

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	
	Additions	Revisions
06/17/20	<p>Destroy Roads: Added to Engineering. Hand Plane: Added to Woodworking Mercenary Training: Added to Literacy Roads: Added to Engineering</p>	<p>Bagpipes: Added weight Basket: Added weight Blade Shears: Added weight Brickmold: Added weight Brocade: Added weight, updated Pre-Reqs Cupcake: Added weight Epic Tapestry: Added weight Fake Royal Seal: Added weight Flax: Added weight Holy Artefact: Added weight Juniper: Added weight Katana: Added weight Loom: Added weight Machete: Added weight Marble Statue: Added weight Medicine Tent: Added weight Pastry: Updated bonus application Saw: Added weight Scimitar: Added weight Sensai: Updated notes regarding Mercenaries Sewers: Removed Sewers from Economics and put into Engineering where it belongs Steel: Added weight Stew: Added weight Tongs: Added weight Trade Route: Updated information about Waystations. Triball Club: Added weight Ulfberht: Added weight</p>
5/10/2020	<p>Animal Training: Added to Herding Anvil: Added to Metalworking Apiology I, Apiology II, Apiology III: Added to Apiarism Athanor: Added to Alchemy Blasting Jar: Updated information about Siege Cannons, Added weight Blasting Powder: Added to Alchemy Carnivale: Clarified Fair replacement Circus Troupe: Added to Dance Demolitionists I, II, III: Added to Engineering Distillers' Guild: Added to Distilling</p>	

	<p>Equestrianism: Added to Horsemanship Exhibition: Added to Archaeology Exhibition Curators: Added to Archaeology Gin: Added Gin to Distilling Great Canal: Added to Engineering Greater Masons: Added to Quarrying. Hammer Mill: Added note about Item vs Building Improved Stable Builders: Corrected research name Inactive Quarriers: Added to Quarrying Juniper: Added Juniper to Farming Local Money Changer: Added to Banking Magnificent Exhibition: Added to Archaeology Milking 11: Added Milking 11 to Milking Quarry Ladder: Added to Quarrying Relic 3: Added to Archaeology Resilience I, II, III: Added to Leadership Rousing Speech: Added to Leadership Sailing 11: Added to Sailing Seam Wedges: Added weight, updated Mining entry to mirror Metalwork entry Second Site: Added to Archaeology Second Site Relic 1,2,3: Added to Archaeology Sentry Duty: Added to Garrisons Sewers: Added to Engineering, Stonework and Sanitation Siege Cannon: Updated ammo requirements Site Survey II: Added to Scouting Stone Fords: Added to stone work Tongs: Added to Metalworking</p>
February 9th, 2020	<p>Astral Navigation: Updated display of DL and Pre-Reqs for Astronomy/Navigation Goods Tribe Economic Zone: Added to Economics Improved Stable Builders: Added to Engineering Oilmill: Added to Milling Quarry Blocks: Added to Quarrying Windmill: Updated restriction for quantity per hex</p>
January 9th, 2020	<p>Angora Goats: Added to Herding Bargemen's Guild: Changed wagon requirement to barge requirement Blade Shears: Added to Metalworking Brickmolds: Added to Brickmaking Exotic Seekers II: Added to Seeking Exotic Seekers III: Added to Seeking Greater Brickmaking: Added to Brickmaking Improved Fence Builders: Added to Engineering Librarian: Added clarification text. Local Guard I, II, III: Added to Mobilization Local Guard Training I, II, III: Added to Mobilization Merchant Navy Guild: Revised text about exclusive guilds.</p>

	<p>Saw Mill: Added to Milling and Forestry The Lighted Dome of Iron and Stone: Added to Brickmaking Veterans Class I: Added note about limitations Water Tank: Updated description</p>
<p>December 2nd, 2019</p>	<p>Ambush: Added Ambush to Tactics Architecture: Verbiage has been added that the Scroll required is lost. Army: Added updated pre-req. statement Assault Troops: Corrected spelling of specialized Barber Surgeons: Added Barber Surgeons to Healing Battlefield Medicine: Added Battlefield Medicine to Healing Battlefield Medics: Added Battlefield Medics to Healing Blasting Jar: Updated text to mention Blasting Jars vs BP Board of Trade: Changed way to track movement along Trade Routes. Camp Medics: Added Camp Medics to Healing Canal: Modified requirement for Wagons and Animals. Castle: Clarified requirement to start castle research Drawbridge: Revised recipe to add number of people required Drydock: Added Drydock to Shipwright Elephants: Added text about calculating output from Seeking. Extra Tribe: Added Note about informing GM once completed Feudal Security: Verbiage has been added that the Scroll required is lost. Fortress: Verbiage has been added that the Scroll required is lost. Golden Age: Verbiage has been added that the Scroll required is lost. Heraldry: Verbiage has been added that the Scroll required is lost. Keep: Updated Keep to cover additional utility. Local Trade Routes: Removed silver cost for transfers and rewrote for clarity. Managed Plantations: Updated transfers from yearly to monthly Medical Tent: Added Medical Tent to Sewing Music in the Field: Added Music in the Field to Music Native Operator: Added Note about informing GM once completed Naval College: Corrected spelling of ensures Pastry: Added Skill Requirement and Notes. Removed excess comma Propolis: Corrected typo Research: Verbiage has been added that the Scroll required is lost. Research Team: Verbiage has been added that the Scroll required is lost. Sappers: Updated Sappers with the missing information regarding values Scholar: Added Note about informing GM once completed Scimitar: Updated recipe to match database / steel entry Sea Borne Trade Route: Reinforcement Note from GM to Sea Borne Trade Route. Sensei: Verbiage has been added that the Scroll required is lost. Sensei Don: Verbiage has been added that the Scroll required is lost. Slave Crews: Clarified limit to slaves available in combat Slave Crews II: Added Slave Crews II to Heavy Weapons Steel: Modified description to list out items and clarified Sword cost. Toll Gate: Added the calculated people requirements to build a Toll Gate. Trade Camps: Revised to clarify additional unit types that may be utilized.</p>

	<p>Trade Routes: **Trade Routes have been majorly revamped in creation and utilization**</p> <p>Training: Corrected spelling of description text</p> <p>Trellis: Added a weight section. They are not meant to be mobile.</p> <p>Veterinarian Medicine: Verbiage has been added that the Scroll required is lost.</p> <p>All Pre-Req: Added a clarification word to most topics that require completed research to indicate that the requirement was a research topic that the tribe must have prior to commencing the new research.</p>
July 8 th , 2019	<p>Castle: Updated description text to allow Miming while utilizing Castle. Villages may no longer mine during a siege either.</p> <p>Expanded Horizons: Added to Diplomacy and Economics.</p> <p>Expanded Horizons II: Added to Diplomacy and Economics.</p> <p>Fast Fleets: Updated description to correct doubling example.</p> <p>Federal Community of Clans: Added FCC to Leadership</p> <p>Junior Officer: Updated benefit to remove fringe cases where Junior Officer had no actual effect on combat.</p> <p>Professional Sailor: Removed requirement of Expert Sailors</p> <p>Relic 2: Added Relic 2 to Archaeology.</p> <p>Scout Posts: Added Scout Posts under Engineering and Scouting</p> <p>Siege Marshall: Added Siege Marshall to Leadership</p> <p>Trawler: Updated text about effect of Trawler.</p> <p>Trellis: Updated weight of Trellis.</p> <p>Trusted Maps: Added Trusted Maps under Leadership</p> <p>War College: Removed reference to Military Orders and notifying GM (code autocalculates)</p>
May 6 th , 2019	<p>Agent: Added Agent to Administration.</p> <p>Basket: Added weight</p> <p>Barterer: Fixed name from Barter to Barterer in entry.</p> <p>BioWar: Added BioWar to Sanitation</p> <p>Bureaucracy: Added Bureaucracy to Administration</p> <p>Charring Specialists: Changed name to Improved Charcoal Making under Forestry to avoid misunderstandings between specialists via Skill Level 11 and this topic effect.</p> <p>Entrepot: Cleaned up verbiage and added example</p> <p>Fast Fleet: Added restriction to cumulative bonuses</p> <p>Horsebows: Removed topic due to change in rules allowing use if they are in inventory.</p> <p>Inactive Players: Added Inactive Players to Triball</p> <p>Large Teams: Added Large Teams to Triball</p> <p>Machete: Added weight</p> <p>Merchant Navy Guild: Added Merchant Navy Guild to Economics</p> <p>Off Season: Added Off Season to Triball</p> <p>Roman Crane: Changed DL for Roman Crane from DL 7 to DL 6 for Woodwork topic. Updated entries to add Weight.</p> <p>Sea Borne Trade Route: Added Note from GM to Sea Borne Trade Route.</p> <p>Second Caravan: Added Second Caravan to Economics</p> <p>Seek Population: Added Seek Population to Seeking</p> <p>Siege Sanitation: Added Siege Sanitation to Sanitation</p>

	<p>Triball Club: Added Triball Club to Triball Triball Guild: Added Triball Guild to Triball. Trusted Maps: Added Trusted Maps to Economics. Zealots: Removed from Politics.</p> <p>Note: The January 13th, 2019 revision does not appear to have been sent out by the GM. Review the January 13th, 2019 revision list below for the rest of the changes.</p>
January 13 th , 2019	<p>Barterer: Added Barterer to Courier Castle: Added bonus specified in Mandate section 3.13 Cupcakes: Added Cupcakes to Baking Trade Camps: Added Trade Camps to Economics Felucca Class I: Added Upgrade topic Felucca Class II to Shipbuilding Field Marshall: Updated bonus to Generalship. Generalship: Updated bonus to Leadership. Heart of Oak: Added Heart of Oak topic to Navigation, Sailing and Seamanship Holy Artefact: Removed Religion 10 Requirement Large Orders: Added Large Orders to Couriers Minting: Fixed Typo in Description Negotiator: Added Negotiator to Courier NPC Exchange: Added NPC Exchange to Banking Palace: Added bonus specified in Mandate section 3.13 Religion: Removed entire Religion section Revision Change History: Corrected Import Mission entry in August 12th, 2018 entry Saltpetre Refining: Revised Recipe display Smart Herding: Revised Smart Herding Horse benefit due to code consolidation Way Bread: Waybread added to baking Yeast: Added note that it is only effective when using Flour.</p>
August 12 th , 2018	<p>Bargemen's Guild: Added Bargemen's Guild to Economics Blasting Jar: Updated requirements, fixed recipe format, added information as to where Saltpetre comes from. Board of Trade: Rewrote to be clearer about bonuses, requirements and costs Castle: Added text about not being able to build for another Clan and adding limit of one castle per Clan. Circumvallation: Added Circumvallation to Generalship Expanded Scouting: Added Expanded Scouting to Scouting Field Intelligence: Added Field Intelligence to Intelligence. Fords: Added a missing letter Head Librarian: Added Head Librarian to Research. Hire Mercenary Guard: Added Hire Mercenary Guard to Intelligence Import Mission: Added Import Mission to Politics Librarian: Added Librarian to Research Log Driving: Added Log Driving to Forestry Native Operative: Added Native Operative to Intelligence Scholar: Added text about repeatability of Scholar research. Sea Borne Trade: Updated based upon Game Master request</p>

	<p>Siegecraft: Added Siegecraft to Engineering</p> <p>Trade Route: Added information about map assistance. Clarified use of Trade route by Trade Element to not be viewed as offering another Element beyond the e9.</p> <p>Traders Guild: Revised note regarding Guild membership.</p> <p>Two Hex Ferry: Added Two-Hex Ferry to Rowing and Sailing</p>
May 4 th , 2018	<p>5 Logs/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>6 Logs/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>7 Logs/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>8 Logs/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>6 Stones/Person: Added Text from Master Coder</p> <p>7 Stones/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>8 Stones/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>9 Stones/Person: Confirmed Pre-Requisites are previous levels, not on original document. Added Text from Master Coder</p> <p>Absinthe: Added Text from Master Coder</p> <p>Alliance MOTC: Added Alliance MOTC research topic to Diplomacy and Leadership</p> <p>Apiaries with Reusable Frames: Added Text from Master Coder</p> <p>Appropriate Mining Tool: Added Text from Master Coder. Followup clarification needed</p> <p>Astral Navigation 1: Added Text from Master Coder</p> <p>Barbican: Added note that Barbicans built for other Clans may be used by other clans.</p> <p>Barge Poles: Added Barge Poles research topic to Shipbuilding and Woodwork</p> <p>Bascinet: Added Text from Master Coder</p> <p>Basket: Added Text from Master Coder</p> <p>Board of Trade: Fixed the numerical example to reflect actual BoT rules</p> <p>Branded Alcohol: Added clarification that each alcohol is a separate research topic</p> <p>Branded Alcohol: Added clarification that branded alcohol may be traded</p> <p>Breed New Queens: Updated benefit. Added Text from Master Coder.</p> <p>Bronze Statue: Added Text from Master Coder</p> <p>Brothel: Added Text from Master Coder</p> <p>Burner Improvement: Added Burner Improvement research topic to Forestry</p> <p>Bush Lore: Fixed Bush Lore 3 bonus</p> <p>Capital: Modified ability 3</p> <p>Catapult: Added Text from Master Coder</p> <p>Chain Barding: Added Text from Master Coder</p> <p>Colosseum: Added text that it may be built for and used by other Tribes / Clans.</p> <p>Crossbow: Added Text from Master Coder</p> <p>Dairy Cattle: Added Dairy Cattle research topic</p> <p>Drawbridge: Added note about use of Drawbridges by other Clans. Master Coder.</p> <p>Dungeon: Added text that it may be built for and used by other Tribes / Clans.</p> <p>Extra Movement 4: Added Text from Master Coder</p>

Extra Movement 6: Added Text from Master Coder
Fences: Added Text from Master Coder
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

	<p>Ulfbehrst 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</p> <p>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</p>
April 8 th , 2018	<p>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 Diplomatie: 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</p>

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	Agent
DL	2
Pre-Req	N/A
Recipe	N/A
Description	<p>The Tribe that possesses this research gains access to learning the Agent skill (Group B). Each level of Agent skill allows the tribe to place a 1 person unit in a Trade Village. Agents cannot move on their own, therefore the clan must transport the Agent unit and place them in the Trade Village. If the transporting unit is an element of the tribe with this research, the agent unit may be spawned in the Trade Village instead.</p> <p>Agents buy and sell at the trade village on the tribe's behalf. Goods are bought and sold normally at the Trade Village. Goods bought and sold at the Trade Village must be picked up and delivered by other units as the Agent may not move on its own. The Agent need not travel with the goods.</p> <p>Agents cannot perform any activities and cannot scout. They consume Provs and so must be supplied or they will starve to death.</p> <p>Note: Trade Villages are listed on the TribeNet website.</p>

Name	Bureaucracy
DL	1,2,3
Pre-Req	Bureaucracy 1: N/A Bureaucracy 2: Bureaucracy 1 (Administration research)
Recipe	N/A
Description	<p>Bureaucracy adds levels to your Administration Skill.</p> <p>Bureaucracy 1 adds one level (for example, Administration 10 to Administration 11) Bureaucracy 2 adds 3 levels (for example, Administration 11 to Administration 14) Bureaucracy 3 adds 5 levels (for example, Administration 14 to Administration 19).</p> <p>Once Bureaucracy 1 Research Topic has been achieved, the Tribe may learn a new skill, Bureaucracy (Group C). Once Bureaucracy skill reaches 10, further Bureaucracy research topics (4,5,6) may be researched under the Bureaucracy skill. Each Bureaucracy research topic (4,5,6...) adds 6 Levels to the Administration skill.</p>

Name	Extra Element
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Entitles the Tribe to an immobile Element (Garrison = cost \$0.70). The Garrison may move in order to take up its 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). <u>HOWEVER, only once per year</u> may the scouting patterns be changed. Useful when used in combination with Outpost.</p> <p>May be taken 3 times per Tribe</p>

Name	Extra Movement 4
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Adds 4 MV points to the Tribe's movement. Applies to Elements (but not Fleets).</p> <p>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)</p>

Name	Extra Movement 6
DL	4
Pre-Req	Extra Movement 4 (Administration 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	Access to Saltpetre
Recipe	1 Blasting Jar: People2, Jar 1, Sulphur 4, Saltpetre 10
Description	<p>Activity under Weapons (Wpn1). Also requires Qry10. Used in Siege Artillery (see below)</p> <p>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 Blasting Jars (and with 100 tools), 20 Wagons, 10 Cattle/Horses will do the same job. Blasting Jars are sent to usage once used.</p> <p>Siege Artillery: Siege equipment may require Blasting Jars or better. Blasting Jars are considered the base ammo requirement. Other ammo may provided enhanced abilities.</p> <p>“A Tribe that wants to learn Blasting Jar needs access to Saltpetre but does not need the research itself”.</p> <p>Sulphur may be obtained from mining at Volcanoes. All Volcanoes have Sulphur. If your personal Volcano does not, contact the GM. Saltpetre may be obtained from research in Refining or Farming</p> <p>Weight: 10 lbs</p>

Name	Blasting Powder
DL	6
Pre-Req	Blasting Jar (Alchemy research)
Recipe	1 Blasting Powder: People 1, Alc 10, Blasting Jar 1, Saltpetre 20
Description	<p>Activity under Weapons (Wpn1). Also requires Qry10. Used in Siege Artillery (see below)</p> <p>Beyond making preset Blasting Jars, the Tribe and its elements with this research may create Blasting Powder instead. Blasting Powder is a more shelf stable but also more versatile version of Blasting Jars.</p> <p>Benefits:</p> <p>1) Digging: Blasting Powder increases the effects of Blasting Jars. 1 Worker with 1 Blasting Powder counts as 20 Effective Warriors.</p>

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2) Siege Equipment: Defender defensive factor bonus is reduced by 25 base instead of 20% as per Blasting Jars.

