 Seamanship and +3 Navigation skills. Expert sailors does not become active unless you are already at skill 10 of Navigation and 10 of Seamanship. Players need to let me know when they achieve this if they do not have 10's in both at the time the research is completed.

Name	**Fast Fleets**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	Fast Fleets allows any Fleet (that knows this topic) whose normal sailing MP = 100 MPs or more per turn to move along a TR (Trade Route) at twice the normal TR speed; e.g. at 160 MPs per turn instead of 80. Fleets with high scores in SAIL, SEA and NAV can sail more than 100 MPs per turn. For example, a fleet with Longships (base sailing rate = 40 MP) and skills of 10 in each of SAIL, SEA and NAV, will sail 130 MPs per turn. This means that in many cases it will be faster for such Fast Fleets to sail normally, rather than using a TR. Fast Fleets increases fleet movement along TR (Trade Routes) only, as described below. It does not affect any other sort of movement.

Salting

Name	**Salt Panning**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	The effect is to create a Salt mine in any one Prairie hex that the Clan chooses. This cannot be an existing Village site nor can Villages be built in this site.

Sanitation

Name	**Camp Sanitation**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Any active or warrior or slave within the tribe (or any of its element) may serve as sanitation workers for other tribes/elements of the Clan in the same hex. Assuming that 3999 knows Camp Sanitation, this is ordered: **Activity** **Commodity** **Quantity** **People** **Note** Sanitation Sanitation Worker - xxx 0999, 1999e1 and 2999 Notes identifies the other tribes/elements being supported. xxx identifies the number of sanitation workers which must equal 0.5% of the total population of the tribes/elements/fleets being supported. Note that neither the supporting tribe (element) or the tribes/villages/elements/garrisons being supported are allowed to move and that all involved must be in the same hex. All involved must belong to the same clan. **Benefit:** The supported tribes/elements, for all intents and purposes, have the same Sanitation skill as the Tribe supplying the sanitation workers (useful when under Siege). Supported tribes also benefit from sanitation research topics known by the supporting Tribe. This does not effect population growth. Players need to indicate if changes occur as a result of completing the research.

Scouting

Name	**Extra Movement 1**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Scouts may move an extra 2 MV points. May not be used for Locating (that is, units with this research may NOT Locate). Can be used for Raiding. Note: when Elements are created this modifier needs to be added manually – so you will need to let me know.

Name	**Extra Movement 2**
DL	4
Pre-Req	Extra Movement 1 (Scouting)
Recipe	N/A
Description	Scouts may move an extra 2 MV points (that is, 4 all up). May not be used for Locating (that is, units with this research may NOT Locate). Can be used for Raiding.

Name	**Site Survey I**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	A detachment of scouts can identify the best part of the hex in which to build your main Village (the Scouts act on behalf of the Clan*). This allows them to get a very accurate 'feel' for the hex they plan to build fortifications on. Once they have finished researching, they may begin to survey the hex. This would entail measuring the height of hills, digging to find underground rock ledges,

	etc.
	<u>Notes</u>:
	1-this research retrospectively "updates" a fortification already built.
	2-the bonuses only apply to the Clan with SS research (that is, you cannot build the Fortification for another Clan).
	The net effect is to increase the defensive bonus of the site by 10%.

Seeking

Name	**Bush Lore**
DL	1, 2, 3, etc.
Pre-Req	Bush Lore 1: None Bush Lore 2: Bush Lore 1 ….
Recipe	B/A
Description	Bush Lore adds levels to your Seeking Skill. Bush Lore 1 adds one level (for example, Seeking 10 to Seeking 11), Bush Lore 2 adds 3 levels (for example, Seeking11 to Seeking 14), Bush Lore 3 adds 5 levels (for example, Seeking 14 to Seeking 19). Once Bush Lore 1 Research Topic has been achieved, the Tribe may learn a new skill, Bush Lore (Group C). Once Bush Lore skill reaches 10, further Bush Lore research topics (4,5,6….) may be researched. Each Bush Lore research topic (4, 5, 6….) adds 6 Levels to the Seeking skill. Books may be written.

Name	**Elephants**
DL	3
Pre-Req	N/A
Recipe	N/A
Description	This research allows Seeking of Elephants during Spring 01. Elephants: equal 60 provs, 6 skins, 12 gut, 12 bones. Requires 2 people to skin, 1 to gut, 1 to bone. They require 50lbs water, 12 fodder when these are required, for example, in siege, desert, snow etc. Elephants: carry 1000 unridden (800 ridden by 1

person - or 3 people may ride with no gear)

Uses 10 yards space during siege. 1 herder herds 5.

Elephants may carry (one) Ballistae/Wagons. However, a single elephant may carry only one of these items.

Note: Elephants may not carry Wagons/Ballistae into terrain not normally accessible to these items.

If you run out of provs you will eat any animals in the following order: Goats, Cattle, Horses and Elephants.

Name	**Exotic Seekers**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Seekers can be allocated to seek out exotic and unusual goods according to normal Seeking rules.