Note: Regular Blasting Jar has an AM cost of approximately 5.81 and provides +9 AM for a total of 3.19 AM boost. Blasting Jar requires an additional 3 AM for a total of 8.81 AM cost and provides 19 AM for a total boost of 10.19 AM.

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	Apiology I, Apiology II, Apiology III...
DL	1, 2, 3
Pre-Req	Apiology 11 (Apiarism research)
Recipe	N/A
Description	Apiology may be attempted at Api 11. The effect of gaining an Apiology topic is to add levels to your Api Skill. Api1 adds one level (for example, Api11 to Api12), Api2 adds 3 levels (for example, Api12 to Api15), Api3 adds 5 levels (for example, Api15 to Api20). Once Apiology 1 Research Topic has been achieved, the Tribe may learn a new skill, Apiology (Group C). Once Apiology skill reaches 10, further Apiology research topics (4, 5, 6...) may be researched. Each Apiology research topic (4, 5, 6...) adds 5 Levels to Apiarism skill. Books may be written.

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, BAK 4, 10 honey, 20 flour and 1 Coffee B) Baklava & Tea – 2 people, BAK 4, 10 honey, 20 flour and 1 Tea C) Napoleon & Coffee - 2 people, BAK 4, 10 sugar, 20 flour and 1 Coffee D) Napoleon & Tea - 2 people, BAK 4, 10 sugar, 20 flour and 1 Tea
Description	Pastries cover a wide variety of desserts made with honey/sugar and flour. Making luxury

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	<p>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 Clan no more than once per Year. Pastry is served to ONE specified Tribe within a Clan.</p> <p>This Tribe gains +0.04 in Morale and another co-located Tribe within the same Clan gains +0.02. The recipes shown above lists what is needed to serve 100 people. Thus, if the population (W/A/I) of the ONE specified Tribe is 5,000, 50 Baklava & Tea (consuming 500 Honey, 1,000 Flour and 50 Tea) would be required.</p> <p>Note that any number of other Clans may be served so long as the above requirements are met. The Unit that is creating the Pastry must have Baking 4. Pastries need to be transferred in the AutoOrders to 1263.</p> <p>Note to Players: Players are required to keep their own records of which units have been served Pastry and when. It is recommended that this be kept as a running track in the notes/comments tab for easy review as needed.</p> <p>Players should indicate to the GM in Comments which Tribes are receiving Morale increases.</p>
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Name	Propolis
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>Tribe may collect Propolis from Hives. Reddish Waxy 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</p>

Name	Breed New Queens
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>(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.</p>

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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

Major Updated NOTE (Should/When this affects you, please let the GM know):

- 1) Player Artefact Sites no longer give an item with the name “Artefact”
- 2) When an Artefact site is created, the Clan Chief gives the Artefact Site a name “Mesopotamian” or “Blue Sky” or some other name that signifies what they’re calling the people the artefact site once belonged to.
- 3) When excavating, the item that the excavator receives is now called “Artefact <Name from #2>” and “Relic <Name from #2>”. For example, “Artefact Mesopotamian” or “Relic Blue Sky”.
- 4) NPC Relic sites that provide “Relics” now provide a Relic with a name unique to that site.
- 5) These now named Artefacts/Relics are all identical and meet the requirements for all topics/uses that require a standard Artefact / Relic.

Name	Exhibition
DL	5
Pre-Req	Museum Art 6 Literacy 6
Recipe	1 Exhibition: People 27, Eng 6, Log 50, Iron 10, Stone 5
	<p>On completion of the research an Archaeology tribe gains the ability to install a single Exhibition in their Museum. To do this, a unit from the tribe with Exhibition must build the Exhibition building (Joint project rules apply). Once the Exhibition building is built, the Clan may now populate the Exhibition with Artefacts.</p> <p>Requirements:</p> <ol style="list-style-type: none"> 1) The Site must have a Museum with an Exhibition built 2) The Exhibition may only be built in a Home City. <p>Restrictions:</p> <ol style="list-style-type: none"> 1) An Exhibition may only hold a single Artefact from each site. For example, “Artefact Blue Sky” and “Artefact Mesopotamian” would count as two separate Artefacts but if two “Artefact Blue Sky”s were held, it would only count as 1 Artefact. 2) An Exhibition must contain at least 5 unique Artefacts before any benefits are gained. <p>Benefits:</p> <ol style="list-style-type: none"> 1) Annual Display: Immediately upon reaching 5 unique Artefacts, and then annually on the anniversary of the founding of the Home City that contains the Exhibition, the Exhibition provides a bonus to the Tribe operating the Museum. <ol style="list-style-type: none"> a. Annual Morale Increase: During the Annual Display, the Tribe that operates the museum gains a Civilian Morale increase based upon the number of Unique Artefacts it holds at that time in inventory (or via Goods Tribe relationship).

	<ul style="list-style-type: none"> i. 5-9 Unique Artefacts: 0.010 Civilian Morale increase ii. 10-14 Unique Artefacts: 0.015 Civilian Morale increase iii. 15-19 Unique Artefacts: 0.020 Civilian Morale increase iv. 20-24 Unique Artefacts: 0.025 Civilian Morale increase v. 25+ Unique Artefacts: 0.030 Civilian Morale increase <p>b. Annual Population Gain: During the Annual Display, the Tribe that operates the Museum gains a number of Actives that join the Tribe from the surrounding countryside.</p> <ul style="list-style-type: none"> i. 5-9 Unique Artefacts: 5 Actives per Artefact ii. 10-14 Unique Artefacts: 5 Actives per Artefact iii. 15-19 Unique Artefacts: 10 Actives per Artefact iv. 20-24 Unique Artefacts: 10 Actives per Artefact v. 25+ Unique Artefacts: 15 Actives per Artefact <p>c. Annual Auxiliary Gain: During the Annual Display, the Tribe that operates the Museum gains a number of Auxiliaries that join the <u>Home City</u> from the surrounding country side. These Auxiliaries join whichever unit, if any, that already has Auxiliaries from Local Support. If no unit currently has Auxiliaries, they can join any unit at the Home City. These are standard Auxiliaries per the Local Support rules.</p> <ul style="list-style-type: none"> i. 5-9 Unique Artefacts: 0 Auxiliaries per Artefact ii. 10-14 Unique Artefacts: 5 Auxiliaries per Artefact iii. 15-19 Unique Artefacts: 5 Auxiliaries per Artefact iv. 20-24 Unique Artefacts: 10 Auxiliaries per Artefact v. 25+ Unique Artefacts: 10 Auxiliaries per Artefact <p>Note: The Exhibition may not be built for other Clans. A Tribe must hold the research to operate an Exhibition.</p> <p>Note 2: Players are responsible for keeping records of the Annual Display and informing the GM when the anniversary benefits should be applied.</p>
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Name	Exhibition Curators
DL	5
Pre-Req	Museum Exhibition (Archaeology research) Literacy 8
Recipe	N/A
	<p>On completion of the research, the Archaeology Tribe that operates the Exhibition and Museum may deploy additional resources to increase the popularity and effectiveness of their Exhibition.</p> <p>Requirements:</p> <p>1) Curators: The Tribe that operates the Exhibition/Museum must deploy 1 Active to act as Curator per unique Artefact held by the Exhibition (in the</p>

inventory of the Archaeology tribe) every month throughout the year.

Benefits:

- 2) Annual Display: The Exhibition Curators provide additional bonuses during the Annual Display.
 - a. Annual Population Gain:
 - i. 5+ Unique Artefacts: +5 Actives per Artefact
 - b. Annual Auxiliaries Gain:
 - i. 5+ Unique Artefacts: +10 Auxiliaries per Artefact
 - c. Admission Fees: The Auxiliaries that join the Clan from Exhibition and Exhibition Curators also provide a donation to the operation of the Museum and its Exhibition. The Player will gain Silver based on the number of Locals, or if the Player has Minting research completed, they may gain Coin instead.
 - i. Silver Gain: Each of the Auxiliaries gained during the Annual Display provides 200 Silver.
 - ii. Coin Gain (Alternate if Minting Research): Each of the Auxiliaries gained during the Annual Display provides 2 Coin.

Example 1: If the Tribe has 10 Unique Artefacts in the Exhibition, then it would normally gain 5 Actives / Unique Artefact * 10 Unique Artefacts = 50 Actives during the Annual Display and would gain 5 Auxiliaries / Unique Artefact * 10 Unique Artefacts = 50 Auxiliaries during the Annual Display. With Exhibition Curators, it would also gain an additional +5 Actives / Unique Artefact => +50 Actives, and +10 Auxiliaries / Unique Artefact => +100 Auxiliaries for a total of 100 Actives and 150 Auxiliaries. To gain this, it is spending 10 AM / month for a total of 120 AM per year.

Example 2: 25 Unique artefacts. Normally, 25 * 15 Actives gained = 375 Actives. With Exhibition Curators, this adds another 25 * 5 = 125 Actives for a total of 500 Actives gained. Additionally, 25 * 10 Auxiliaries gained = 250 Auxiliaries. With Exhibition Curators, this adds another 25 * 10 = 250 Auxiliaries for a total of 500 Auxiliaries gained. To gain all this, the Tribe is utilizing 25 AM per month for a total of 300 AM per year as Exhibition Curators.

Name	Magnificent Exhibition
DL	5
Pre-Req	Museum Exhibition (Archaeology research) Exhibition Curators (Archaeology research) Art 8
Recipe	1 Magnificent Exhibition (Building): People 27, Eng 6, Log 50, Iron 10, Stone 5 1 Enhanced Magnificent Exhibition (Building): Any 5 of the following: Pearls 5, Kaolin 5,

	Brocade 2, Ivory 10, Relic 1, Holy Artefact 1, Camels 2, Falcons 2, Branded Alcohol 1 Barrel, Epic Tapestry 1
	<p>On completion of the research an Archaeology tribe may build a Magnificent Exhibition adjoining the normal Exhibition. Once built and all materials are sent to usage, the Annual Display gains increased benefits.</p> <p>Benefits:</p> <ol style="list-style-type: none"> 1) Annual Display: The Magnificent Exhibition provides additional bonuses during the Annual Display. <ol style="list-style-type: none"> a. Annual Population Gain: <ol style="list-style-type: none"> i. 5+ Unique Artefacts: +5 Actives per Artefact b. Annual Auxiliaries Gain: <ol style="list-style-type: none"> i. 5+ Unique Artefacts: +10 Auxiliaries per Artefact c. Admission Fees: The Auxiliaries that join the Clan during the Annual Display also provide a donation to the operation of the Museum and its Exhibition. The Player will gain Silver based on the number of Locals, or if the Player has Minting research completed, they may gain Coin instead. Additionally, the Player has the option to gain Gold instead. <ol style="list-style-type: none"> i. Silver Gain: Each of the Auxiliaries gained during the Annual Display provides 250 Silver (instead of the 200 from Exhibition Curators). ii. Coin Gain (Alternate if Minting Research): Each of the Auxiliaries gained during the Annual Display provides 3 Coin (instead of the 2 coin from Exhibition Curators) iii. Gold Gain (Alternate Choice): Each of the Auxiliaries gained during the Annual Display provides 0.5 Gold. 2) Enhanced Magnificent Exhibition: If the Tribe builds the additional Enhanced Magnificent Exhibition, the gains the following benefit. <ol style="list-style-type: none"> a. Annual Morale Increase: During the Annual Display, the Tribe that operates the museum gains a Civilian Morale increase based upon the number of Unique Artefacts it holds at that time in inventory (or via Goods Tribe relationship). This replaces the Civilian Morale increase from a standard Exhibition <ol style="list-style-type: none"> i. 5-9 Unique Artefacts: 0.015 Civilian Morale increase ii. 10-14 Unique Artefacts: 0.020 Civilian Morale increase iii. 15-19 Unique Artefacts: 0.025 Civilian Morale increase iv. 20-24 Unique Artefacts: 0.030 Civilian Morale increase v. 25+ Unique Artefacts: 0.035 Civilian Morale increase b. Holy Artefact: The Holy Artefact is now part of the Enhanced Magnificent Exhibition, but its abilities are still active. It still provides its 0.05 Morale to any one Tribe in the Clan.

Name	Relic
DL	2
Pre-Req	Tomb Robbers (Archaeology research)

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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	Relic 2
DL	3
Pre-Req	Relic (Archaeology research)
Recipe	N/A
Description	Works in the “Artefact” hex and is done by those already assigned to Excavation. Once per year a <i>second</i> Relic will be found (the first the turn after research is completed). Players need to indicate when their annual find is due.

Name	Relic 3
DL	4
Pre-Req	Relic 2 (Archaeology research)
Recipe	N/A
Description	Works in the “Artefact” hex and is done by those already assigned to Excavation. Once per year a <i>third</i> Relic will be found (the first the turn after research is completed). Players need to indicate when their annual find is due. Relic 3 is the maximum that can be researched for the main “Artefact” hex.

Name	Second Site
DL	5
Pre-Req	Excavation 8 (Skill)
Recipe	N/A
Description	The Tribe gains access to a second Ruin site within 30 hexes of the Tribe’s location. The Tribe may also gain a second bonus Archeology Element. This Ruin may be found on water (Ocean or Lake) in addition to other fairly inhospitable places like Mountains and Swamps. The Player will need to request the placement. Both Excavation Garrisons may gather Artefacts from archaeological sites in the same turn when they occupy different archaeological sites.

Name	Second Site Relic 1, 2, 3
DL	6, 6, 6
Pre-Req	Relic 3 (Archaeology research) and Second Site (Archaeology research)

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Recipe	N/A
Description	<p>Works in the “Second Site Artefact” hex and is done by those already assigned to Excavation. Once per year, one Relic per level of this research) will be found (the first the turn after research is completed). Players need to indicate when their annual find is due.</p> <p>Second Site Relic 3 is the maximum that can be researched for the second site Artefact hex.</p>

Name	Tomb Robbers
DL	7
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p>

Architecture

Name	Architecture 1
DL	8
Pre-Req	Eng10, Art10, Scroll1
Recipe	
Description	To be developed Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.

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	Yeoman 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

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

Name	Greaves
DL	4
Pre-Req	N/A
Recipe	People 2, Iron 4, Coal 25
Description	<p>New Activity under Armour</p> <p>Metal Leg Armour</p> <p>Weighs 10lb</p>

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

Astronomy

Name	Astral Navigation 1, Astral Navigation 2, Astral Navigation 3
DL	Astral Navigation 1 – 2 Astral Navigation 2 – 3 Astral Navigation 3 – 4
Pre-Req	Astral Navigation 1 – N/A Astral Navigation 2 – Astral Navigation 1 (Astronomy/Navigation research) Astral Navigation 3 – Astral Navigation 2 (Astronomy/Navigation research)
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	<p>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.</p> <p>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.</p> <p>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.</p>

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.

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	<p>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.</p> <p>Coat of Arms: 5lb Standard: 5lb</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>
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Name	Spring Arts Festival
DL	6
Pre-Req	N/A
Recipe	Amplitheatre: Eng8, Stones 10k, Cloth 1k, Silver 5k
Description	<p>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.</p> <p>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.</p> <p>Any Tribe (even those from another Clan) may build the Amphitheatre.</p> <p>No Books</p>

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

Name	Marble Statue
DL	3
Pre-Req	N/A
Recipe	12 People, Stn 6, Art 6, Marble 200

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Description	Marble Statues will serve as improvements to Palace etc. Stn6 must be held by the Tribe with the research. Weight: 500 lbs
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Baking

Name	Cupcakes
DL	2
Pre-Req	Bakery (Standard Building)
Recipe	60 Cupcakes: People 1, Baking 10, Flour 24, Sugar 2
Description	<p>Baking Activity. A Pacifier using 12 Cupcakes counts as 2 Pacifiers. Cupcakes are sent to usage.</p> <p>Weight: 0 lbs (Yes, 0)</p>

Name	Fine Bread
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>Baking Activity. Increases Bread Production by 50 percent. Flour/Grain consumption increases accordingly.</p> <ul style="list-style-type: none"> 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 (<u>for main Tribe only</u>). 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. <p>Not Coded</p>

Name	Waybread
DL	4
Pre-Req	N/A
Recipe	<p>6 Waybread: People 1, Grain 20 15 Waybread: People 1, Flour 40</p>
Description	<p>Baking Activity</p> <p>Waybread refers to a more nutrient dense bread that is much more complicated to bake, even if it doesn't take longer. Only master bakers obtain the knowledge to bake Waybread.</p> <p>Waybread may be baked from grain or flour, with flour being more efficient.</p> <p>The main advantage of Waybread over normal bread is that Waybread is more compact and thus can be transported easier. A unit of waybread, equivalent to 1 month of provs, weighs only 5 lbs vs the 10 lbs of normal provisions.</p>

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	<p>Waybread is only eaten after milk, fish, bread and normal provisions are exhausted, though it is eaten before cheese.</p> <p>Weight: 5 lbs</p> <p>Is Coded.</p>
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Name	Yeast
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>Baking Activity</p> <p>Increases Bread Production by 50 percent when using Yeast. This is calculated after any Specialists have been added. Please show the Activity as Baking Bread Yeast in your Orders (<u>for the main Tribe only</u>). When using Yeast in sub-Tribes you will need to show an extra 50% workers manually.</p> <p>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.</p> <p>Note, if you are baking and using Grain, you will not receive the 50% Bread Production as it will only come into effect if using Flour.</p> <p>Is Coded.</p>

Banking

Name	Local Money Changer
DL	2
Pre-Req	NPC Exchange (Banking research) NPC Exchange building
Recipe	N/A
Description	<p>Each Fair, an enterprising Local Group visits your NPC Exchange. They offer you a private exchange deal on any commodity as well as Coin, Silver and Gold that you may have.</p> <p>Benefits:</p> <ol style="list-style-type: none"> 1) The Exchange: A unit with this research and located at an NPC Exchange, may convert one type of commodity into another type of commodity with a slight loss of efficiency (See NPC Payout). 2) The Gain: The Unit selects a single Commodity per Exchange to gain. 3) The Cost: The Unit selects a single Commodity per Exchange to pay. 4) The Conversion: The Unit exchanges the cost commodity and gains an appropriate amount of Gain commodity based upon the conversion rate set by the Commodity sheet in relation to Hireling purchasing. A spreadsheet is available to make this easier. <p>Restrictions:</p> <ol style="list-style-type: none"> 1) Maximum Exchanges per Fair: You may make a number of Exchanges equal to your Clan's Fair multiplier. 2) Maximum Amount per Exchange: The maximum quantity of any single commodity gained is equal to the amount that the clan can pay for Hirelings at the fair in that commodity. 3) NPC Payout: The Local Group takes 10% of the exchange. This means the unit only receives 90% of the commodity for which the exchange is being made. 4) Unique: You may only make one exchange per Commodity in a single fair (you could not therefore gain Gold three times). <p>Example: Clan 999 has a Fair Multiplier of 3 due to having a Trading Post and a Home City. They have gained Local Money Changer research topic and it is Fair month. Clan 999 may make 3 transactions (due to the Fair multiplier of 3) during this fair in addition to their normal purchases/sales. It is currently year 815. For the first exchange, Clan 999 has a lot of Gold and desires Olives. Based on the year, the maximum number of Hirelings that may be gained in Fair with a multiplier of 3 is 510 hirelings. Every hireling costs 1 Olive (based upon a batch of 10 hirelings costing 10 Olives) so the maximum amount of Olives that may be exchanged for is 510. Clan 999 wants to spend Gold. It would require 51 Gold (1 Gold for 10 Hirelings) to gain 510 Hirelings thus the conversion ratio between Gold and Olives is 1 Gold : 10 Olives. Clan 999 sends 51 Gold to usage and gains Olives 510.</p>

Note: These trades do not use up a Fair slot.
 Note: There is a Local Money Changer spreadsheet available on the TribeNet website to make the conversion easier.

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 Minting Activity Mint Coin

Name	NPC Exchange
DL	DL6
Pre-Req	Banking 10 (Skill) Home City in clan Minting/Coin (Banking research) Administrative buildings
Recipe	1 NPC Exchange: People 820, Eng5, 4000 Stones, 200 Iron (Normal Install rates)
Description	<p>The NPC Exchange represents an economic link between a Home City and an NPC City.</p> <p>The link allows for automated trade between the NPC City and the Home City that is activated only during Fair months. The links exist independent of the normal Fair and other Trade Guilds, and any other transaction between the NPC City and the Clan.</p> <p>For the link to exist, an Exchange building must be physically built at the NPC City where the economic link is being established, and a Mint is required at the Home City.</p> <p>The Mint is an administrative building and is not required for making coins. It represents the Clan's commitment to administering a stable financial infrastructure and to gain the confidence of traders the world over.</p> <p>The only currency that can be used over the link is Coin. All items are bought using the universal exchange rate used for desired commodities for the Fair. For the purposes of NPC Exchange, Coin is considered on a par with Olives.</p> <p>The only items that can be bought are those items that are associated with the City.</p>

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The limit of a commodity that can be bought is equal to the limit given to couriers for an initial delivery (not the % that the courier gets for making the delivery). This amount remains consistent and can only be increased with further research.

There is no limit on the number of Exchanges a Home City can have at NPC Cities, but the Exchange must physically be built at the City. This can be done by any unit of the Clan with the required skills.

Only 1 Mint is required at the Home City to service all NPC Exchanges.

Brickmaking

Name	Advanced Brickmaking
DL	4
Pre-Req	Improved Brickmaking (Brickmaking research)
Recipe	Stone 60: 1 Person, Clay 20, Fodder 10, Coal 4, Silver 60
Description	<p>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.</p> <p>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.</p>

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

Name	Brickmolds
DL	5
Pre-Req	Improved Brickmaking (Brickmaking research)
Recipe	1 Brickmold: People 1, Wd 4, Logs 1, Iron 1, Coal 5
Description	<p>Woodwork activity</p> <p>A worker with a Brickmold counts as 2 people when using Brickmaking activity.</p> <p>Only 1 Brickmold may be used per worker.</p> <p>Brickmolds may be used by other Clans without the research.</p> <p>Weight: 60 lbs</p>

Name	Greater Brickmaking
DL	4
Pre-Req	Advanced Brickmaking (Brickmaking research) Improved Brickmaking (Brickmaking research)
Recipe	Stone 75: 1 Person, Clay 20, Fodder 10, Coal 4, Silver 75 Bricks 300: 1 Person, Clay 20, Fodder 10, Coal 4, Silver 75

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Description	<p>A tribe with this research knowledge has a better understanding of firing bricks; as a result they gain a 150% bonus towards production of Brick.</p> <p>Within a Brickworks, each person assigned produces 300 Bricks using 20 Clay* 10 fodder and 4 coal and 1 Silver per 4 Bricks. Orders are shown as Brickworks Stone Greater.</p>
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Name	Improved Brickmaking
DL	4
Pre-Req	N/A
Recipe	Stone 45: 1 Person, Clay 20, Fodder 10, Coal 4
Description	<p>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.</p> <p>Within a Brickworks, each person assigned produces 180 Bricks using 20 Clay* 10 fodder and 4 coal. Orders are shown as Brickworks Stone Improved.</p>

Name	The Lighted Dome of Iron and Stone
DL	8
Pre-Req	<p>Brickmaking 11 (Brickmaking research) Greater Brickmaking (Brickmaking research) Engineering 10 (Group C skill) Metalwork 10 (Group A skill)</p>
Recipe	1 Lighted Dome of Iron and Stone (LDIS 1): People 150k, Eng 10, Mtl 10, Brick 10, Art 10, Stone 6, Bricks 1.6M, Stone 500k, Iron 100k, Coal 500k, Logs 20k, Gold 1k, Silver 100k, Relic 1, Scroll 4
Description	<p>Engineering Activity</p> <p>A Tribe with this research gains the ability to create a wondrous engineering marvel called the Lighted Dome of Iron and Stone. The LDIS is a massive tower and building construct that raises hundreds of feet in the air. It is made of a structure of stone and iron with brick and iron facades and is gilded in silver and gold. At the top is a light created by a furnace that burns throughout the day and night, its light viewable for miles though not of an intensity to be used as a good lighthouse. The complex that surrounds the LDIS acts as a refuge for those who need solitude throughout the year, broken only by the annual celebration. These intellectuals who are harbored inside the LDIS are trained by the Tribe in the history and construction of the LDIS and slowly learn about its secrets.</p> <p>Upon Completion: * Clan Morale Bonus: Once constructed, the LDIS provides each</p>

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Tribe of the owning Clan that has a unit in the city a one time boost of +0.05 Morale (~~maximum 1.50 morale~~).

* **Other Clans:** Tribes from other Clans that have a Unit in the hex also benefit from the wondrous construction. At the cost of 100 Gold, the Tribe may send 100 actives to live and work in the complex (100 Actives are permanently removed). In return, they gain +1 Skill Level to one of the following skills (Maximum Level 8): Engineering, Brickmaking, Stonework, Metalwork, Art.

* **Local Support:** The LDIS counts as 2 Hamlets that do not need Longhouse Support provided that the Clan already has control of 4 Hamlets.

Annual Bonus:

* **Clan Morale Bonus:** Additionally, each year that the LDIS is operating, on the anniversary of the founding of the City where the LDIS is built, each Tribe from the owning Clan that has a unit present in the City gains an additional 0.02 Morale (~~maximum 2.00 morale~~).

* **Clan Knowledge Bonus:** Each year that the LDIS is operating, on the anniversary of the founding of the City where the LDIS is built, each Tribe from the owning Clan that has a unit present in the City gains a +1 to one Skill (Maximum skill level 8) or a +1 to one Research topic Difficulty level (that is already at DL 0 or higher). To gain this bonus, each Unit must send 100 Actives to live and work at the LDIS complex.

* **Other Clans:** Tribes from other Clans that have a Unit in the hex also benefit from the wondrous construction. At the cost of 100 Gold, the Tribe may send 100 actives to live and work in the complex. In return, they gain +1 Skill Level to one of the following skills (Maximum Level 8): Engineering, Brickmaking, Stonework, Metalwork, Art.

Restrictions and Requirements:

* **Annual Upkeep:** 500 AM (on anniversary of founding of City), 30k Bricks, 10k silver, Logs 4k

* **Location:** Must be built in a City of Government Level 2 or higher.

* **Loss of Structure:** If the structure is no longer held by the Clan, each Tribe in the Clan loses 0.1 Morale. If it regains control of the structure, it regains only 0.05 Morale. If the structure is destroyed, it cannot be regained and a new structure must be built from scratch. A new LDIS may not be built while a conquered LDIS is still held by a conquering force.

* **Looting of Structure:** If a Unit captures the City that contains the LDIS, it may loot the structure and gain Silver 50k, Relic 1 and Slaves 500. Otherwise, holding the Structure for a year gains the conquering clan the Annual Clan Knowledge Bonus without the need to lose 100 Actives. This can be gained each year.

Books may not be written

LDIS may not be built for other Clans.
A Clan may only gain the benefit of one LDIS a year. If they gain a bonus from their own LDIS, they may not gain a bonus at another Clan's LDIS.

Notes:

- **Responsibilities:** It is the responsibility of the Clan Chief that builds this topic to gather the skill increases from visitors and to inform the GM of the required updates to minimize the interaction of the GM with multiple players.

Captaincy

Name	Naval College
DL	8
Pre-Req	Gold (10 Gold / Year)
Recipe	N/A
Description	<p>This research topic is valueless unless <u>the Tribe</u> (NB developed in one Tribe cannot service the whole Clan) has already developed Admiralty.</p> <p>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 ensures that the tribe has possesses permanent naval leaders that can then benefit from the training provided by a "Naval Academy".</p> <p>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</p> <p>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.</p>

Name	Admiralty
DL	7
Pre-Req	N/A
Recipe	N/A
Description	<p>This adds a new skill (Category B) called Admiralty. A Tribe that has completed the Admiralty research topic may develop this skill.</p> <p>Benefit: The sum of (Admiralty and Captaincy + 2) skills together will replace the Leadership skill in all naval combat formulas.</p> <p>Players are responsible for supplying the adjustment.</p> <p>With <u>Alliance (see Diplomacy)</u> 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.</p>

Combat

Name	Assault Troops
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Specialized 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 research)
Recipe	1 Barracks, 100 Person, Eng 4, Logs 200
Description	<p>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 <u>Barracks</u> (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.</p> <p>Once Army is completed Home Guard becomes <u>redundant</u>.</p>

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

Name	Combat 11
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Increases Combat skill to 11.

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	Prerequisite for Combat 12. Combat Specialists do not exist.
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Name	Conscription
DL	5
Pre-Req	Army (Combat research) 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 research) Sergeant / Captain (*)
Recipe	N/A
Description	1. 50% of the <u>Home Guard</u> (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 Calendar 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
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DL	5
Pre-Req	Army (Combat research)
Recipe	N/A
Description	<p>The Veterans Class I topic allows 15% of a Tribe's Unit's (with the research) 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</p> <p>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". They may be deployed only in a defensive mode – eg when your unit has been attacked. They may not be part of a Locating War Party.</p> <p>Proposed by Steve Simmons</p>

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	<p>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).</p> <p>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.</p>

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	<p>Cooking Activity</p> <p>1 Person (Cooking) produces 40 Stew (provisions) using 5 Goats.</p> <p>Requires Cookhouse (requirements as per Meeting House). 1 Cookhouse services 10 cooks.</p> <p>Cannot have more than one Cook per 100 population in the Clan when cooking Stew. The player is obliged to note figures.</p>

Courier

Name	Barterer
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Courier Units from this Tribe gain an extra 5% payout when making a Trade Mission Delivery (Importer/Exporter, International City, etc).</p> <p><i>Example:</i> If a Trade Mission has a payout of 20%, the Courier Unit would get 25% payout instead.</p>

Name	Negotiator
DL	4
Pre-Req	Barter (Courier research)
Recipe	N/A
Description	<p>The bonus to Courier unit payouts for Trade Mission deliveries is increased from +5% payout to +10% payout.</p> <p><i>Example:</i> If a Trade Mission has a payout of 20%, the Courier Unit would get 30% payout instead.</p>

Name	Large Orders
DL	7
Pre-Req	N/A
Recipe	N/A
Description	<p>Courier Units from this Tribe gain the Clan's max Fair Multiplier when buying/selling at Trading Towns (such as Conrad's Crossing, Shanghai, Creecross). These are locations with a Buy/Sell spreadsheet.</p> <p>This multiplier includes sources such as Castle, Wholesale Trade and City modifiers but not Fair 3 (this is not an actual multiplier) or special hex modifiers.</p> <p>This has no effect on Trade Missions, Traders (X for Y), etc.</p> <p><i>Example:</i> A Courier Unit with Large Orders in a Clan that has a City with Trading Post has a Fair Modifier of x3. If the Trading Town they are at sells Brass with a QTY of 100, the Courier unit could purchase QTY 300 at normal prices.</p>

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Dance

Name	Circus Troupe
DL	4
Pre-Req	Animal Training (Herding research) Dance 11 (Dance research)
Recipe	N/A
Description	<p>Completion of the Circus Troupe research allows the formation of a specialized Trade Element called a Circus Troupe. This specialized Trade Element follows all standard Trade Element rules.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • Per Clan: For each Clan, once per year, the Circus Troupe may perform a Circus for that clan. • Target Clan Benefit: A Clan which receives a Circus gains +0.05 Morale Bonus to a single Tribe that is present at the site of the Circus. • Circus Troupe Benefit: Performing a circus at a Player Clan requires the target clan to pay 500 silver to the Circus. • NPC Cities: Performing a circus at an NPC City requires that the target NPC City pay 100 Coin to the Circus. A Circus Troupe may only perform for each NPC City once per year. <p>Requirements:</p> <ul style="list-style-type: none"> • Performers: A Circus Troupe must be comprised of at least 3 Performance Elephants, 6 Performance Horses, 10 Performance Dogs and 12 Dance Specialists. <p>Note: Dance Specialists follow standard specialist rules and require Dance 11 to train.</p>

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

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Diplomacy

Name	Alliance MOTC
DL	4
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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 <i>warriors</i> 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 <i>warriors</i> in the leader's clan. In a four-way MOTC, this limit is reduced to a third and so forth. <u><i>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.</i></u> 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.</p>

Name	Corps Diplomatique
DL	7

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Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

Name	Expanded Horizons, Expanded Horizons II
DL	5, 5
Pre-Req	Expanded Horizons: Both Diplomacy 10 and Economics 10 in Clan* Expanded Horizons II: Expanded Horizons (Diplomacy or Economics research)
Recipe	N/A
Description	<p>Expanded Horizons: Upon completion, the Clan gains an additional Desired Commodity that provides Slaves. The type of Desired Commodity is determined by the GM randomly.</p> <p>Expanded Horizons II: Upon completion, the Clan gains an additional Desired Commodity that provides Hirelings. The Type of Desired Commodity is determined by the GM randomly.</p> <p>*Expanded Horizons requires that the Clan have, in any combination of its Tribes, both Economics 10 and Diplomacy 10. A Tribe may research this topic provided it has either one of the skills at 10 and itself or another tribe have the other skill at 10.</p>

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Name	Extra Tribe
DL	4 / 5 / 6 /
Pre-Req	N/A
Recipe	N/A
Description	<p>Completion of this topic allows the Clan to spawn an extra Tribe.</p> <p>This Tribe must be immobile. Standard costs apply.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Upon completion of this research, contact the GM to create the extra tribe and to have the research removed so it can be researched additional times. 2. The maximum number of Tribes that a Clan may have is 10. Creation of extra tribes through this research counts against this limit. Be aware that this may restrict your options for International NPC Tribes.

Name	Fair 3
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p>

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 etc come into play. Each alcohol requires its own research topic. Branded Alcohol may be traded and sold by other Clans.

Name	Distillers' Guild
DL	4
Pre-Req	N/A
Recipe	1 Distiller's Guildhall: People 2k, Eng 8, Stn 8, Stone 10k, Gold 10, Silver 10k
Description	<p>Description</p> <p>The effects of a Distiller's Guild is to ensure that all Guild Members make a large profit off their alcohol and to help regulate the alcohol trade throughout the land by ensuring that there is not a glut of one type of beverage and a dirth of another.</p> <p>Formation and Governance</p> <p>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 of each type (Traders Guild 20 and Traders Guild 25 are considered the same type, Bargemen's Guild is a different type). A Clan may only be a member</p>

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of one Exclusive Guild, such as Exotic Weavers Guild.

Distillers' Guild is an Exclusive 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 applicant 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 be 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

Members of a Distillers Guild are allocated one type of Alcohol. Only two Guild Members may be assigned to each of the Alcohol types. Entry into the Guild allows the construction of a Distillers' Guildhall (see recipe above). Once a Distillers' Guildhall is constructed, a Guild Member gains a bonus when selling alcohol of their appropriate type at Fair or through any other NPC avenue (such as Taverns, trade towns, etc). **This bonus is equal to an extra 50% of base sale price for their appropriate Alcohol**, Branded included. For instance, Ale normally sells for 272 Silver per barrel. If the Chief is selling Ale and is in the Ale slot in the Guild, then each barrel would instead sell for 408 Silver. If the Chief is selling Branded Ale, then normally it is $272 * 1.5$ but with Distillers' Guild it is now $272 * 2.0 = 544$ barrels may be sold.