Seekers of the exotic will find some unknown amount of a random exotic good. Players may choose 4 exotic items in addition to normal Seeking. Players need to indicate in their Transfer summary from the Seeking table. |

Name	**Experienced Seekers**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Knowing the likely places to look increases Seeking efficiency. Any tribe that is Seeking the same items in the same hex as the previous year and has completed experience Seekers research will get double the seeking return they would normally get. Works before any other Modifiers. Works with Rich Seeking special hexes.

Name	**Seek Herbs**
DL	*See Healing
Pre-Req	*See Healing
Recipe	*See Healing
Description	*See Healing

Security

Name	**Bodyguards**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Bodyguards must number at least 12 Warriors (they are deemed to be dispersed amongst Leaders, Guild Leaders etc). Any sort of an assassination attempt against the Tribe (or any of the Tribe's Elements) receives a 20% penalty. Bodyguards can make use of up to 5 Guard Dogs. Each Guard Dog provides a further 10% reduction. Thus bodyguards with 5 Guard Dogs would reduce a 50% chance of a successful assassination to 20%. One Tribe in the Clan may deploy Bodyguards to other Tribes in the Clan.

Name	**Fast Response Security I**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	10% of assigned Defenders can act as Security.

Name	**Fast Response Security II**
DL	4
Pre-Req	Fast Response Security I
Recipe	N/A
Description	A further 10% of assigned Defenders can act as Security in Battle.

Name	**Fast Response Suppressors**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	50% of Suppressors may participate in combat, offensive or defensive.

Sewing

Name	**Brocade**
DL	5
Pre-Req	Sewing 10 (Skill)
Recipe	10 Brocade: People 2, Silk 10, Cotton 100
Description	Brocade may be sold for Gold (and other valuable commodities) at NPC towns (not at Fair). 2 people using 10 Silk and 100 Cotton produce 10 Brocade (which will sell for around 5 Gold). Only 2 people per Tribe with Sew10 may produce Brocade each month. The development of the Loom will improve efficiency markedly.

Shipbuilding

Name	**Barge Poles**
DL	2
Pre-Req	N/A
Recipe	1 Barge Pole: People 4, Wd 6, Mtl 4, Logs 1, Iron 10, Bones 10,
Description	Barge Poles are highly decorative but functional poles used by barge-hands (Barges) to move through swamp as if it were water. A Barge with one Barge Pole per Crew may treat a Swamp hex as Lake and Swamp hex sides as River for the purposes of barge movement (ferrying) and Special Barge Movement. Each hex of Swamp counts as 2 lake hexes for movement costs and each Swamp hexside counts as 2 river hexsides. Barge Poles have no effect on non-barge ship movement. Weight: 20 lbs each *The bone decorated poles help to ward off the evil spirits that congregate around the swamps while the barges traverse the fetid waters.*

Name	**Felucca Class I**
DL	6
Pre-Req	N/A
Recipe	1 Felucca I: People 215, ShB8, Wdw8, Mtl6, Logs 250, Brass 75, Coal 300, Sheath 200, Leather 50, Rope 15, Cloth 40, Oars
Description	A faster version of the Longship - 58MV (Sail), 54MV (Row). Weight 18000, No ram. Crew 10 (8+2), Maximum people 40 (or 6000 lbs of cargo on deck with NO livestock) + 1500 cargo below deck. MEF 6 Damage points: Hull 30, Sails 25 Defense points: 32 Cannot carry Catapults, but may carry Ballistae

	Movement bonus only applicable for fleets composed entirely of Felucca.

Name	**Trawler**
DL	See Fishing
Pre-Req	See Fishing
Recipe	See Fishing
Description	See Fishing

Shipwright

Name	**Increased Productivity I**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	3 workers assigned to Shipwright do the work of 4. Note: this research appears as **ShipW 25** (pls show as this in your Orders)

Name	**Increased Productivity II**
DL	6
Pre-Req	Increased Productivity I (Shipwright)
Recipe	N/A
Description	2 workers assigned to Shipwright do the work of 4. **ShipW 50**

Name	**Increased Productivity III**
DL	8
Pre-Req	Increased Productivity II (Shipwright)
Recipe	N/A
Description	1 worker assigned to Shipwright do the work of 4.

Siege Equipment

Name	**Catapult**
DL	5
Pre-Req	N/A
Recipe	1 Catapult: People 15, Seq6, Log 10, Coal 30, Iron 2, Rope 4
Description	6 people to operate. weigh 1000 lbs. Treated as Wagon in terms of MV restrictions The attacking force can only assign 1 Catapult per 20 yards of fortifications*. Each Catapult uses 5 stones during the combat. The effect is to reduce the defenders defensive factor bonus by 10% at HvyW0 and 20% at HvyW10. (see under Trebuchet for more details) only one piece of Siege Equipment may be assigned per 20 yards of wall. Weight: 1000 lbs

Name	**Trebuchet**
DL	7
Pre-Req	N/A
Recipe	1 Trebuchet: People 30, Seq 7, Logs 15, Rope 4, Iron 2, Coal 30, Stones 100, Silver 500
Description	10 Warriors to operate. <u>Cannot be moved</u> from hex in which it is built; weigh 3000 lbs. They are a powerful indirect firing siege weapon that do damage to Walls. Each Trebuchet uses 5 stones during the combat. The effect is to reduce the defenders defensive factor bonus by 15% x (1 + HW skill/10) (or part thereof). For example, a 120 yard fortification can have a maximum of 6 Trebuchets

assigned and will reduce defensive factor by 20% at HeavyWeapons 10. However, if only 3 Trebuchets are assigned the defensive factor will be reduced by 10%. Only applicable vs walls.

Cannot be moved out of hex.

Name	**Siege Cannon**
DL	8
Pre-Req	Blasting Powder (Alchemy) Metalworking 8 (Skill)
Recipe	1 Siege Cannon: People 35, Seq10, Mtl8, Bronze 1250, Coal 7500, Logs 10, Gold 20
Description	(*Blasting Powder is a research prequisite for Siege Cannon, that is, the knowledge to do Siege Cannon requires knowledge of how to make Blasting Power and so Blasting Power research is required by the maker of Siege Cannons.) The attacking force must assign at least 1 Siege Cannon per 20 yards of fortifications for full effect. Each Cannon uses 5 Cannon Balls during the combat. The effect is to reduce the defenders defensive factor bonus by 20% x (1 + Artillery skill/10) (or part thereof). For example, a 120 yard fortification can have a maximum of 6 Siege Cannon assigned and will reduce defensive

factor by 40% at Artillery 10.   However, if only 3 Siege Cannon are assigned the defensive factor will be reduced by 20%. Only applicable vs walls. Cannot be moved out of hex.

Operation Skill:
With completion comes a new skill "Artillery" (which replaces HvyW as the relevant skill). Artillery (Group B), which can be taken by any Tribe in the Clan. That is, if a Tribe in the Clan has completed Siege Cannon then any Tribe in the Clan can take the Artillery Skill.
If the weapon is transferred to another Clan (without Artillery Skill) then HvyW10 is required to fire.   HWpns10 = Artil0
To Fire:
1 Jar Blasting/Black powder, Cannon Ball (30 lead). Crew: 10

https://en.wikipedia.org/wiki/Cannon

Weight: 2000 lbs

Skinning

Name	**Slaughter House**
DL	3
Pre-Req	N/A
Recipe	Slaughter House: People 104, Logs 200, Iron 20, Coal 100
Description	Can be researched under Skinning, Gutting or Boning. A Slaughter House includes fencing, building and tools to increase the number of animals that can be processed by people doing skin/gut/bone. One Slaughter house requires 200 Logs, 20 Iron, 100 Coal. One Slaughter House is required per 100 people using it. People using a Slaughter House can process four times as many animals as usual. You would assign four times as many people (that is, use equivalent people) as are allowed by your levels (though they only count as quarter against your people usage). If all are equipped with Knives then the equivalent workers are eight fold. Skin10, Gut10 and Bon10 are all required to use the SH.

Slavery

Name	Janissaries
DL	8
Pre-Req	Combat 10 (Skill) Leadership 10 (Skill)
Recipe	N/A
Description	A Janissary can only fight as an Infantry unit. Attributes of Janissaries: • Ongoing maintenance of 1 Jade paid per year in month 12 per Janissary sent via transfer. If funds are not available, the Janissary will leave. • Janissaries have a Combat Factor of x2.4 Infantry, meaning they perform as if they were 2.4 Infantry. • Slaves are converted to Janissary and once converted may do nothing else. • Janissary may not comprise of more than 25% of a Tribe's total Warriors. • For example, a Tribe with 1200 Warriors may have up to 300 Janissaries. If this Tribe were involved in combat, it would be able to assign 400 troops to combat. However, up to 300 of these could be Janissaries. • Janissaries and Knights may not participate in the same combat (on the same side).

Name	Overwork
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Slaves can be overworked, they need a overseer with a Whip per 10 slaves (see Leatherwork). Slaves will be 20% more productive. You need to show the equivalent figure in Orders, and the number of Whips. For example, 120 Slaves (for 100 plus 10 Whips). No deaths result.

Name	Press Gang
DL	6
Pre-Req	N/A

Recipe	N/A
Description	Once per year you send out Scouts with "enslave" orders (1 group per Clan), and they attempt to enslave any locals they run into. A Scout may take one Slave (two with Shackles) up to a maximum of 300 Slaves.