Alcohol Types (Other types may become available):

Ale:
Brandy:
Mead:
Rum:
Wine:
Absinthe:
Gin:

	Port:
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Name	Gin
DL	4
Pre-Req	N/A
Recipe	1 Barrel: People 5, Juniper 50, Grain 25, Herbs 1
Description	Can be sold at Fair. Opening price at Fair is 1,000 Silver. Starting quantity at Fair is 20 Barrels.

Name	Port Wine
DL	2
Pre-Req	N/A
Recipe	1 Barrel: People 5, Distilling 7, Grapes 100, Brandy 10
Description	Fortified Wine. Can be sold at Fair. Effects unknown. Further Details Coming

Name	Road House
DL	3
Pre-Req	Tavern (Distilling research)
Recipe	Road House: People 500, Eng 5, Logs 1000, Silver 2000
Description	<p>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.</p> <p>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).</p> <p>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.</p>

	Proposed by Lucas Riley
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Name	Tavern
DL	4
Pre-Req	N/A
Recipe	Tavern: People 250, Eng 4, Logs 500
Description	<p>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).</p> <p>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.</p>

Economics

Name	Bargemen's Guild
DL	3
Pre-Req	N/A
Recipe	1 Bargeyard: People 160, Eng 5, Logs 300, Iron 100, Coal 100
Description	<p>Similar to the Traders Guild, the Bargemen's Guild allows members the transportation of goods from one Bargeyard to another Bargeyard along a pre-approved path. The effect of a Bargemen's Guild is to allow a limited degree of barge based transfers between Guild Members' units along nominated Guild Routes, which represent well travelled river routes amongst a stable trading community. Such transfers are facilitated by locals, i.e. no player element needs to be assigned or moved.</p> <p><u>Operation and benefits</u></p> <p>A Guild Route runs between two Bargeyards belonging to member Clans of the Guild (both Bargeyards may be owned by the same Guild member). A Guild Route consists of a continuous route of up to <u>120</u> Hex Sides that may be traveled by barges. 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 Bargeyard and the proposed path in hexes. <i>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.</i></p> <p>During Trade Fair months 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 Bargeyard.</p> <p>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.</p> <p><u>Initial limits</u></p> <ol style="list-style-type: none"> 1. A Guild member may possess at most 2 Bargeyards 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 20 Barges (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). Barges capable of carrying the quantity of goods transferred must be held at the sending Bargeyards, but do not need to be moved.

6. Animals may be traded this way at normal ship capacity limits.

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

Standard Guild Rules (From Traders Guild):

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 of each type (Traders Guild 20 and Traders Guild 25 are considered the same type, Bargemen's Guild is a different type). A Clan may only be a member of one Exclusive Guild, such as Exotic Weavers Guild, though Bargemens Guild is not an exclusive 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 application 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 be 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.

Name	Board of Trade
DL	8
Pre-Req	N/A
Recipe	N/A
Description	<p>Once a Tribe has completely researched Board of Trade, it gains the ability to create Trade Routes (see Trade Route) without performing further research. Sea-Borne Trade Routes may be created via Board of Trade but your Clan must have already researched Sea-Borne Trade Routes topic to do so.</p> <p>Board of Trade provides three distinct benefits:</p> <ol style="list-style-type: none"> 1) Create Trade Routes (1 Trade Route per Admin Skill Level not already used) 2) Improved Land Trade Routes (See Create Trade Routes Note 1 & 2). 3) Improved Sea-Borne Trade Routes (See Create Trade Routes Note 3 & 4) <p>Create Trade Routes:</p> <p>A Tribe with Board of Trade (BoT) may create 1 Trade Route for every point of Admin skill that the Tribe with BoT has that is not already used to create Elements/Fleets. It takes 2 points of Admin skill for each Element/Fleet. (<i>Example: The Tribe with BoT has Admin 6 and has 2 elements which uses 4 of its 6 points of Admin. It may create up to 2 Trade Routes</i>).</p> <p>Trade Routes follow all the rules of Trade Routes created under the Trade Routes research topic. The follow exceptions and notes apply:</p> <ol style="list-style-type: none"> 1) Land Trade Routes may be a maximum length of 240 MV (instead of 120 MV normally allowed). 2) Units that move along Land Trade Routes have their speed doubled to 80 MV per Turn. 3) Sea Borne Trade Routes may be a maximum length of Unlimited MV (instead of 360 MV normally allowed). See <i>Sea Borne Trade Restrictions</i> below. 4) Units move along Sea Borne Trade Routes have their speed doubled to 120 MV per Turn. 5) Movement is unaffected by Weather. 6) Movement is done through GOTO orders to Waystations / NPC Sites along the Trade Route per the Trade Route rules. 7) A Trade Route slot may be terminated and reused after a two year wait. <p>How to Create and Maintain a Trade Route:</p> <ol style="list-style-type: none"> 1) In Activities, make an activity called Create and Administer Trade Route <ol style="list-style-type: none"> 1) Include the Unit at the other end of the route 2) Include what Trade Route number it is (First is 1, Second is 2, etc) 3) 5 Actives must be assigned each turn 4) When your next Payment must be made (Silver and Commodities) 2) Transfer (to usage) 10 of one of your Desired Commodities upon creation and annually 3) Transfer (to usage) 1500 silver upon creation and annually

Example of 1 Trade Route:

Unit	Activity	Item	People	Notes
2101	Admin Trade Route	0101e2	5	Route: 1, Silver 1500 & Opium 10 due Turn 6/811

Example of 3 Trade Routes:

Unit	Activity	Item	People	Notes
2101	Admin Trade Route	0101e2	5	Route: 1, Silver 1500 & Opium 10 due Turn 6/811
2101	Admin Trade Route	2101e1	5	Route: 2, Silver 1500 & China 10 due Turn 7/811
2101	Admin Trade Route	0101e1	5	Route: 3, Silver 1500 & China 10 due Turn 5/812

How to Dissolve a Trade Route:

- 1) In Activities, make an activity called End Trade Route
 - a. Include the Trade Route Number
 - b. Include when it was terminated
- 2) Note: That Trade Route number is able to be used again two years after the date it was terminated.

Example:

Unit	Activity	Item	People	Notes
2101	End Trade Route			Route: 1, Terminated 8/811

General Notes:

- 1) One end of a Trade Route must be the village that holds Board of Trade research.
- 2) Only 1 Board of Trade is allowed per Clan.
- 3) BoT Research is Tribe specific but any units belonging to the Clan (and only units from that Clan) may use the Trade Routes.
- 4) Units may not be absorbed or created via Trade Routes.

Sea Borne Trade Route Restrictions: Sea Borne Trade Routes created under Board of Trade (Requires both Board of Trade and Sea Born Trade research topics to be held by the Clan) have an additional restriction that comes with the unlimited length of the trade route.

- 1) **A Jetty must be available along the Trade Route every 40 hexes.** This can be a standard Jetty named hex created per Mandate section 12.1.1 or any village with a Jetty.

Countered By: Destroying the Village with Board of Trade eliminates Trade Routes that originate from that village.

Note: A Fleet may only gain movement bonuses from three research topics simultaneously. Examples include, but are not limited to, Board of Trade, Fast Fleet, Trusted Maps, etc.

Name	Brothel
DL	5
Pre-Req	N/A
Recipe	Brothel: People 1000, Eng 6, Logs 2000
Description	<p>Engineering Activity</p> <p>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.</p> <p>Note: Is coded</p>

Name	Carnivale
DL	3
Pre-Req	N/A
Recipe	N/A
Description	<p>A Carnivale replaces a single Fair each year.</p> <p><u>Once</u> 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.</p>

Name	Entrepot
DL	5
Pre-Req	Board of Trade (Economics Research)
Recipe	1 Entrepot: People 250, Eng 3, Log 400, Iron 500, Gold 10, Silver 1000
Description	<p>A Clan that has the Entrepot research topic may build Entrepots in villages. Entrepots may be built in villages for other Clans but they have no effect.</p> <p>Entrepots effects only work in conjunction with Board of Trade routes.</p> <ol style="list-style-type: none"> 1. Land Route: Normally Board of Trade requires that all trade route slots to have one end at the village possessing Board of Trade. Villages with Entrepot connected back to the Board of Trade village through Trade Routes count as if they were the Board of Trade village themselves for purposes of creating new Trade Routes. This trade route still takes up one of the Board of Trade slots. <i>Clarification, the TR from the Board of Trade to the Village containing an Entrepot counts as one slot against the Board of Trade and the TR leading onward from the Village w/Entrepot counts as a</i>

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	<p><i>second slot.</i></p> <p>2. Sea Borne Route: Increases the segment span for Sea Borne Board-of-Trade Trade Routes from 40 to 80 hexes between villages with jetties / jetties provided that the Sea Borne Trade Route starts and ends at two villages with Entrepots. It does not increase speed of movement, only the distance between the required villages/jetties. (See Board of Trade Miscellaneous Notes #5). A Sea Borne Route that uses any number of Entrepots takes up an additional Board of Trade Route slot (effectively taking up 2 slots total).</p> <p>Example - Land: Normal: (Board of Trade) ---TR---> (Village) Example: (Board of Trade) ---TR---> (Village w/ Ent) ---TR ---> (Village) Example: (Board of Trade) ---TR---> (Village w/ Ent) ---TR ---> (Village w/ Ent) -TR-></p> <p><i>Entrepot, otherwise known as a transshipment port, is a port, city or trading post where merchandise is imported, stored and traded only be to exported again. It is a way point along the great trade routes. As trade routes grew, so did the existence of Entrepots. Historical Entrpots are Hong Kong, Amsterdam, Cape of Good Hope, New Orleans, etc.</i></p>
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Name	Expanded Horizons, Expanded Horizons II
DL	5, 5
Pre-Req	Expanded Horizons: N/A Expanded Horizons II: Expanded Horizons (Diplomacy or Economics research)
Recipe	N/A
Description	Expanded Horizons: Upon completion, the Clan gains an additional Desired Commodity that provides Slaves. The type of Desired Commodity is determined by the GM randomly. Expanded Horizons II: Upon completion, the Clan gains an additional Desired Commodity that provides Hirelings. The Type of Desired Commodity is determined by the GM randomly.

Name	Goods Tribe Economic Zone
DL	6
Pre-Req	Leadership 10 (Group B skill) Economics 10 (Group B skill)
Recipe	1 Administrative Building: People 600, Eng 8, Stone 3000
Description	An advanced and economically literate society with a disciplined military collaborate to achieve a more efficient organization of goods and their transportation.

	A Unit with this research may be assigned as the Goods Tribe for units within Range 2 of the Unit versus the standard range 1 (Adjacent).
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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	Merchant Navy Guild
DL	2
Pre-Req	Shipbuilding 10 (Skill)
Recipe	1 Merchant Navy Shipyard: People 150, Eng 6, Logs 300, Iron 50, Coal 100
Description	<p>Similar to the Traders Guild, the Merchant Navy Guild allows members the transportation of goods from one Merchant Navy Shipyard to another Merchant Navy Shipyard along a pre-approved path. The effect of a Merchant Navy Guild is to allow a limited degree of fleet based transfers between Guild Members' units along nominated Guild Routes, which represent well travelled ocean routes amongst a stable trading community. Such transfers are facilitated by locals, i.e. no player element needs to be assigned or moved.</p> <p><u>Operation and benefits</u></p> <p>A Guild Route runs between two Merchant Navy Shipyards belonging to member Clans of the Guild (both Merchant Navy Shipyards may be owned by the same Guild member). A Guild Route consists of a continuous route that may be traveled by ships. 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 Merchant Navy Shipyard and the proposed path in hexes. Routes may be up to 60 contiguous water or coastal hexes in length. These routes are particularly well travelled and have been thoroughly researched by sailors.</p>

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 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 Merchant Navy Shipyard.

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 Merchant Navy Shipyards at any one time.
2. A Guild member may possess at most 2 approved Guild Routes at any one time.
3. A Jetty must be built every 20 hexes along the Guild Route.
4. 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.
5. A single Guild Trade may have at most 8 distinct items (plus barrels/containers for liquids). One of these may be a research item and one may be a book, otherwise items must be available on the public fair list or be an Exotic good such as Jade, Tea, Frankincense, etc. 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.
6. The total quantity of goods transferred in a single Guild Trade is limited to the capacity of 5 Traders (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). Ships capable of carrying the quantity of goods transferred must be held at the sending Merchant Navy Shipyards, but do not need to be moved.
7. Animals may be traded this way at normal ship capacity limits.
8. Merchant Navy Shipyards are buildings and must be built in a village.

Standard Guild Rules (From Traders Guild):

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

	<p>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 of each type (Traders Guild 20 and Traders Guild 25 are considered the same type, Merchant Navy Guild is a different type). A Clan may only be a member of one <u>Exclusive Guild</u>, such as Exotic Weavers Guild, though Merchant Navy Guild is not an exclusive Guild. -, Bargemen's Guild and Merchant Navy 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 application 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).</p> <p>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.</p> <p>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.</p>
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Name	Sea-Borne Trade
DL	8
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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 and must end at a village with a Jetty. Way stations along the route must be provided every 20 hexes. A Way Station is a hex with a Jetty (either village or jetty named hex as per Mandate 12.1.1). Ocean (or Lake) hexes cost 3 Movement Points for all trade route purposes.</p>

	<p>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.</p> <p>Note: GM requests that people with Sea-Borne Trade Route review the Jetty requirements for SBT. Jetty requirement is modified by Board of Trade and other research topics.</p>
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Name	Second Caravan
DL	2
Pre-Req	Traders Guild 20 (Economics research)
Recipe	N/A
Description	<p>Upon completing this research, a Traders Guild (20 or 25) allows each of its members to utilize a second caravan every fair month. The second caravan follows all rules that the first caravan follows.</p> <p>If each of the caravans starts from different caravanserai then only 100 wagons are required at each starting point. If both caravans start from the same Caravanserai location then 100 wagons for each caravan is required at that starting location.</p> <p><i>Example: If two caravans start from the same village, then you need 200 wagons at that village.</i></p> <p><i>Example: If a caravan starts from village A and a caravan starts from Village B, then Village A needs 100 wagons and Village B needs 100 wagons.</i></p>

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

Name	Trade Camps
DL	2
Pre-Req	Trade Route (Economics research) OR Board of Trade (Economics research)
Recipe	N/A
Description	Allows a Trade Route or a Board of Trade Trade Route to have one end of a Trade Route's link at a Garrison, Agent or immobile Courier that belongs to your Clan. This does not need to be a village (it does not need to have a Meeting House). Normal rules about paying for route or changing route apply.

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	Note: Garrisons are immobile, similar to villages. This is a way to set up a linked garrison near a friendly player without affecting their Politics / Local Support distance requirements.
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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	1 Depot: People 2250, Eng 7, Stone 10k, Log 500, Parchment 200 1 Warehouse: People 2250, Eng 7, Stone 10k, Log 500, Parchment 200 1 Waystation: People 50, Eng 2, Logs 100
Description	<p>Each Trade Route needs to be researched separately (<i>but see Board of Trade</i>).</p> <p>Trade Routes are dedicated paths from one player village to another player village that Units may utilize to move more rapidly provided that they meet the requirements for using a Trade Route. Trade Routes may also be used to form Goods Tribe relationships at a distance through the use of Depots.</p> <p>Requirements to Create a Trade Route:</p> <ol style="list-style-type: none"> 1. The Trade Route must start at a Player Village owned by the Clan with the Research Topic. Village is defined as having a Meeting House. 2. The Trade Route must end at a Player Village owned by the Clan with the Research Topic. (Some research may modify this requirement). Village is defined as having a Meeting House. 3. The Trade Route may be a maximum of 120 MV from a starting village to the end village. (Some research may modify this requirement) 4. The Trade Route may not cross water (Lakes, Rivers, Ocean) though it may cross Fords. 5. The Trade Route may not cross impassable terrain (High Snow Mountains, etc) though it may cross such terrain if it is through the use of Passes. <p>How to Create a Trade Route:</p> <ol style="list-style-type: none"> 1. Designate the Starting Village (Include map Coordinates, AA 0101 for example) 2. Designate the End Village (Include map Coordinates, ZZ 0101 for example) 3. Designate the location of Waystations along the Route. (Include map coordinates) <ul style="list-style-type: none"> • Waystations are explained below under the Waystation section. • There must be one Waystation or NPC Site every 40 MV approximately

- i. *See Partial MV Waystations under the Waystation section.
 - Waystations may not be built closer than 20 MV from another Waystation in the same Trade Route.
 - Waystations are not required to be built at NPC sites with the exception of International Cities which require a Warehouse.
 - *See Construction of Waystations under the Waystation section.
4. Create a map showing the exact route and showing the exact MV cost for that route. Include the location of the Waystations or NPC Sites along the Trade Route.
 5. Provide the information above to the GM. The GM will record the information and add the Waystations to the TribeNet map Database.
 6. Note: Trade Routes may not be changed normally. However, Trade Routes provided by Board of Trade may be changed as per the Board of Trade research topic.

Requirements to Use a Trade Route:

1. The Unit must belong to the Clan with the Research or have Diplomatic Relations via Corps Diplomatie with the Clan with the Research.
 - a. You **can not** use a Trade Route belonging to another Clan if you are only Truced with that Clan.
2. A Unit must contain at least 20 Warriors to utilize the Trade Route. Each Warrior must have metal weapons and armour.
3. A Unit may move up to **40 MV** per turn along a Trade Route. (This can be modified with other research)

How to Use a Trade Route:

1. Include a Comment in the Orders stating which Unit will be utilizing a Trade Route, which Trade Route it is utilizing (Start and End Points) and if it will be arriving at the end of a trade route or at a waystation.
2. Utilize the GOTO <HexCoordinate> Movement order (if using Automatic Orders) or state to which Hex the unit is moving. The destination for the move order must be an appropriate Waystation, NPC Site or one of the Player Village end points.
 - a. A Unit may move up to 40 MV along a Trade Route each turn and must end its movement at a Waystation, NPC Site or a Player Village at either end of the Trade Route. *See Partial MV Waystations under the Waystation section.
3. Movement along a Trade Route follows the pre-determined path from the creation of the Trade Route. A unit does not need to follow the path to the very ends and may enter or leave a Trade Route at either of the end points or at a Waystation or NPC Site.

Waystations:

- Waystations are movement end points along a Trade Route. When a Unit moves along a Trade Route, it will always end its turn at an NPC Site, a Waystation or at one of the two Player Villages at the ends of the Trade Route.
- Units on a Waystation are vulnerable (unless the Hex is otherwise combat free)

- Waystations are designated and constructed when the Trade Route is created and are added to the map as a named location. Because of this, other Clans may see the named Hex and know that Units utilizing a Trade Route may end their movement at this hex. When a Trade Route is created, the Workers needed to build the required Waystations must be kept unassigned (to simulate them working on the Waystations) and the Logs must be sent to Usage.
- Waystations may be Player Villages that belongs to the Clan that created the Trade Route.
- Waystations act as if they are Meeting Houses for purposes of controlling hexes. **Other clans may not build structures or otherwise control the hex via Ford Blockade.**
- Waystations are named, for example, “0123 Waystation”.
- ~~A single Hex may have Waystations belonging to multiple Clans. (A Hex could be named “0250 and 0900 Waystations” for example. If a single hex becomes overburdened with Waystations, it may be renamed and the information stored in the hex database differently).~~
- NPC Sites do not typically need to be designated with the Waystation name, as they already have the name of the Site. However, International Cities (such as Beijing, Tokyo, Trier) that are to be utilized as a Waystation, must have a Warehouse actually built in their hex.
 - A list of the Warehouses in an International City will be listed along with the special hex information. For instance, when arriving at Tokyo and requesting information about the special hex, the GM will provide the list of Clans with Warehouses in that International City as part of the Special Hex text.
- Defense:** Waystations belong to a specific Clan and fortifications built at such a Waystation may only be utilized by that Clan. Unoccupied waystation buildings may be torn down normally. See “Keep” research for further defensive options.
- Construction:**
 - 1 Waystation: People 50, Eng 2, Logs 100
 - People should be left unassigned and the Logs transferred to usage.
 - Warehouses in an International City must actually be built by Clans using them.
 - 1 Warehouse: People 2250, Eng 7, Stone 10k, Log 500, Parchment 200
 - After a Trade Route is created, new / replacement Waystations may be built by a Unit that is physically in the Hex location that will hold the Waystation.
- Partial MV Waystation:** Sometimes 40 MV will not be perfectly aligned with entrance into a Hex (For instance, 13 PR is 39 MV while 14 PR is 42 MV). As a Unit moves 40 MV, the Waystation will need to be designated on either of these hexes. It is allowable to be either of these hexes (in the example either on the 13th or 14th PR). For example, a Unit utilizing the Trade Route (120 MV in total / 40 PR hexes) with the first Waystation on the 14th PR hex would move 42 MV the first turn to end on that 14th PR Waystation, then would move 39 MV the second

turn (to end on the 27th PR) and then finally 39 MV the third turn (to end on the 40th PR end point). Use of these ‘rounding’ issues cannot shorten a trip from 3 turns down to 2 turns, etc.

● **Destruction and Reconstruction:**

- Waystations may be torn down through standard rules for destroying buildings through reverse engineering. To destroy a Waystation, any defenders in the hex must be defeated in Combat.
- Upon destruction of a Waystation, the owning Clan is notified that their Waystation on the trade route at that specific location has been destroyed. When a Waystation is destroyed, the Trade Route may still be used provided there are enough stopping points along the route that a Unit may stop at the end of each turn along the Trade Route while moving no further than 40 MV (*See Partial MV Waystation), but the Waystation may not be stopped at since it was destroyed.
- Waystations that have been destroyed may be recreated but it requires a Unit at the location, 50 effective workers and 100 Logs to be used. New Waystations may likewise be built following standard building and Waystation rules.

Depots:

- A Depot allows units from the Clan to form a Goods Tribe relationship from one end of the Trade Route to the other end of the Trade Route.
- Depots do not require additional research. If a Trade Route can be formed, the player may also utilize Depots on that Trade Route.
- Construction:
 - Depots may be constructed at either end of a Trade Route at a Player Village but not at a Waystation or NPC Site.
 - 1 Depot: People 2250, Eng 7, Stone 10k, Log 500, Parchment 200
- A Unit at the Player Village that holds the Depot may be set as a Goods Tribe by any Unit from the Clan at the other end of the Trade Route, even though they are not in the same / adjacent hexes.
- Arms and Armour must be held by each Unit using a Depot (that is, not held by the GT) – This may only be adjusted from the Depot once every six months and the player must clearly indicate when this happens via Comments in their Orders.
- Population may be transferred from one Unit to another via this Depot relationship but is limited to a total of 300 People per month and includes Slaves, Hirelings, Mercenaries in addition to the regular W/A/I population types.

Miscellaneous Information:

- Economic research may be possible to allow the hijacking of a Unit utilizing a Trade Route or other subversive Activities that might be dreamed up by players.

Example of Creation:

I am creating a Trade Route from my village (Parkerville) at BC 0204 to my village

(Williansburghough) at BD 0204. This is a total of 90 MV. Waystations are at BC 0904 (21 MV from Parkerville) and BC 2304 (42 MV from Waystation BC 0904 – see Partial MV Waystation, and 30 MV from Williansburghough). An NPC site (Silk Exporter) is located at BC 3004. Here is the map (Map inserted in email).

Converting old Trade Route to New Trade Route: Over the next 6 turns, contact the GM to reform the Trade Route utilizing the new rules regarding Waystations. The Beginning and End villages should remain the same but the route may be changed to take into account the expanded use of the Trade Route rules.

Name	Traders Guild 20
DL	1
Pre-Req	N/A
Recipe	N/A
Description	<p>Description</p> <p>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.</p> <p>Formation and Governance</p> <p>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 of each type (Traders Guild 20 and Traders Guild 25 are considered the same type, Bargemen's Guild is a different type). A Clan may only be a member of one <u>Exclusive Guild</u>, such as Exotic Weavers Guild, though Traders Guild is not an exclusive 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).</p> <p>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.</p>

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.

	<p>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.</p> <p>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).</p> <p>7. Caravansarai are buildings and must be built in a village.</p> <p><u>Possible Future developments</u> <i>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 to 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.</i></p> <p>Note: No books</p>
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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. <i>25 hexes is the maximum possible range of a Guild Trade.</i>

Name	Trusted Maps
DL	3
Pre-Req	Alliance MotC (Diplomacy research)
Recipe	N/A

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Description	<p>To Benefit from this research, a Clan must:</p> <ol style="list-style-type: none"> 1) Have completed Alliance MotC Research. 2) Must have a declared alliance in which at least one member has the Sea-born Trade Routes research. 3) Must have established Diplomatic Relations with the clan that completed Sea-born Trade Routes research. <p>Any fleet in the Tribe holding this research has their MV increased by 50% when using Sea-born Trade Routes. If combined with other research, this bonus is additive, not cumulative.</p> <p>Note: A Fleet may only gain movement bonuses from three research topics simultaneously. Examples include, but are not limited to, Board of Trade, Fast Fleet, Trusted Maps, etc.</p>
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Name	Toll Gate
DL	3
Pre-Req	N/A
Recipe	Toll Gate: People 700, Eng 6, Stone 2000, Logs 500, Iron 500
Description	<p>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.</p> <p>Once a City has two (2) Toll Gates, it gains either Gold 100 or Coin 1000 immediately and every twelve months.</p> <p>Only Cities may have Toll Gates. Toll Gates may only be built for the Research Holder's City.</p>

Name	Wholesale Trading
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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).</p>

Engineering

Name	Barbican
DL	4
Pre-Req	Drawbridge (Engineering) Gatehouse (Engineering)
Recipe	Barbican: Eng 10, Stone 4000, Logs 500, Iron 500, Silver 10000
Description	<p>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.</p> <p>Adds + 4 to the effective Archery Skill for defenders in combat. (This incorporates the +2 from Drawbridge)</p> <p>Barbicans may be built for other Clans. Barbicans may be used by other Clans in their villages.</p> <p>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.</p> <p>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.</p> <p>Proposed by Paul Malone</p>

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 10, Cattle/Horses: 20
Description	Note: Cannot build a Canal adjacent to Mountains.

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	<p>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.</p> <p>Where flat abuts other terrain the higher manpower cost applies. A shovel doubles output. Canals are 40' wide.</p> <p>Fords cannot be left in the newly created Canal as part of their construction.</p> <p>To convert a Ford into a Canal (that is, the Ford is removed) - 1000 Workers with tools (either Picks, Shovels, or Mattocks or combination), 10 Wagons, 20 Cattle/Horses can convert a Ford into a River/Canal.</p>
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Name	Colosseum
DL	8
Pre-Req	Dungeon (Engineering)
Recipe	Colosseum: People 2000, Eng 8, Stones 10000
Description	<p>Once per Year 500 Slaves may entertain a Tribe. 100-300 will die. Morale will increase 0.05.</p> <p>This structure may be built in other Clans' villages and used by that Clan. A Clan may only gain the bonus once per year.</p>

Name	Crenellations
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p>

Name	Demolitionists I, II, III
DL	5,5,5
Pre-Req	<p>Demolitionists I: Blasting Jars (Alchemy research)</p> <p>Demolitionists II: Demolitionists I (Alchemy research)</p> <p>Demolitionists III: Demolitionists II (Alchemy research)</p>
Recipe	N/A
Description	Workers using this research may be equipped with multiple Blasting Jars (or better) each.

	<p>Benefit:</p> <p>1) Each level of Demolitionists allows the use of three additional Blasting Jars (or better).</p> <p>For example: 1 Worker without this research may use 1 Blasting Jar and count as 10 Effective Workers. 1 Worker with Demolitionists I may use 4 Blasting Jars and count as 40 effective workers. With Demolitionists II, the 1 Worker may use 7 Blasting Jars and count as 70 Effective Workers. With Demolitionists III, the 1 Worker may use 10 Blasting Jars and count as 100 Effective Workers.</p> <p>Additionally, each level of Demolitionists improves the base “Defenders Defensive Factor bonus reduction” of Siege Cannons by 1%.</p>
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Name	Destroy Roads
DL	6
Pre-Req	N/A
Recipe	Skills: Trail Road (Eng 3), Dirt Road (Eng 6), Stone Road (Eng 9)
Description	<p>As with any great advancement of civilization, there comes time when others want to destroy it. Roads are no exception.</p> <p>Workers with Destroy Roads gain an extra +1 AM (1 worker counts as 2 workers) towards Reverse Engineering (Destroying) Roads.</p> <p>Joint Project: Workers in a Joint Project with a Unit that knows Destroys Roads gain +0.5 AM instead (1 worker counts as 1.5 workers).</p>

Name	Drawbridge
DL	5
Pre-Req	N/A
Recipe	Drawbridge: People 55, Engineering 10, Logs 100, Iron/Brass/Bronze 50, Coal 400, Rope 10
Description	<p>Engineering Activity</p> <p>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.</p> <p>Adds + 2 to the effective Archery Skill for defenders in combat.</p> <p>Drawbridge may be built for other Clans. Drawbridges in another Clan's village may be used by that Clan.</p>

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	<u>Fords to Rivers (Eng3 if using Joint Project)</u> 500 Workers with tools (either picks, shovels, or mattocks or combination), 20 Wagons, 10 Cattle/Horses can convert a Ford into a River. <u>Rivers to Fords (Eng6 if using Joint Project)</u> 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 <u>the end</u> 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

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	<p>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.</p> <p>Note: Fences are not coded into the Module and so your Herders required shown will not include this.</p>
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Name	Fen Drainage
DL	5
Pre-Req	Canals (Engineering)
Recipe	N/A
Description	<p>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.</p> <p>A shovel doubles output.</p> <p>Fen Drainage cannot be used to drain a Swamp Hex that is adjacent to salt water.</p>

Name	Gate House
DL	6
Pre-Req	N/A
Recipe	Gatehouse: People 1250, Stone 5000, Logs 500, Iron 100, Coal 400
Description	<p>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.</p> <p>Adds + 2 to the effective Archery Skill for defenders in combat.</p> <p>This structure may be built in other Clans' villages and used by that Clan.</p>

Name	Great Canal
DL	8
Pre-Req	<p>Canal (Engineering research) Research 10 (Group C skill) Literacy 6 (Group B skill) Home City established</p>

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	University (Building) Library (Building)
Recipe	Per Canal / Ford / Superior Canal
Description	<p>Note: Cannot build a Canal adjacent to Mountains.</p> <p>The Great Canal is a long term mega-project that can be performed in and around a Home City.</p> <p>The Grand Canal is a project that spans multiple hex sides ranging away from the Home City but can be completed with Units inside the Home City but at a reduced efficiency. The hex where the workers are to be considered to be digging must be reachable by river travel (Barge/Longship if going over fords, any boat if no fords) and the Unit must have adequate ships on hand to carry the workers, animals and tools.</p> <p>Efficiency: $110\% - (\text{Hex Side Traveled}) * 5\% + \text{Government Level} * 5\%$, maximum 100%</p> <p><i>Example 1:</i> if building a Canal in a hex that requires traveling 4 hex sides to reach the hex, and the Home City is at Government Level 0, the efficiency would be $110 - (4) * 5 = 100\%$ efficient. 100 workers would do the work of 100.</p> <p><i>Example 2:</i> if building a Canal in a hex that requires traveling 8 hex sides (about 4 hexes away) to reach the hex, and the Home City is at Government Level 1, the efficiency would be $110 - (8) * 5 + 1 * 5 = 75\%$ efficient. 100 workers would do the work of 75.</p> <p><i>Example 3:</i> If building a Canal in a hex that is 20 (about 10 hexes) distance away and the Home City is at Government Level 5, the efficiency would be $110 - 20 * 5 + 5 * 5 = 35\%$ efficient. 100 workers would do the work of 35. If the Home City were only GL 2, then it would be $110 - 20 * 5 + 2 * 5 = 20\%$ efficient.</p>

Name	Improved Fence Builders
DL	2
Pre-Req	Fences (Engineering/Herding research)
Recipe	1 Fence: People 5, Eng 8, Logs 100
Description	<p>Engineering Activity</p> <p>The Tribe and its elements are more efficient at building Fences. When building a fence, a Unit with Improved Fence Builder may use a new Recipe to build the Fence.</p>

Name	Improved Stable Builders
DL	2

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Pre-Req	Stables (Engineering/Herding research) Fences (Engineering/Herding research)
Recipe	1 Stables: People 5, Eng 8, Logs 100
Description	Engineering Activity The Tribe and its elements are more efficient at building Stables. When building a Stable, a Unit with Improved Stable Builders may use a new Recipe to build the Stable.

Name	Keep
DL	7
Pre-Req	N/A
Recipe	* See Description
Description	<p>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 <u>half normal village capacity restraints apply</u> 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.</p> <p>* 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.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • Waystations: A Keep may be built at a Waystation. Keeps at Waystations may be used by the Clan that setup the Waystation or by any friendly Clan at the Waystation. See Utilization. Only one Clan may occupy a single Keep in a turn. A Waystation may have more than one Keep. Keeps at Waystations may be torn down following normal rules. • Utilization: A Keep that is part of a Waystation may only be used by another Clan that is part of a Trade Guild, Merchant Navy Guild, Bargemens Guild or via Corps Diplomatique of which the builder of the Keep is a member. <p>Keeps may be built for other Clans.</p>

Name	Mining Ladder
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DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	<p>(Also Under Mining, Metalwork and Woodwork)</p> <p>A Mining Ladder provides a Bonus to Mining output equal to +100% to ten (10) miners and a Bonus to Digging output (Clay, canals, sand, moats, etc) equal to +100% to ten (10) diggers. This is cumulative with other implements (Picks, Shovels, Ore Carts, Seam Wedges, etc). This bonus is additive, not compounded.</p> <p>Example:</p> <p>5 Miners with 1 Mining Ladder would count as 10 Miners 10 Miners with 1 Mining Ladder would count as 20 Miners 15 Miners with 2 Mining Ladders would count as 30 Miners 20 Miners with 2 Mining Ladders would count as 40 Miners 20 Miners with 2 Mining Ladders and 20 Picks would count as 60 Miners 20 Miners with 2 Mining Ladders, 2 Ore Carts and 20 Picks would count as 80 Miners</p> <p>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.</p>

Name	Outpost
DL	8
Pre-Req	N/A
Recipe	Outpost: People 500, Eng 9, Stn 8, Stones 8000, Logs 200
Description	<p>Fortified towers for lookouts to help in the protection against being surprised by invaders</p> <p>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.</p> <p>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.</p> <p>This structure may not be used by Clans without the research topic.</p>

Name	Roads
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DL	6
Pre-Req	N/A
Recipe	1 Road Segment (Hex Side, both directions): Various Skills: Trail Road (Eng 3), Dirt Road (Eng 6, Stn 2), Stone Road (Eng 9, Stn 4)
Description	<p>This research topic enables the Clan to build Roads between a Village and a set location (Village, City, Special Hex, Mine, immobile unit).</p> <p>There are three levels of Roads:</p> <ol style="list-style-type: none"> 1) Trails: Small worn paths that are well traveled. Workers compact the earth to create relatively dry marching paths. 2) Dirt Roads: Raised roads made of dirt, sand, salt and some gravel. 3) Stone Roads: Paved roads of stone tiles. <p>Requirements::</p> <ol style="list-style-type: none"> 1) Reach: Roads may be built in the hex that the unit is in and any adjacent hexes. 2) Pass / Ford / River: Roads may not be built across a hex side that already has a River, a Ford or a Pass. 3) Resources: Resources must be available in the hex that the unit is located or in the hex that the road is being constructed. 4) Coordinates: The Player must know the coordinates of all the affected hexes (the hex the road is being constructed and the destination hex of the road). If the player does not know these coordinates, it is highly recommended that they do not take this research as it will create additional work on part of the GM. <p>Creating a Road:</p> <ol style="list-style-type: none"> 1) The Player creates a Comment in their Orders that states the Hex the road originates in (either the hex the unit is in or an adjacent hex), the direction of the road and the hex coordinate of the end of the road. 2) It is the responsibility of the Player to track the expenditure of ActiveMonths (AM) when building road(s). These are unassigned workers and the progress of the road construction is maintained in the Comments section. 3) It is the responsibility of the Player to send all material to Usage by the conclusion of that road construction. 4) Once the necessary AM is expended and the resources are sent to Usage, a Comment in the Comment section is used to notify the GM. At this time, the player reiterates the hexes and direction of the roads built this time. This should include the return direction road. 5) The GM adds the roads to the origination hex and destination hex. <p>Road Construction Costs:</p> <ol style="list-style-type: none"> 1) Each Turn, the unit may work on the Road by assigning workers, similar to Shipbuilding. 2) Each Hex the Road extends into has a cost. Costs are determined the most costly of the two hexes (Origination or Destination hex). For example, if building from

- PR to LJM or from LJM to PR, you would use the cost for the LJM.
- 3) All building is done from the originating Unit. More than one Hex of Road may be built a turn if it has enough AM and resources..
 - 4) Road Progress is maintained by the Player through their Activities. When a Road segment (Hex to Hex) is completed, it is the responsibility of the Player to inform the GM of this extension to the Road by showing on the map which segment was just completed.
 - 5) **Upgrading Roads:** Roads may be upgraded by paying the difference between the new Road type and the existing Road type in AM with the exception that Stone must be used equal to the new road type.
 - 6) **Destruction:** Roads may be destroyed through standard engineering practices.