Spying

Name	**Avoid Security**
DL	5
Pre-Req	Scouting 10 (Skill) Spying 10 (Skill)
Recipe	N/A
Description	Once this research is completed, scouts sent out by this Tribe (or its Elements/Fleets) gain an advantage in avoiding detection by any/all security/suppression orders given by other Clans. The Scouting & Security skill of the other clans is REDUCED by half (rounded up) of the Spy skill of the scouts' Tribe. For example, Tribe 9933 (with Sct=10 and Spy=10) knows Avoid Security and sends out scouts that enter a hex being suppressed by security forces from Tribe 8222. Tribe 8222 has Sct8 and Sec9. However, Avoid Security means that 8222's SCT=8 is reduced to 4 and its SEC=9 is reduced to 5, when 8222's Suppressors attempts to detect 9933's scouts. Rationale A Tribe that has mastered both SCT and SPY skills should be able to use its spying capabilities to enhance its scouting. Spies know how to act like local yokels, wandering minstrels, or other "innocents". This research is the training of the Tribe's warrior scouts with the spy's ability to act like an "innocent". Proposed by Steve Simmons

Name	**Cross Training**
DL	5
Pre-Req	Security 10 (Skill), Spy 10 (Skill)

Recipe	N/A
Description	A Tribe must possess both Sec=10 and Spy=10 skills before it is allowed to attempt this research. Once this research is completed, the tribe's Sec skill is raised by one-third of its current Spy skill and its Spy skill is also raised by one-third of its Sec skill (rounded normally). This research has no other effect beyond this ONE OFF boost of a tribe's Sec and Spy skills. For example, Tribe 5583 (with Sec=10 and Spy=10) completes Cross Training. Its Sec skill is set to 13 and its Spy skill is also set to 13. Rationale – Spies that have also mastered SECURITY are better spies as they fully understand security and thus how to avoid the security forces of other tribes. Similarly, Security forces that have mastered SPYING know the tricks spies use and can counter them. *Proposed by Steve Simmons*

Name	**Identify Home City**
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Should your attempt be successful your Scouts (that is, Spies) wil tell you whether the target has a Home City in the hex in question.

Name	**Identify Militia**
DL	4
Pre-Req	Identify Home City (Spying)
Recipe	N/A
Description	Identify Militia allows you to roughly determine the number of Militia available to a particular Home City. This is achieved by means of a Scouting party

	entering the HC hex with orders to "Identify Militia". The Scouting party gathers no other information and is not subject to any Suppression operating in the hex.

Name	**Infiltration**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Allows an Assaulting (attacking) force to recruit locals "get behind enemy lines" thus reducing the effectiveness of defensive fortifications by 5%. It costs 10 Gold each time it is deployed.

Name	**Spy 11**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Allows Spying Specialists to be trained in three months (same as any other specialist). They are restricted to performing scouting missions only. No other sort of activities may be performed. They cannot be transferred outside of the tribe (or its units) that developed SPY 11.

A Scouting Party consisting solely of Spying Specialists gets a 25% bonus in evading detection by any/all opposing Suppression/Security/Bodyguard/etc. forces whenever they are performing a scouting mission of any/all types (Patrol, Spy, Locate, Assassinate, etc.) |

Name	**Spy Data I**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	In addition to the data normally gathered by spying (numbers of warriors assigned to defense, security, suppression) <u>two</u> additional pieces of data may

be gathered (to within 10% accuracy where this is relevant). The player must specify each of these three additional pieces when the spying is ordered and he/she will receive this additional if and only if the spying mission succeeds (e.g. is not spotted by any suppression or security forces). These two additional pieces of data can be anything that can be easily answered by the GM. For example:

What fortifications does Unit 1789 possess?
What is the population of Unit 1789?
What is the Eng Skill of Unit 1789?

And the answers could be:

Ditch 1,500; Wooden Palisade 1,500; Wooden Towers 4
2,173
8
Please note that additional data gathered through Spy Data I applies to one and only one target and this target UNIT (not entire Clan nor an entire Tribe) is the only UNIT for which the additional data is report. Specifying a Target = 1789, means the additional data is provided for UNIT 1789, but Unit 1789e1 (even if in the same hex), would NOT be reported on. My intent is not to force you to add up the population of every unit with an entire tribe or clan, but rather to focus solely upon ONE, SINGLE UNIT.

Name	**Spy Data II**
DL	6
Pre-Req	Spy Data I
Recipe	N/A
Description	Works exactly like Spy Data described above but allows TWO Units to be targeted and (if successful) provide TWO reports, one for each targeted Unit if and only if both targeted Units are in the same hex. The same two pieces of data are reported for each targeted Unit. For example:

What fortifications do Units 1789 and 2789 possess?

What is the population of Units 1789 and 2789?

What is the Eng Skill of Units 1789 and 2789?

And the answers could be:

1789: Ditch 1,500; Wooden Palisade 1,500; Wooden Towers 4.   2789: None.

1789: 2,173.   2789: 432.

1789: 8.   2789: 4.

Stonework

Name	**Chisel**
DL	*See Metalwork
Pre-Req	*See Metalwork
Recipe	*See Metalwork
Description	*See Metalwork

Name	**Marble Statue**
DL	3
Pre-Req	N/A
Recipe	12 People, Stn 6, Art 6, Marble 200
Description	Marble Statues will serve as improvements to Palace etc. Stn6 and Art6 must be held by the Tribe with the research.