Benefit Per Hex:

- 1) Trail: Hex Move Cost Modifier of: *5/6 (A 1/6th decrease)
- 2) Dirt Roads: Hex Move Cost Modifier of: *2/3 (A 1/3rd decrease)
- 3) Stone Roads: Hex Move Cost Modifier of: *1/3 (A 2/3rd decrease)

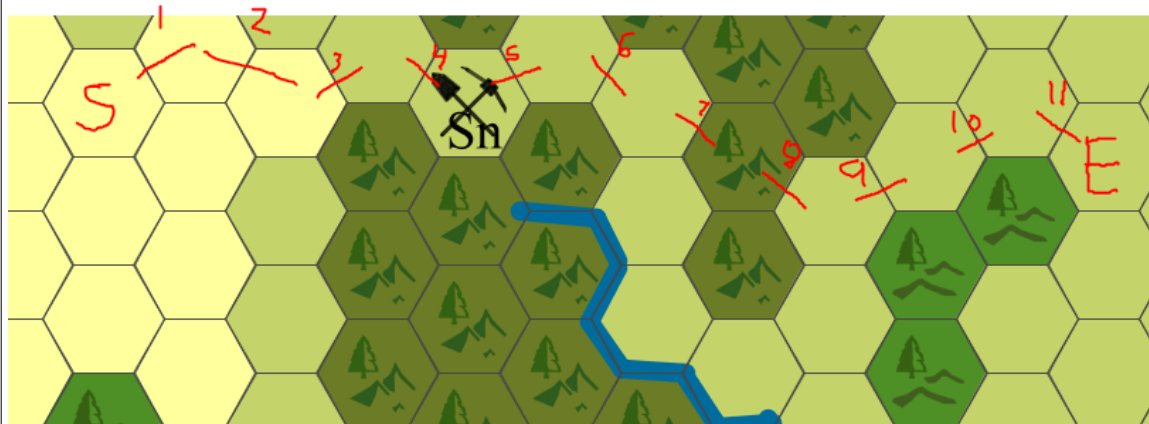
Example: Moving into a Prairie along a Road would normally cost 3 MV, but with a Dirt Road it only costs 2 MV. A Stone Road would allow that movement for only 1 MV.

Roads will lengthen the distance between end points of a Trade Route, and also enable Elements moving along a Trade Route to move further each turn (as 40 MV takes them further).

Cost per Hex Side:

Terrain	Trail	Dirt Road	Stone Road
Flat – No Trees	AM: 250 Coin: 3	AM: 600 Sand & Salt: 500 Stone: 500 Coin: 6	AM: 1.8k Sand & Salt: 1.5k Stone: 1.5k Coin: 18
Flat – Trees, Snow	AM: 375 Coin: 4	AM: 900 Sand & Salt: 750 Stone: 750 Coin: 9	AM: 2.7k Sand & Salt: 2.25k Stone: 2.25k Coin: 27
Hill – No Trees	AM: 375 Coin: 4	AM: 900 Sand & Salt: 750 Stone: 750 Coin: 9	AM: 2.7k Sand & Salt: 2.25k Stone: 2.25k Coin: 27
Hill – Trees, Snow	AM: 500 Coin: 5	AM: 1.2k Sand & Salt: 1k Stone: 1k Coin: 12	AM: 3.6k Sand & Salt: 3k Stone: 3k Coin: 36
Mountain – No Trees	AM: 500 Coin: 5	AM: 1.2k Sand & Salt: 1k Stone: 1k Coin: 12	AM: 3.6k Sand & Salt: 3k Stone: 3k Coin: 36

Mountain – Trees, Snow	AM: 625 Coin: 7	AM: 1.5k Sand & Salt: 1.25k Stone: 1.25k Coin: 15	AM: 4.5k Sand & Salt: 3.75k Stone: 3.75k Coin: 45
Swamp, Volcano	AM: 750 Coin: 8	AM: 1.8k Sand & Salt: 1.5k Stone: 1.5k Coin: 18	AM: 5.4k Sand & Salt: 4.5k Stone: 4.5k Coin: 54
Tool Use	<p>Shovel: +100% AM for each Worker with a Shovel</p> <p>Mattock: +50% AM for each Worker with a Mattock (Does not stack with Shovel)</p> <p>Mining Ladder: Provides standard bonus for Mining Ladders as if it were a Digging output.</p> <p>Pick: +50% AM for each Worker with a Pick. Only applicable in Hills, Mountains or Volcano hexes. (Does stack with Shovel)</p> <p>Wagon-Pulled(1 Wagon provides bonus to 5 people): +50% AM for each Worker</p> <p>Blasting Jars: Up to 20% of the AM may come from Workers with Blasting Jar usage. Example, Out of 3150 AM, 630 AM can come from Blasting Jar (63 workers + 63 Blasting Jars).</p>		



Example: To Build the Road in this image from the Village S to the Village E, Village S would need to spend the following resources for a Trail:

- 1: PR / PR: AM 250
- 2: PR / PR: AM 250
- 3: PR / GH: AM 375
- 4: GH / GH: AM 375
- 5: GH / GH: AM 375
- 6: GH / GH: AM 375
- 7: GH / LCM: AM 625
- 8: LCM / GH: AM 625
- 9: GH / GH: AM 375

	<p>10: GH / GH: AM 375 11: GH / GH: AM 375 Total: AM 4,375 This Trail would normally cost MV equal to 3+3+5+5+5+5+10+5+5+5+5= 56MV Now it costs to move: $3*5/6 + 3*5/6 + \dots + 5*5/6 = 47MV$ If it were to be made into a Dirt Road, the cost to go from S to E would be 38MV. If it were to be made into a Stone Road, the cost to go from S to E would be 19MV (though the cost to build would be much higher).</p>
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Name	Roman Crane
DL	7
Pre-Req	N/A
Recipe	1 Roman Crane: People 6, Eng8, Wdw10, Logs 20, Iron 40, Rope 10
Description	<p>(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. Weight: 300 Proposed by Brian Whitesell</p>

Name	Sappers / Sappers II
DL	Sappers: DL 5 Sappers II: DL 7
Pre-Req	Sappers: N/A Sappers II: Sappers (Engineering research)
Recipe	*See Description
Description	Sappers reduce the effectiveness of defensive fortifications by 5% (10% instead if Sappers II completed). <i>Uses 500 Logs each time deployed.</i> Sappers come from troops not engaged in combat. Requires 1 Sapper per 20 yards wall.

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Name	Scaffolding
DL	5
Pre-Req	N/A
Recipe	1 Scaffold: People 2, Wdw 6, Logs 3
Description	<p>Woodwork Activity</p> <p>A worker with a scaffold does the work of 1.5 effective workers for Shipbuilding or Engineering work. Every worker requires their own scaffold.</p> <p>Examples:</p> <p>1 Worker, 1 Scaffold = 1 Effective worker 2 Workers, 2 Scaffolds = 3 Effective workers 100 workers, 100 scaffolds = 150 Effective workers</p> <p>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.</p> <p>Weight: 50 lbs</p>

Name	Scout Post
DL	8
Pre-Req	N/A
Recipe	Scout Post: People 2k, Eng 6, Sct 6, Stn 6, Stone:10k, Cloth:100, Lamp:6 Upkeep: Yearly / 8 Oil + 8 Cotton
Description	<p>A Scout Post is a building that provides additional support to scouting groups and command chains that are part of a garrisoned unit. This research provides the Tribe that holds the research the ability to build Scout Posts in villages that have at least one garrison from the Clan. One garrisoned unit in that village gains the ability to operate additional scouting groups that may not be changed each month.</p> <p>Benefit:</p> <p>One Garrison at the village with the Scout Post, from the same Clan, gains 8 additional scout groups which may Patrol or Locate. These Scout Groups do not count towards the standard limit of the Tribe.</p> <p>Requirements:</p> <p>A Scout Post must be built in a village that is occupied by a Garrison of the same Clan. A Scout Post requires a yearly upkeep of 8 Oil and 8 Cotton The 8 bonus Scout Groups provided by the Scout Post may only be changed once per in-game Calendar year (813, 814, etc). The Garrison operating the Scout Post needs to have at least Scout 6 skill level. The Garrison unit that gains the extra scout groups may only use those 8 scout</p>

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	<p>groups and not any further from other sources. (It cannot send out 9 or more scout groups).</p> <p>Scout Posts may not be built or operated by other Clans, but may be operated by other Tribes.</p>
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Name	Sewers
DL	8
Pre-Req	<p>Sanitation 6 (Group C skill)</p> <p>Eng 10 (Group C skill)</p> <p>Home City established</p> <p>University (Building)</p>
Recipe	Sewers: People 1250, Eng 9, San 6, Stn 8, Stones 5000, Logs 500
Description	<p>Engineering / Stonework activity</p> <p>Sewer Requirements:</p> <p>1) Water Access: Note: Sewers may only be built at sites adjacent to water (River, Lake, Ocean) or Swamps.</p> <p>Benefits: Sewers serve all Tribes of one clan in the site.</p> <p>1) Siege Protection: Sanitation skill is increased by 4 during Sieges. This does not allow Specialists (that would require Sanitation 11 research).</p> <p>2) Population Boost: Improves Population growth (0.5%) similar to Hospital.</p> <p>Sewers may be built for other Clans but they require the Sewers research to utilize.</p>

Name	Siegecraft
DL	6
Pre-Req	<p>Engineering 10 (Skill)</p> <p>Leadership 10 (Skill)</p> <p>Tactics 10 (Skill)</p>
Recipe	N/A
Description	<p>Siegecraft allows the Tribe to develop a new Group B Skill, Siegecraft. Each point of Siegecraft reduces the besieger's casualties by 2%. In cases where both the besieger and the village under siege have the Siegecraft Skill, the difference in their skills is multiplied times 2% and used to adjust the besieger's casualties. If the defender's skill exceeds the besieger's skill, the adjustment increases the besieger's casualties.</p> <p>This Siegecraft 2% adjustment occurs in any battle, skirmish, or other event in which</p>

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	<p>casualties occur, between a besieger and a village under siege. It does not apply in cases where the besieger battles an outside force.</p> <p>In addition, completion of this Siegecraft research topic will be a pre-req for any further offensive and/or defensive siege research.</p>
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Name	Stables
DL	4
Pre-Req	N/A
Recipe	Stable: People 50, Logs 50
Description	<p>Engineering Activity</p> <p>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.</p> <p>This structure may be built in other Clans' villages and used by that Clan.</p>

Name	Stone Wall 25'
DL	7
Pre-Req	N/A
Recipe	*See Description
Description	<p>Engineering Activity</p> <p>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</p> <p>This structure may be built in other Clans' villages and used by that Clan.</p>

Name	Stone Wall 30'
DL	9
Pre-Req	Stone Wall 25' (Engineering)
Recipe	*See Description
Description	<p>Engineering Activity</p> <p>Needs the prior four layers to exist. 30' Walls 18 people 90 stones per yard (if 25' wall exists)</p>

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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	<p>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.</p> <p>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.</p>

Name	Trellis
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	<p>Woodwork Activity</p> <p>Requires Farm 6 to use Trellis to reduce AM for grape harvesting</p> <p>A structure to support vines and hold them in optimal position to encourage growth and enable easier harvesting of the grapes.</p> <p>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.</p> <p>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.</p> <p>Combines linearly with other research (so treat as +3 workers not x4, if in conjunction with other research).</p> <p>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.</p>

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	Weight: While the Trellis is stored as an item, it is meant to be a stationary installation. It has a hefty weight and is not meant to be moved.
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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 constructed 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)
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. Weight: 2 lbs Proposed D Thacker

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

Farming

Name	Agriculture 1, Agriculture 2, Agriculture 3
DL	1, 2, 3
Pre-Req	Farming 11
Recipe	N/A
Description	<p>Agriculture may be attempted at Farm11. The effect of gaining an Agriculture topic is to add levels to your Farm Skill.</p> <p>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).</p> <p>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.</p> <p>Books may be written.</p>

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

Name	Herb Plot
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>Planting:</p>

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- 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

	<p>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 grain stalks into sheaves and collect the actual grain kernels as the grain 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).</p>
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Name	Juniper
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Farming Activity May only be grown in Coniferous hexes. Best location is Hilly, Temperate.</p> <p>Juniper is a Maintained Crop. Rules and returns for planting, maintaining and harvesting Juniper are identical to Grapes.</p> <p>Note: Trellis may not be used to assist in harvesting Juniper.</p> <p>NOTE: Until further coding, players may plant Juniper as if they were Grapes. The one unit may not plant both Grapes and Juniper in one turn. In the comments section of the turn order, the Player shall inform the GM of the need to manually update the Grape planting to Juniper.</p> <p>Weight: 0.01 lbs</p>

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	<p>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. <i>(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).</i></p> <p>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.</p> <p>Plantations are not considered inside defensive walls of a village / city.</p> <p><i>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</i></p>

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<p><i>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."</i></p> <p>Examples:</p> <p>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.</p> <p>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)</p> <p>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.</p>

Name	Trellis
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	<p>Woodwork Activity</p> <p>Requires Farm 6 to use Trellis to reduce AM for grape harvesting</p> <p>A structure to support vines and hold them in optimal position to encourage growth and enable easier harvesting of the grapes.</p> <p>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.</p> <p>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).</p> <p>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.</p> <p>Weight: While the Trellis is stored as an item, it is meant to be a stationary installation. It has a heft weight and is not meant to be moved.</p>

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	Trawlers increase the amount of Fish that are provided through the Fishing activity.														
		ShB	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	M P	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

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	<p>Improvements than you have Burners. They may be built in other Villages and transferred but are not transportable. They must be built in place.</p> <p>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.</p> <p><i>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.</i></p>
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Name	Log Driving
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Logs cut on a river bank or moved to a river may be dumped into the current by a Unit and allowed to flow to a point where they are picked up by another unit. One worker for every 100 logs must be assigned as a Log Driver in activities (Forestry). The log drivers don't actually move with the logs but must come from a unit that is at one of the end points or is adjacent to the river along the path that the logs take. Regardless of who supplies the log drivers, there must be a sending and receiving unit at the end points.

Name	Managed Plantations
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>Each month Twice per year (in Fair months) the player receives a shipment of Logs/Bark based on the current month's 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</p>

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	<p>the Fair months when the shipment is due. The player shall use the automated transfer system to collect the Logs/Bark for the current turn if they are utilizing the automated order spreadsheet. The correct transfer code is from unit 2263. Otherwise, the player is responsible for indicating in their orders that the transfer is needed.</p> <p>Note: This is Forestry research and will not produce weapons like Staves and Shafts.</p>
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Name	Improved Charcoal Making
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	<p>Metalwork Activity</p> <p>Saws multiply logging rates x 4. <u>Cannot</u> be used with Adze.</p> <p>A Forester with no tools cuts 4 Logs A Forester with Adze cuts 8 Logs A Forester with Saw cuts 16 Logs</p>

Name	Sawmill
DL	6
Pre-Req	Milling 10 (Group C skill) Forestry 4 (Group A skill)
Recipe	1 Sawmill: People 300, Eng 6, Wd 4, Stn 4, Logs 250, Stones 625, Iron 500, Coal 4000
Description	<p>A new method of milling logs, with the power coming from water so fewer people can cut may more logs.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> • Max Sawmills: A site is restricted to 100 Sawmills. • Terrain: The site must be on a hex that allows Forestry activities that provide logs (Forest, Jungle, etc) • River: The site must be on a hex that has at least one Hexside as a River or Canal.