Name	**Scraper (Stone)**
DL	4
Pre-Req	N/A
Recipe	1 Scraper: People 1, Stn2, Stone 1
Description	Coded Doubles rate for bark stripping.

Tactics

Name	**Tactical Systems**
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Once a tribe has completely researched Tactical Systems, it or one of its units, gains an advantage in battle whenever its tactics skill is higher than that of its opponent. The difference, if positive, between the tactics skill of the possessor of Tactical Systems is added to the possessor's Leadership Skill when determining the results of a battle. **Counters:** Tactical Systems cannot be used against an opponent who also possesses this research topic.

Name	**Wagon Laager**
DL	6
Pre-Req	N/A
Recipe	N/A
Description	A circle or wall of wagons used by Defenders (only) in the Field . Eastern Europeans and Turks started out with ordinary upturned wagons tied or chained together. In subsequent wars they turned this into an art form and had specific wagons made for the purpose with firing steps, slits etc. Their very badly trained infantry and peasant levies held firm behind these "walls" until way into the 18th Century, when enough mobile artillery made them obsolete. Historically the army would seem to line up in the traditional manner, cover

would then be taken up in a matter of minutes. In the context of the game, on a first encounter the opposition will be unaware and submit normal combat orders. Later on ⋯they will have to guess! Not in mountains, Forests or Jungle. 1 wagon must be available per 10 Warriors. The effect is to increase TP by +4 when the unit has an order to "defend".

Name	**War Games**
DL	7
Pre-Req	N/A
Recipe	N/A
Description	180 (or more) Warriors may engage in War Games 3 times per year, that is, once every 4 months (requires 1 turn). Each Warrior must carry a weapon, a missile weapon and at least 2 pieces of metal armour. Losses of warriors = 20 minus Com Skill (the player should list the losses). They may do this from the Tribe or via an Element. Successful completion of the War Games results in a Terrain Proficiency for the hex in question.

Triball

Name	**Triball Arena**
DL	5
Pre-Req	N/A
Recipe	Triball Arena: People 3k, Eng8 and Triball 10, Stone 15k Triball Arena: People 3k, Eng 10 and Triball 8, Stone 15k
Description	During each fair the owner of a Triball arena gets a 50% bonus to the silver that they get from Triball. Think of the bonus as sales from concessions, etc. A Triball arena can be built for another Clan.

Name	**Triball Specialists**
DL	4
Pre-Req	N/A
Recipe	N/A
Description	A Triball specialist is a warrior that has trained extensively to play triball. During fair months they cannot do anything else. They must play triball. During the other months they may guard or do warrior only acts or they may herd triball ponies. They are counted as 2 warriors for purposes of figuring silver gained at the fair. You can have a maximum of 800 Triball specialists participate in the fair.

Torture

Name	**Dungeon**
DL	*See Engineering
Pre-Req	*See Engineering
Recipe	*See Engineering
Description	*See Engineering

Name	**Thumb Screws**
DL	3
Pre-Req	N/A
Recipe	1 Thumb Screws: People 1, Mtl4, Iron 1, Coal 2
Description	Increases the memory capacity of a Torturer's clients.

Name	**Treachery 1**
DL	1
Pre-Req	Dungeons (Engineering)
Recipe	N/A
Description	Under more sustained and sophisticated torture a client will prefer to name "sympathisers" in the local area rather then pain and death. Treachery 1 DL1. You may convert up to 5 Warriors into Torturers (once per year). An Element of Torturers (1) plus at least 50 Warriors mounted with Whips and 100 Shackles) capture a likely suspect from the local population, interrogate him/her allowing the detention of 100 identified suspects indefinitely (that is,

as Slaves). Allowable once per year. The Element must operate (move to) at least 12 hexes from its Home City/Meeting House and cannot operate in any "Special" hex belonging to the Clan or in any politically controlled hexes belonging to allies (including Truced players). A special Element beyond Adm requirements may be created for the purpose.

Progression (under development)

Treachery 2 DL2. Same only 2 torturers, 200 warriors and 200 detainees. Prerequisite Dungeon and Treachery 1. Allowable once per year.

Treachery 3 DL3. Same only 3 torturers, 300 warriors and 300 detainees. Prerequisite Dungeon and Treachery 1 & 2. Allowable once per year.

Treachery 4 DL4. Same only 4 torturers etc and requires companion research of the Rack.

Treachery 5 DL5. Same only 5 torturers etc and requires companion research of Thumb Screws.

Treachery 6 DL6. Same only 6 torturers etc and requires companion research of Water Torture.

The Inquisition (DL8 maybe) - a group of torturers can… Probably requiring Treachery 3, Rel10 maybe?

Name	**The Rack**
DL	5
Pre-Req	Treachery 3 (Torture)
Recipe	1 The Rack: People 6, Wdw 5, Iron 20, Logs 10, Silver 200
Description	Assists in developing treacherous attitudes amongst the Locals. Weight: 200 lb

Waxworks

Name	**Fake Royal Seal**
DL	6
Pre-Req	N/A
Recipe	1 Fake Royal Seal: People 10, Waxwork 10, Gold 10, Silver 1000, Wax 5, Parchment 5
Description	A unit attacking or defending with a Fake Royal Seal may attempt to divert 10% of the combatants (of all types) in the first enemy force it fights. If this enemy force is a MOTC, 10% of the MOTC's combatants may be diverted. The diverted combatants are not lost. They remain part of the enemy force - they simply do not fight in this one battle. For example, if the enemy force contains Combatants=1,000, 330 of these can fight (33% rule). The Fake Royal Seal diverts 10% of these 330, leaving only Combatants=297 to fight in the actual battle. The number of combatants diverted rounds up. This diversion attempt is successful if and only if a successful spying attempt is made against the enemy force. When the enemy force is a MOTC the spying attempt is made vs. the unit leading the enemy MOTC. When the attacker is trying to use a Fake Royal Seal, it is the attacker's responsibility to order the spying mission simultaneously with his(her) attack. A defender will be given a chance (when they submit combat orders) to perform the required spying mission. Peter will adjudicate this defensive spying mission immediately prior to the combat. If successful, the attacker's force will be reduced by 10%. These spying missions are adjudicated using the same rules and skills as any other spying mission. There's nothing different about them other than the effect - a diversion of 10% of the combatants when and if the spying mission succeeds. Please note that the target of a Fake Royal Seal does not know about the diversion (successful or not) when he(she) submits combat orders. If successful, the victim is told that 10% of his(her) forces were diverted by a Fake Royal Seal and thus were not present during the battle. If unsuccessful, the target captures the spies who were attempting to use the Fake Royal Seal. The seal itself is lost, but the target is told that a Fake Royal Seal diversion was attempted. Note that a unit may fight two separate battles in a single turn (Mandate 10.3). In such cases, a Fake Royal Seal affects only one enemy force fought. The clan employing the Fake Royal Seal may specify which enemy force is targeted, first or second. Even if a clan possesses more than one Fake Royal Seal, only one seal may be employed during a single turn. Also note that a force may never under any circumstances have more than 10% of its combatants diverted from a battle.

Proper use of Fake Royal Seal is <u>completely</u> in the hands of the player using it. If attacking, a simultaneous SPYing attempt against the target of the attack MUST BE ordered by the attacking player and this SPYing attempt must explicitly state that it is using a Fake Royal Seal. If Defending, the defending player orders the SPYing attempt at the same time as he/she submits his/her combat orders. Again, this SPYing attempt must explicitly state that it is using a Fake Royal Seal. The onus is on the player to employ a Fake Royal Seal in the exact manner described above. Failure to do so means no diversion will occur.

Weapons

Name	**Crossbow**
DL	6
Pre-Req	N/A
Recipe	1 Crossbow: People 4, Wpn8, Iron 5, Coal 40, String 1, Silver 30 1 Crossbow: People 4, Wpn8, Bronze 5, Coal 30, String 1, Silver 30
Description	Crossbows are heavy arbalests; they may not be made in desert or arid terrain. Weighs 6 lbs with normal missile range. Weight: 6 lbs

Name	**Katana**
DL	8
Pre-Req	N/A
Recipe	1 Katana: People 3, Iron 5, Coal 40
Description	The folding process makes the Katana sharper than normal sword. Katana is equivalent to a Steel Sword (and may be shown as this in your Report). https://www.quora.com/What-was-the-superior-sword-the-European-longsword-or-Katana

Name	**Repeating Arbalest**
DL	5
Pre-Req	N/A
Recipe	1 R. Arbalest: People 4, Wpn9, Iron 2, Coal 25, String 1
Description	An upgraded version of the Arbalest, the Repeating Arbalest provides additional firepower at the cost of additional quarrel use. The R. Arbalest uses up 20 quarrels in a combat but in exchange it produces about one third

	more casualties than a normal Arbalest.
	Weighs: 2lbs

Name	**Scimitar**
DL	8
Pre-Req	N/A
Recipe	1 Scimitar: People 3, Steel 5, Coke 20, Gold 1, Silver 20, Ivory 1
Description	Curved Sword with a nice Ivory hilt used by Cavalry. A maximum of 30 people in the Clan per turn may be assigned to the making.

Name	**Ulfbehrt Sword**
DL	9
Pre-Req	N/a
Recipe	1 Ulfbehrt Sword: People 4, Steel 5, Coke 30, Gold 2, Silver 40
Description	Top of the shelf sword used only by Infantry. A maximum of 40 people in the Clan per turn may be assigned to the making. http://weaponsman.com/?p=11630

Weaving

Name	**Basket**
DL	3
Pre-Req	N/A
Recipe	1 Basket: People 1, Wv4, Bark 5, Gut 5
Description	A basket can double the productivity of farmers harvesting any/all crops. That is, increases the number of effective workers by 100%. May be combined with any other harvesting implement allowed for the type of crop being harvested (e.g. scythe, machete but not Harvest Bag); however the effect is linear, not cumulative (e.g. a farmer with both a scythe and a Basket will harvest 9 acres of grain, not 12). Thus a farmer with Scythe and Basket is shown as 3 equivalent Farmers. A Tobacco Farmer with Basket and Machete would be shown as 5 equivalent workers (not 8). It is incumbent on the player to show equivalent workers in Orders.