	<p>Bonuses:</p> <ul style="list-style-type: none"> • Max Users: 100 People per Sawmill • Production Boost: Workers utilizing a Sawmill produce x8 the number of Logs they normally would. A worker may not utilize an Adze or Saw, though may utilize research topics that increase Logs per Person (5 Logs / Person, 6 Logs / Person, etc). <p>Other Clans:</p> <ul style="list-style-type: none"> • Sawmills may be built for other tribes, but that Tribe must have Milling 10 and Forestry 4 or better to gain the bonus.
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Name	Scraper
DL	2
Pre-Req	N/A
Recipe	1 Scraper: Person 1, Mtl1, Iron 1, Coal 4
Description	<p>Metalwork Activity</p> <p>Doubles rate for Bark Stripping</p> <p>Weight: 1 lb</p>

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> 1 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 Furring and must be shown as a Transfer, for example, “400 Winter Furs to 0250” using 100 Actives with 500 Traps.

Garrison

Name	Sentry Duty
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Units in the Tribe with Sentry Duty gain the ability to assign Warriors to Sentry Duty. If 10 Warriors are assigned for every 1,000 Population (or fraction thereof) in the Hex to Sentry Duty, Clan Units in that hex gain +2 Terrain Proficiency when defending.</p> <p>If a Garrison unit performs the Sentry Duty, Clan Units in that hex gain an additional +2 Terrain Proficiency.</p>

Glasswork

Name	
DL	
Pre-Req	
Recipe	
Description	

Generalship

Name	Circumvallation
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Once completed, this research topic allows a besieging force to construct a Ditch/Moat and wooden Palisade (with Wooden Towers) surrounding the village they are besieging.</p> <p>Note that circumvallation construction can be done only on turns when the siege order is given - an assault does NOT allow circumvallation construction.</p> <p>These defenses come into play whenever the besieged defenders attempt to break the siege (or to end DEVA) and/or when any outside forces try to attack the besiegers. In these cases, the casualties suffered by the besiegers are reduced the factors shown in the rules for Ditches, Moats, Palisades and Wooden Towers.</p> <p>For example a 40% reduction for a wooden Palisade with a Moat.</p> <p>To be effective, the circumvallation walls must cover FOUR times the circumference of the walls of the village being sieged.</p> <p>For example, 4,800 yards of circumvallation is required to fully circumvallate a besieged village with 1,200 yards of walls.</p> <p>Finally, circumvallation walls remain in existence for only as long as the besiegers remain in the hex. They instantly vanish if the besiegers ever leave the hex for any reason.</p>

Name	Field Marshall
DL	7
Pre-Req	Generalship 11
Recipe	N/A
Description	<p>This adds a new skill (Category B) called Field Marshall. A Tribe that has completed the Field Marshall research topic may develop this skill.</p> <p>A Tribe that possesses Field Marshall has its Generalship skill increased by the unit's Field Marshall skill's full value 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</p>

	outranks Generalship).
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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	Barber Surgeons
DL	4
Pre-Req	Battlefield Medicine (Healing research)
Recipe	N/A
Description	<p>Barber Surgeons were skilled at saving the lives of Warriors thought totally lost, but those Warriors did not return whole. Missing limbs, eyes and chronic pain were the lingering effects of the Barber Surgeons ministrations.</p> <p>Requirements:</p> <ol style="list-style-type: none"> 1. An additional 10 Actives, Warriors or Hirelings per 100 Warriors may be assigned to a battlefield support role as healers. If there are not enough additional Warriors assigned, the bonus to the Shift to Inactives is reduced pro-rata. <p>Benefit:</p> <ol style="list-style-type: none"> 1. At the end of all Combat for the turn, a Unit with Barber Surgeons gains Inactives equal to 5% (rounded up) of the “dead” Warriors for that Unit. <ol style="list-style-type: none"> 1. Example: 250 Warriors are listed as Casualties. At the end of the Combat for the turn, the Unit loses 250 Warriors but gains $250 * 0.05 = 13$ Inactives <p><i>Warriors once considered beyond saving and regulated to the embrace of death are instead hastily operated on and go on to live productive lives cleaning latrines and wishing for their glory days while lamenting the loss of a limb, eye or other body part.</i></p>

Name	Battlefield Medicine
DL	5
Pre-Req	War College (Research research)
Recipe	N/A
Description	<p>Battlefield Medicine provides the ability to heal wounded combatants between the Ranged and Melee phase of combat.</p> <p>Requirements:</p> <p>Units in the Tribe with Battlefield Medicine may assign Warriors and Actives to a battlefield support role as healers. 5 Healer (Warrior, Active or Hireling) must be assigned in the monthly Turn Orders for every 100 Warriors participating in combat that turn. Less</p>

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	<p>Healers have a corresponding loss of efficiency in healing. Warriors assigned to battlefield support role as a healer do not count against the 1/3rd limit.</p> <p>Benefits: Once Battlefield Medicine is completed and healers assigned, Units in the Tribe that are involved in combat may attempt to heal Wounded warriors at the end of the Ranged combat phase. Wounded warriors that are healed are available to fight in the Melee phase though any wounded warriors that are not healed are beyond saving and are dead. Healing performed at the end of ranged phase follows standard healing rules with the exception that only 25% of the normal number of warriors are healed. It just is not as effective as a more stable form of healing</p> <p>CODE NOTE 1: Assigning of Healers is not yet supported by the AutoOrder spreadsheet. Until it is updated, leave them unassigned and provide the assignment in a Note under the Comments section.</p> <p>CODE NOTE 2: Battlefield Medicine is not currently coded and is part of Phase II of the Combat Module. Utility of this research will not be effective during combat until the code supports. Learning this research now would provide no benefit until the code is completed.</p>
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Name	Battlefield Medics
DL	4
Pre-Req	Battlefield Medicine (Healing research)
Recipe	N/A
Description	<p>Requirements: An additional 10 Warriors (not Actives or Hirelings) per 100 Warriors may be assigned to a battlefield support role as healers. If there are not enough additional Warriors assigned, the bonus to effectiveness is reduced pro-rata.</p> <p>Benefits:</p> <ol style="list-style-type: none"> 1. These Battlefield medics allow the healing for Battlefield Medicine to be at 50% efficiency. 2. Additionally, prior to Healing, 2% (rounded up to the nearest integer) of the Warriors that were designated as Casualties in the Ranged Phase are converted to Wounded and may be healed normally. <p>CODE NOTE 1: Battlefield Medics is not currently coded and is part of Phase II of the Combat Module. Utility of this research will not be effective during combat until the code supports. Learning this research now would provide no benefit until the code is completed.</p>

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Name	Camp Medics
DL	8
Pre-Req	Battlefield Medicine (Healing research)
Recipe	N/A
Description	<p>A skilled set of Medics were able to lend their assistance to an entire army, but only if they were given the proper logistics and authority to act among a collection of different units.</p> <p>Benefits: Any Unit with Camp Medics research topic may serve to provide healing to any other friendly unit of the same Clan in the same Hex. This combat may be Siege, Assault or Assault by way of Locate. Standard healing rules apply with the exception that the Unit with Camp Medic skills and research topics are used in regards to Healing and not the combat unit's own skills.</p> <p>For all intents and purposes, the combat Unit's Healing (and related) skill(s) is equal to the skill of the unit with Camp Medics and the combat Unit may include the Healing related research topics on the list of known research topics for the combat.</p> <p><i>Its Camp Sanitation but for a Healing Corp.</i></p>

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 Lv11 for this to happen.

Name	Salves
DL	4
Pre-Req	N/A
Recipe	N/A

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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.
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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	<p>To be developed. The effect of creating breaches is to reduce defensive factor.</p> <p>..\Combat\Breaches\BreachesSteveSimmonsSheetVII.xls</p> <p>One yard or breach repaired of wall requires the following:</p> <table border="1"> <thead> <tr> <th>ITEM</th> <th>SKILL</th> <th>TYPE</th> <th>PEOPLE</th> <th>LOGS/STONES</th> </tr> </thead> <tbody> <tr> <td>10'</td> <td>Eng 4</td> <td>Palisade</td> <td>1 Person</td> <td>3 Logs</td> </tr> <tr> <td>10'</td> <td>Eng 7</td> <td>Stonewall</td> <td>3 Person</td> <td>30 Stones</td> </tr> <tr> <td>15'</td> <td>Eng 8</td> <td>Stonewall</td> <td>6 Person</td> <td>45 Stones</td> </tr> <tr> <td>20'</td> <td>Eng 9</td> <td>Stonewall</td> <td>9 Person</td> <td>60 Stones</td> </tr> </tbody> </table>				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
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	<p>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.</p> <p>Only 1/3rd of the Slaves in a Unit are available for Combat Orders.</p> <p>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.</p>			

Name	Slave Crews II			
DL	3			
Pre-Req	Slave Crews (Heavy Weapons research)			
Recipe	N/A			
Description	<p>Use of Slaves to fire any/all weapons whose effectiveness uses either the Heavy Weapons or the Artillery skill during any combat that siege weapons are allowed. 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.</p>			

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Only 1/3rd of the Slaves in a Unit are available for Combat Orders.

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	Angora Goats
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Angora Goats may be sheared for wool (cotton) twice a year on months 6 and 12. One person may shear 10 goats. Each goat produces 25 cotton (1 person with 10 goats can produce 250 cotton).</p> <p>All goats in the Clan are considered to be Angora Goats, though only the tribe with the research and its elements may perform the shearing.</p> <p>Note: Until Shearing is coded, twice a year the player shall be responsible for manually reporting the shearing. During months 6 and 12, any Population that shall perform the shearing action should not be assigned to other tasks. The player shall use the autotransfer system to transfer the Cotton FROM 1263 and TO the unit performing the shearing.</p>

Name	Animal Training
DL	3
Pre-Req	N/A
Recipe	N/A
Description	<p>Animal Training allows units of the Tribe to train Performance Animals.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • Fair: Performance Animals may perform at the Fair. See updated Fair spreadsheet. • Research Topics: Other research topics, Circus Troupe for example, require Performance Animals. <p>Training:</p> <ul style="list-style-type: none"> • Initial Training: Performance Animals may be trained by spending 1 Active per Animal for 3 months. The type of Animal must be identified at the start of Animal

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	<p>Training and the animals must be present with the Unit throughout the duration of the training. Neither the Actives nor the Animals may perform other activities during these months. Utilize Comments in the turn orders to track the training of the animals.</p> <ul style="list-style-type: none"> • Completion: At the end of the Training, utilize the Comments section of the orders to request the conversion of the animals to Performance Animals. • Periodic Training: 1 Active per Performance Animal must be used each season to perform periodic training for each Performance Animal. If this is not performed, the Performance Animal will revert to a normal animal of that type. If this is caught by the GM vs the player, the animal may in fact escape its neglectful masters. <p>Restrictions:</p> <ul style="list-style-type: none"> • Breeding: Performance animals do not breed. • Herding: Performance animals require normal herding. • Fodder/Water: Performance animals require normal nourishment. • Transfers: Performance Animals may not be transferred to a unit without Animal Training research.
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Name	Dairy Cattle
DL	6
Pre-Req	N/A
Recipe	100 Milk: 1 Person, 10 Cattle (Reusable) 30 Cheese: 1 Person, 90 Milk
Description	<p>Dairy allows the use of the Milking and Cheesemaking activities.</p> <p>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.</p> <p>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.</p>

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.

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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.

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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	<p>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.</p> <p>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).</p> <p>Dog 3 provs, 1 skin, 1 gut eats 0.5 provs per turn Weighs 50 lb</p>

Name	Improved Fence Builders
DL	2
Pre-Req	Fences (Engineering/Herding research)
Recipe	1 Fence: People 5, Eng 8, Logs 100
Description	<p>Engineering Activity</p> <p>The Tribe and its elements are more efficient at building Fences. When building a fence, a Unit with Improved Fence Builder may use a new Recipe to build the Fence.</p>

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.

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Name	Veterinarian Medicine
DL	7
Pre-Req	Herd 11 (Herding) Expert Breeding (Herding) Scroll
Recipe	N/A
Description	<p>This adds a new skill (Category B) called Veterinarian Medicine. A Tribe that has completed the Veterinarian Medicine research topic may develop this skill.</p> <p>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.</p> <p>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.</p> <p>On the following year, if VetM has reached 8, Herd would be set = 15.</p> <p>Books may be written but each Book requires a Scroll.</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>

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

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).

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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	Equestrianism
DL	6
Pre-Req	Herding 10 (Skill)
Recipe	N/A
Description	<p>A Tribe holding this research may host an annual Equestrian event.</p> <p>Requirements:</p> <ol style="list-style-type: none"> 1) 500 Warriors must attend at a cost of 100 silver each (total cost Silver 50,000), payable by the Tribe. 2) Benefit is gained once the Tribe hosts the event. <p>Benefits:</p> <ol style="list-style-type: none"> 1) The Tribe gains a bonus based upon the year. <ol style="list-style-type: none"> a. Year 1: +0.02 Civilian Morale Boost b. Year 2: +1 to Horsemanship skill (may go past 10 but does not allow Specialists) c. Year 3: +0.02 Civilian Morale Boost d. Year 4: +1 to Herding skill (may go past 10 but does not allow Specialists)

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	<p>A Knight can only fight as a Cavalry unit.</p> <p>Attributes of Knights:</p> <ul style="list-style-type: none"> • 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

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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, <u>then add</u> 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.

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Intelligence

Name	Field Intelligence
DL	2
Pre-Req	N/A
Recipe	N/A
Description	<p>A unit dispatching 4 scout parties with a minimum of 5 mounted scouts per party using a Field Intelligence order gains +2 Leadership and +2 Horsemanship for any combat that takes place in or immediately after the scouts are assigned.</p> <p>Using Field Intelligence Requires at least Leadership 6 and Scouting 6.</p> <p>Field Intelligence is the gathering of Intelligence in the battlefield and the application of it in combat. It allows a Clan to identify any weakness in their opponent's forces, terrain advantages and other opportunities that could be used to their advantage.</p> <p>Scouts used for Field Intelligence orders do not deliver a scouting report. They are not concerned with the general terrain, mines and other units. Their focus is on specific advantages for combat. This could be a specific hill or defensive hollow within a hex rather than information on the whole hex.</p> <p>Scouts using the Field Intelligence order would not need to list directions as the GM would not run a scouting report for them. The result is a decrease in workload for the GM.</p>

Name	Hire Mercenary Guard
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Hire Mercenary Guard sources and recruits Mercenaries from the local population. They cost 10 silver per turn (as per normal Mercenaries). Up to 200 Mercenaries may be recruited per year by means of this research.</p> <p>Courier Elements</p> <p>Each Courier Element/Element may deploy up to 100 Mercenary Guards (shown in status as Mercenaries).</p> <p>Mercenary Guard attached to couriers fight at the Morale and Leadership and Healing skill of the unit they attached to and at Com 6, Hor 6, Arc 6. The can be assigned to Security or Suppression as many as are in the unit.</p>

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	<p>When assigned to defense in a unit performing a courier contract they can be assigned as defenders on a 1 to 1 warrior to defender ratio and the total defenders can exceed the 1/3 ratio if attacked while performing a courier mission. Eg a Courier Element with 60 Warriors present and 80 Guards may deploy to combat 20 Warriors (1/3) and 60 Guards (assuming these have been assigned to Defense).</p> <p><u>Elements and other units (normal)</u> Act as normal Mercenaries</p>
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Name	Native Operative
DL	2
Pre-Req	N/A
Recipe	N/A
Description	<p>Upon completion of Native Operative the Tribe with this topic recruits a group of locals to gather information about various skills from Category A, B and C. The recruits are purely an intelligence gathering unit, drawing information about skills from the local network. These locals form a tribe that consists of 10 Inactives.</p> <p>The Native Operative tribe can attempt skills as per any normal tribe, including using a teacher at normal payment rates.</p> <p>The Native Operative tribe incurs the monetary cost of a normal tribe.</p> <ul style="list-style-type: none"> • It can move only by using the Follow Order. • It may not accept transfers of population. • it can perform no activities • it can only be populated with inactives (10) • it cannot hold goods and must be assigned a GT • it cannot work on Intelligence skill • it cannot conduct research <p>It may, on any turn, transfer any of its skills to another tribe in the clan as a BM transfer - provided the receiving tribe has a tribe (must be a tribe) in same the hex. This new skill level replaces the current skill level for that skill in the receiving Tribe.</p> <p>In return for the transfer of this knowledge, the Native Operatives are paid 50 rare commodities (of any type other than coffee or tea). This amount is transferred to usage.</p> <p>There is a Limit of one Native Operative tribe per clan.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Upon completion of this research, contact the GM to create the extra tribe.

	<p>2. The maximum number of Tribes that a Clan may have is 10. Creation of extra tribes through this research counts against this limit. Be aware that this may restrict your options for International NPC Tribes.</p>
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Name	Organized Intelligence Analysis (OIA)
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p>

Leadership

Name	Alliance MotC
DL	4
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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 <i>warriors</i> 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 <i>warriors</i> in the leader's clan. In a four-way MOTC, this limit is reduced to a third and so forth. <u><i>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.</i></u> 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.</p>

Name	Federal Community of Clans
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DL	4
Pre-Req	Alliance MotC (Leadership research)
Recipe	N/A
Description	<p>A Federal Community of Clans (Known below as the FCC) is a group of closely knit villages within a set geographic area that has enlisted the aid of the locals in exchange for assisting with their defense. Multiple clans band together for a common defense, but only in their designated territory.</p> <p>FCC Creation:</p> <ul style="list-style-type: none"> • Federal Capital: Once completed, this research topic allows the Clan to designate a Federal Capital. The Federal Capital must be a village owned by the Clan. The Federal Capital may not be changed once designated without dissolving the existing FCC and researching FCC again. • Membership List: Once the Federal Capital is designated, the Clan with the research provides the Game Master with a list of all Clans that are to be part of the FCC. The Clan with the research becomes known as the Federal Leader. • FCC Zone: A zone of effect is created around the Federal Capital and reaches out 25 hexes. It includes land and water hexes. This is called the FCC Zone. • FCC Notification: The GM will publish an announcement of the creation of the FCC within the TribeNews that includes the hex coordinates of the Federal Capital within approximately 5 hexes of deviation. This provides the other players fair notice of the risks associated with combat inside the FCC Zone, though not its exact borders. <p>FCC Membership Restrictions:</p> <ul style="list-style-type: none"> • Maximum of 10 Members (which includes the Federal Leader) • Members must have a Village within 25 hexes of the Federal Capital • Members must not be members of any other Federal Community of Clans <ul style="list-style-type: none"> ○ A Clan may only be a member of a single FCC • Members may be removed and added. Any changes must meet the normal Restrictions and should be communicated to the GM. <p>FCC Membership Benefits:</p> <ul style="list-style-type: none"> • Attacker Penalty: Any Unit that initiates aggression against a Unit or Structure (Local Support Settlement, NPC Special Hex construction, Village, etc) within the FCC Zone that belongs to a member of the FCC suffers a 20% penalty to Morale for the duration of Combat. <ul style="list-style-type: none"> ○ Attackers are notified upon conclusion of the first combat that the combat was held within an FCC Zone. • Defensive Bonus: Any Unit or Structure within the FCC Zone that belongs to a member of the FCC gains a Terrain Proficiency Bonus of +4. (This represents knowledge of local defensive locations, permanent minor defensive structures and knowledge of how to harass the enemy on home terrain) • These two benefits affect any and all combat within a turn provided it occurs in the

FCC Zone and it affects a Unit / Structure that belongs to an FCC member.