Name	**Epic Tapestry**
DL	6
Pre-Req	N/A
Recipe	1 Epic Tapestry: Cotton 5k, Silver 500, Gold 50, Diamonds 5
Description	0.04 Morale to owning Clan, -0.05 Morale if lost/destroyed. Bonus 0.06 Morale if in combat. Proposed by Max Nieuwenhuizen

Name	**Exotic Weaving**
DL	4
Pre-Req	Art 6

Recipe	N/A
Description	Exotic Weaving is a Village Activity (only one Tribe per Clan). Exotic Weavers may create Carpets, Rugs and Tapestries, incorporating techniques and legends unique to the region, for example, Cyberian Carpet. Each Clan can select one unique item. When sold at Exotic Trading Posts on the your continent, the items are nothing special and sell for the same price as normal Rugs, Carpets, and Tapestries (with the same limits as per a Fair). However, if sold at an Exotic Trading Post on another continent, these Rugs, Carpets, and Tapestries bring twice the normal price (in Silver) or may be sold for Diamonds. If sold for Diamonds, the twice normal price in Silver is divided by 300, rounding down, to get the amount of Diamonds. If using Silk instead of Cotton these prices are tripled. There are Exotic Trading Posts that buy Exotic Woven items on other Continents. TABLE Once three Tribes have completed Exotic Weaving they will be considered to be members of the Exotic Weavers Guild (an exclusive Guild). At this point the Guild must elect a Guild leader who must place a paper Element in Shanghai (without a Guild leader the Guild will collapse but may be re-established any time a leader comes forward). This Element may trade as a Shanghai Element but may only deal in exotically woven goods. Should further Tribes develop the research membership in the Guild will be determined by Auction (Gold) once per year for the year. A Clan may not belong to more than one exclusive Guild.

ITEM	SKILL	PEOPLE	COTTON/ SILK	SILVER
Carpet	6	12	50	10/20
Rug	4	6	20	20/40
Tapestry	8	25	100	25/50

Name	**Loom**
DL	6
Pre-Req	N/A
Recipe	1 Loom: People 5, Logs 10, Ropes 10, Parchment 100, Silver 1000, Iron 50 1 Loom: People 5, Logs 10, Ropes 10, Parchment 100, Silver 1000, Bronze 50 1 Loom: People 5, Logs 10, Ropes 10, Parchment 100, Silver 1000, Brass 50
Description	Workers using a Loom can produce Brocade which may be sold for Gold (and other valuable commodities) at NPC towns (not at Fair). 2 people using a Loom can turn 100 Silk and 1000 Cotton into 100 Brocade (which will sell for around 50 Gold). It is unlikely that any one town will have such demand but the buying of 20-40 Brocade will be usual. Only 2 people per Tribe with Sew10 may produce Brocade each month.

Whaling

Name	**Whaler**
DL	6
Pre-Req	N/A
Recipe	1 Whaler: People 160, ShB9, Wdw8, Mtl7, Logs 160, Brass 40, Coal, 200, Sheath 150, Silver 3000, Leather 30, Cloth 15, Rope 20, Oars
Description	Increases size of catch (but not the chances).

ShipB	Wd	Mtl	Logs	Brass	Coal	Sheath	Silver	Leather	Cloth	Rope	O/P
9	8	7	160	40	200	150	3000	30	15	20	O

	Sail Movement				Row Movement				

Vessel Type	MP	Nav	Sea	Sail	Crew	MP	Nav	Sea	Row	Crew	MEF	Sail	Hull	Max People
Whaler	20	2	2	4	10+7	15	.5	.5	2	20+7	4	16	16	60

Defense Points: 16
Cargo: 20,000
Weight: 20,000

Woodwork

Name	**Barge Poles**
DL	2
Pre-Req	N/A
Recipe	1 Barge Pole: People 4, Wd 6, Mtl 4, Logs 1, Iron 10, Bones 10,
Description	Barge Poles are highly decorative but functional poles used by barge-hands (Barges) to move through swamp as if it were water. A Barge with one Barge Pole per Crew may treat a Swamp hex as Lake and Swamp hex sides as River for the purposes of barge movement (ferrying) and Special Barge Movement. Each hex of Swamp counts as 2 lake hexes for movement costs and each Swamp hexside counts as 2 river hexsides. Barge Poles have no effect on non-barge ship movement. Weight: 20 lbs each *The bone decorated poles help to ward off the evil spirits that congregate around the swamps while the barges traverse the fetid waters.*

Name	**Mining Ladder**
DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	(Also Under Mining, Metalwork and Mining) Each ladder (implement) doubles the base output of 10 people performing Mining and Digging (Clay, canals, sand, moats, etc.) activities before implements. Mining Ladders can be used in conjunction with other tools, but increases are additive and are not compounded. For example, 1 Miner with both a Pick and a Mine Ladder produces his base output x 3 (not x 4).

	These wood and metal ladders and ramps are used to for more advanced vertical mining
	and to facilitate the movement of personnel and ore up mine shafts when they occur due
	to following veins. These would not be standard wood ladders or ramps but would have
	iron reinforcement to handle the added weight of the ore and wagons. We have called it
	Mining Ladders research to shorten the name but it would really be both ladders and
	ramps.
	1 Mining Ladder weighs 50 lbs.

Name	**Roman Crane (Also under Engineering)**
DL	7
Pre-Req	N/A
Recipe	1 Roman Crane: People 6, Eng8, Wdw10, Logs 20, Iron 40, Rope 10
Description	Description: Wood crane comprised of a modest size boom, a base plate, and a large diameter barrel shaped "wheel" on its side built around and attached to a centre axle (like a hamster wheel). One or more people walk inside the wheel providing mechanical power to drive the winch and thereby raising or lowering loads.
	Benefit: Increase worker productivity by 50% on Engineering projects and Shipbuilding so 2 workers do the work of 3. Each crane enables up to 20 workers to gain benefit. The Crane applies to raw workers that is, before other items such as Wheelbarrows. Player must show equivalent workers in their orders. Cranes are inventory item and transportable once constructed and thus may be used by Clans without the research.
	Proposed by Brian Whitesell

Name	**Scaffolding**
DL	*See Engineering
Pre-Req	*See Engineering
Recipe	*See Engineering
Description	*See Engineering

Name	**Trellis**
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	Woodwork Activity Requires Farm 6 to use Trellis to reduce AM for grape harvesting A structure to support vines and hold them in optimal position to encourage growth and enable easier harvesting of the grapes. The trellis can be installed on a vineyard (during or after planting) and then is permanently associated with that acreage. Trellis can be built for another clan if the unit is permitted into their village hex, but once built cannot be moved. The effect of a trellis is reducing the work required harvesting grapes to 1/4 of normal. In other words, 1 person can harvest up to 4 acres of grapes which have trellis installed. Combines lineally with other research (so treat as +3 workers not x4, if in conjunction with other research). Players need to track the trellised acres and show effective workers adjusted

	for trellis in their orders, for instance show 100 workers harvesting 400 trellised acres as 400 effective workers.

Name	**Wain**
DL	4
Pre-Req	N/A
Recipe	1 Wain: People 15, Wdw4, Logs 15
Description	Woodwork Activity Holds 5000 lbs (2500 when scouting). Has same restrictions as Wagons. 4 Animals to Pull. Weight: 600 lbs

Name	**Wheelbarrow**
DL	4
Pre-Req	N/A
Recipe	1 Wheelbarrow: People 2, Wdw5, Logs 2
Description	Woodwork Activity (only) Coded A worker with a wheelbarrow increases Mining, Engineering output by 50%. Doubles Quarrying output. Weight: 50 lbs

Notes

Topics with multiple DL's (and others that relate DL level to the recipient) cannot be changed once commenced. For example, if you have commenced a Topic and picked the 'Affects Tribe Version' and are DL3 of 7 for the Tribe, you cannot then decide to change this to DL3 of 9 Clan wide version of that topic. Clan wide must be commenced as a separate project. However, Tribe wide is not a prerequisite for Clan wide so you can begin your research by going straight for Clan wide or Religion wide.

Capped Topics

[See Tribe News](#)

Scrolls/Relics

These will be required for some topics. A Scroll is more likely to be required for items that use materials, a Relic for items that do not. Scrolls and Relics are found around the hexes, but they are rare.

Restricted Topics

When introduced these will be available only to Clans that have started the game more recently and/or be specific to Continents.

Orders for Research Attempts

Showing Research Topics that are yet to be started in Red is a big help to me. Your Orders might look something like this (the serious researcher will eliminate text in grey altogether):

Tribe	Primary	Secondary	Research (with University)
0500			Politics: Government Level 3 (DL2 to DL3)

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			Engineering: Stone Wall 25' (DL1 to DL2)
			Leadership: Leadership 11 (DL3 to DL4)
			Research: Attempting: Research Team
			Mining: Attempting: Mining Ladder
			Politics: Attempting: GL3
1500			Apiarism: Breed New Queens (DL4 to DL5)
			Refining: Attempting: Coke
			Forestry: Attempting: 6 Logs per
			Dancing: Attempting: Springs Arts Festival
2500			Quarrying: 7 stones per person (DL2 to DL3)
3500			Economics: Market Place (DL3 to DL4)
			Herding: Herding 11 (DL0 to DL1)
			Hunting: Attempting: Hunting 11
			Music: Attempting: Springs Arts Festival