- **Federal Leader:** The Tribe that holds this research receives 5 Gold per FCC member in turn 1 of every year, based on membership roles in month 12 of the preceding year. This is effectively a tithes from the Local population that benefits from permanent defensive presence. It is the responsibility of the Federal Leader to notify the GM when this is due and include it in the orders.

FCC Miscellaneous:

- It is the responsibility of the FCC member under attack to invoke these FCC penalties / bonuses by notifying the GM when he/she receives the request for combat orders. If the GM is not notified, these penalties/bonuses will not be in force.
- If the Village at the center of the FCC is abandoned or destroyed, the FCC is discontinued and the research topic is lost, but may be attempted again.

Name	Generalship
DL	7
Pre-Req	N/A
Recipe	N/A
Description	<p>This adds a new skill (Category B) called Generalship. A Tribe that has completed the Generalship research topic may develop this skill.</p> <p>A Tribe that possesses Generalship has its Leadership skill increased by the unit's Generalship's full skill value 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.</p> <p>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.</p>

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).
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Name	Junior Officer
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Adds +1 to the Leadership Modifier for determining potential casualties in combat. Additionally, Adds +2 to Leadership Skill for all other uses of Leadership in combat (example Routing)</p> <p>Note: This is a slight increase in benefit based upon edge cases where a standard +2 to Leadership skill would not provide an actual numerical benefit to Potential Casualties based upon the Combat calculations and table lookups. By shifting from a standard +2 to Leadership skill to a +1 to Leadership modifier, it keeps the same effective bonus as before but eliminates those edge cases.</p>

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.

Name	Resilience I, Resilience II, Resilience III
DL	5,7,9
Pre-Req	Resilience I: N/A Resilience II: Resilience I (Leadership research) Resilience III: Resilience II (Leadership research)
Recipe	N/A
Description	<p>A Unit with the Resilience research completed is capable of holding out against the enemy under even the worst outcome of combat. These Units are exceptionally hard to rout, but it comes with consequences:</p> <p>Benefits: During the beginning of a battle, a Unit may declare that it is utilizing Resilience</p>

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	<p>by including it on their Combat Entry Sheet. This can be done either by an attacking or defending unit. During all Combat this turn, the Unit gains the following:</p> <ol style="list-style-type: none"> 1) Temporary Morale Increase of 0.02 for purposes of combat this turn. 2) When determining if a Unit routes, the random die roll is made once normally. If it indicated a Rout, the dice are rerolled and checked against for each level of Resilience. If one of the die rolls comes up as a Does not Rout, the unit will not rout. The unit will only rout if all the results show a Rout. <p>a. Example: A Unit has a 55% chance of not routing. It has Resilience I. A random number is generated between 1 and 100. The results are 89. Typically, the 89 would indicate a rout (It is greater than 55), however, the Unit declared Resilience I at the start of Combat. It rerolls the random number and gets a 47. Because the 47 is below the point of Routing, the unit will not Rout this combat.</p> <p>Restrictions and Penalties:</p> <ol style="list-style-type: none"> 1) A Tribe may only utilize Resilience in a Unit once in a calendar year (Month 1-12) regardless of the number of Tribe elements. 2) If a unit would have Routed but a reroll from Resilience saves them, the Tribe loses 0.02 Morale per level of Resilience research. 3) War Fatigue: Additionally, if the Unit would have Routed but a reroll from Resilience saves them, the Tribe may not initiate combat and may only declare defense in combat orders for that calendar year. 4) War Fatigue: Regardless of if Resilience was used, as long as Resilience was declared, the Tribe that the Unit belongs to must sacrifice 1 'Lot' of a desired Commodity on the next turn or suffer an additional 0.02 Morale loss per level of Resilience.
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Name	Rousing Speech
DL	3
Pre-Req	N/A
Recipe	N/A
Description	A combat force that has a unit with Rousing Speech has a -5% modifier to the chance of Routing.

Name	Siege Marshall
DL	6
Pre-Req	Generalship 5 (Skill) Engineering 7 (Skill)
Recipe	N/A
Description	Historically Siege Marshals (Vauban was the most famous) were generals with tremendous skill in conducting (or opposing sieges). The hallmark of a Siege Marshall is getting the maximum benefit out of each and every possible advantage.

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	<p>Benefits:</p> <ul style="list-style-type: none"> • In and of itself, the Siege Marshal topic provides no benefit. • Siege Marshall increases two (2) other offensive siege benefits present within its tribe (or within its Clan when in MotC). <p>Specific Benefits:</p> <ul style="list-style-type: none"> • Assault Troops: No Effect • BioWar: No Effect • Catapults: 1 Catapult required per 40 yards (instead of per 20 yards) • Sappers: Bonus is increased to 7.5% and 15% • Siege Cannon: 1 Siege Cannon required per 40 yards (instead of per 20 yards) • Siegecraft: No Effect • Trebuchets: 1 Trebuchet required per 40 yards (instead of per 20 yards). <p>Note: Except as noted in the Specific benefits above, no further benefits are offered by this research topic. Should similar items or research become available in the future, Siege Marshall may be modified to take them into account (for instance, a new type of siege engine, or battering rams, etc). In such a case, the GM should be contacted to discuss what effects Siege Marshall would have on the topic.</p>
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Name	Trusted Maps
DL	3
Pre-Req	Alliance MotC (Diplomacy research)
Recipe	N/A
Description	<p>To Benefit from this research, a Clan must:</p> <ol style="list-style-type: none"> 1) Have completed Alliance MotC Research. 2) Must have a declared alliance in which at least one member has the Sea-born Trade Routes research. 3) Must have established Diplomatic Relations with the clan that completed Sea-born Trade Routes research. <p>Any fleet in the Tribe holding this research has their MV increased by 50% when using Sea-born Trade Routes. If combined with other research, this bonus is additive, not cumulative.</p> <p>Note: A Fleet may only gain movement bonuses from three research topics simultaneously. Examples include, but are not limited to, Board of Trade, Fast Fleet, Trusted Maps, etc.</p>

Leatherwork

Name	Harvest Bag
DL	3
Pre-Req	N/A
Recipe	1 Harvest Bag: People 2, Ltr 4, Leather 3
Description	<p>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).</p> <p>It is incumbent on the player to show equivalent workers in Orders. Weight: 1 lb Proposed by Patrick Travers</p>

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	<p>Allows one Tribe to aid another tribe of the SAME CLAN in writing books (BUT NOT reading books)</p> <p>Allows a tribe with a HIGHER Literacy skill to aid another tribe of the SAME CLAN to write (but not read) books.</p> <p>Restrictions:</p> <ol style="list-style-type: none">1) Both tribes must be in the same hex2) 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 <p>Proposed by S Simmons</p>

Name	Haiku
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Completion of Haiju adds 0.05 to Morale. Books may be written.

Name	Mercenary Training
DL	6
Pre-Req	Sensai in Clan (Literacy research)
Recipe	N/A
Description	<p>A class of up to 300 mercenaries can be intensively trained to improve their combat skills. This training requires the presence (in the clan) of a Sensai. A Sensai can work with any tribe in the clan. This training lasts 3 months (3 consecutive turns). A group of untrained mercenaries (all skills = 0) will be raised to skills = 2 after three months of</p>

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training. A second class can raise their skills to 4, a third to 6 and so forth, until skill = 10 is reached. Thereafter, the gain is limited to only +1 per three months of training. It is incumbent on players to keep track of the skill level of each class of mercenaries. If two different classes participate in the same combat, skills are averaged in the usual way.

The skills that are trained are Combat, Leadership, Horsemanship, Archery, Heavy Weapons, Captaincy and Mariner. In situations where mercenaries are involved that require other skills (such as Scouting or Tactics, the mercenaries' skills are NOT considered, and the skills possessed by the unit containing the mercenaries is used in all such cases.

Only one class of mercenaries can be trained at a time and as stated above, the maximum size of the class is 300 – exception, a Sensai Dan is allowed to simultaneously train two classes, each of 300. A class must consist of only one type of mercenary, for example a class may NOT contain both Ottoman and Japanese mercenaries. The gain in skills as described above is the only benefit. All other rules pertaining to the use of mercenaries still apply – see the Mandate section 3.11.

The Sensai must be paid for each class trained. Payment is 10 loads of any commodity – not necessarily the desired commodity for the clan. A load is the amount of a commodity needed to buy Hirelings or Slaves as shown in the table under 14.1.2 Commodities in the Mandate. For example, a Sensai would accept 20 Jade, 100 Ivory or 500 Tea to train a single class for three months.

Name	Sensai (Master)																				
DL	6																				
Pre-Req	Scroll																				
Recipe	*See Below																				
Description	<p>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.</p> <p>Prerequisite Lvl 11 in the Skill in question.</p> <table> <tr> <td>Master of Archery</td> <td>13</td> <td>DL4</td> <td>50 Gold</td> </tr> <tr> <td>Master of Security</td> <td>13</td> <td>DL4</td> <td>30,000 Silver</td> </tr> <tr> <td>Master of Combat</td> <td>13</td> <td>DL4</td> <td>100 Frankincense</td> </tr> <tr> <td>Master of HvyWeapons</td> <td>13</td> <td>DL4</td> <td>100 Jade</td> </tr> <tr> <td>Master of Horsemanship</td> <td>13</td> <td>DL4</td> <td>100 Diamonds</td> </tr> </table> <p>Allows the skill to operate at level 13.</p>	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
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																		

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

Mercenaries

A Sensai may also train Mercenaries (the Mercenary Training topic is approved by Peter but not yet published). A Sensai, however, is limited to training a maximum of 300 Mercenaries at a time. A clan may recruit a second Sensai, thus increasing the number of Mercenaries that may be simultaneously trained. The second Sensai is recruited by simply repeating the Sensai topic a second time, including expending a second scroll. Recruitment of a third Sensai is not permitted.

Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.

Name	Sensai Dan 1
DL	7
Pre-Req	Sensai (Literature)

	Scroll
Recipe	N/A
Description	Allows the next two progressions (to Lvl 17 and 19) Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.

Maintain Boats

Name	Amphibious Warfare 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 Warfare 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	<p>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.</p> <p>Benefit: Aboard vessels, animals carrying capacities are: Goat = 0.5 person; cattle = 2.5; horse = 4, elephant = 6.</p> <p>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).</p>

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	<p>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).</p> <p>Weight: 1 lb</p>

Name	Anvil
DL	6
Pre-Req	N/A
Recipe	1 Anvil: People 10, Mtl 10, Iron 100, Coal 500
Description	<p>Metalworking Activity</p> <p>A Worker with an Anvil counts as 1.5 workers (+0.5 Effective Workers) when performing Armour making, Metalwork or Weapon making activities. Anvils may be used with other implements.</p> <p>NOTE: Until coding supports the use of the Anvil, players are responsible for calculating and monitoring the use of effective workers.</p> <p>Weight: 100 lb</p>

Name	Blade Shears
DL	2
Pre-Req	N/A
Recipe	1 Blade Shears: People 2, Mtl 4, Iron or Steel 2, Coal 10
Description	<p>Metalworking activity</p> <p>One worker using Blade Shears counts as 2 workers (+1 AM) when shearing Sheep or Angora Goats.</p> <p>Weight: 3 lbs</p>

Name	Bronze Statue
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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. <u>Standard limit of 5 traps per hunter apply.</u> 1 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

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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) A Mining Ladder provides a Bonus to Mining output equal to +100% to ten (10) miners and a Bonus to Digging output (Clay, canals, sand, moats, etc) equal to +100% to ten (10) diggers. This is cumulative with other implements (Picks, Shovels, Ore Carts, Seam Wedges, etc). This bonus is additive, not compounded. Example: 5 Miners with 1 Mining Ladder would count as 10 Miners 10 Miners with 1 Mining Ladder would count as 20 Miners 15 Miners with 2 Mining Ladders would count as 30 Miners 20 Miners with 2 Mining Ladders would count as 40 Miners 20 Miners with 2 Mining Ladders and 20 Picks would count as 60 Miners 20 Miners with 2 Mining Ladders, 2 Ore Carts and 20 Picks would count as 80 Miners 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.

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	1 Mining Ladder weighs 50 lbs.
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Name	Saw
DL	5
Pre-Req	N/A
Recipe	1 Saw: People 3, Mtl5, Iron 5, Coal 40
Description	<p>Metalwork Activity</p> <p>Saws multiply logging rates x 4. <u>Cannot</u> be used with Adze.</p> <p>a Forester with no tools cuts 4 Logs a Forester with Adze cuts 8 Logs a Forester with Saw cuts 16 Logs</p>

Name	Seam Wedges
DL	4
Pre-Req	N/A
Recipe	1 Seam Wedge: People 1, Mtl 2, Iron 5, Coal 15
Description	<p>Metalwork Activity</p> <p>1 Person adds 50% to mining with Pick or Shovel.</p> <p>Weight: 1 lb</p>

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

Name	Tongs
DL	4
Pre-Req	Anvil (Metalworking research)
Recipe	1 Tong: People 1, Steel 1, Coke 5
Description	Metalworking Activity

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	<p>A Worker with a Tong counts as 1.5 workers (+0.5 Effective Workers) when performing Armour making, Metalwork or Weapon making activities. This benefit is only available if the worker is also using an Anvil. Thus, a worker with Anvil and Tongs counts as 2 effective workers. A worker with only Tongs and no Anvil counts as 1.0 effective workers.</p> <p>Tongs may be used with other implements.</p> <p>NOTE: Until coding supports the use of the Anvil, players are responsible for calculating and monitoring the use of effective workers.</p> <p>Weight: 2 lb</p>
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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	<p>A Water Tank increases the capacity of a village to withstand a siege. Sanitation skill is important to avoid disease when water from a Water Tank is needed.</p> <p>The capacity of a Water Tank is 1,000 lbs supply capacity (1,000 lbs = 10 barrels).</p> <p>Water tanks are portable and may be transported by Barges, medium and large ships.</p> <p>Weight: 50lbs</p>

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	<p>A Wire Mill requires 500 logs, and 500 steel or Iron to construct. Used by up to 100 people.</p> <p>10 people using a Wire Mill can produce can turn 120 steel into 120 Wire at Mtl5.</p>

Milking

Name	Milking 11, 12...
DL	5,5...
Pre-Req	Milking 11: N/A Milking 12: Milking 11 (Milking research) Milking 13...
Recipe	N/A
Description	Increases Milking skill by 1. Milking skill at 11 or higher allows Specialists to be trained.

Milling

Name	Oilmill
DL	3
Pre-Req	Windmill (Milling research) Flax (Farming research)
Recipe	1 Oilmill: People 500, Eng 10, Wd 4, Stn 4, Logs 500, Stones 1000, Iron 500, Coal 1000, Millstones 2
Description	<p>A method of Milling that bruises and crushes oil bearing seeds, olives, etc then presses them to extract oil. Working in an Oilmill grinds Flaxseed and presses it into Oil. The remaining, pulpy flesh is used as animal feed.</p> <p>1 miller extracts 1 Oil + 10 Fodder each month from 10 Cotton (5 Flax) using 1 Jar. An Oilmill requires 20 Millers to keep it supplied with Flax and to remove the Oil and Fodder.</p> <p>Oilmills may only be operated the same month as Flax is harvested. This simulates farmers harvesting the whole plant instead of the fibres (when harvesting flax, 1 flax converts to 2 Cotton) and the fibre being lost during the production of (Lineseed) oil.</p> <p>Oilmills are restricted to 10 per site. The total number of Windmills plus Oilmills are restricted to 100 per site. (Windmills + Oilmills must be less than or equal to QTY:100 total)</p> <p>May be built under Joint Project rules. May be built for and used by other clans. A Unit from another Clan must have Milling 10 to operate the Oilmill.</p>

Name	Sawmill
DL	6
Pre-Req	Milling 10 (Group C skill) Forestry 4 (Group A skill)
Recipe	1 Sawmill: People 300, Eng 6, Wd 4, Stn 4, Logs 250, Stones 625, Iron 500, Coal 4000
Description	<p>A new method of milling logs, with the power coming from water so fewer people can cut may more logs.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> • Max Sawmills: A site is restricted to 100 Sawmills. • Terrain: The site must be on a hex that allows Forestry activities that provide logs (Forest, Jungle, etc)

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	<ul style="list-style-type: none"> • River: The site must be on a hex that has at least one Hexside as a River or Canal. <p>Bonuses:</p> <ul style="list-style-type: none"> • Max Users: 100 People per Sawmill • Production Boost: Workers utilizing a Sawmill produce x8 the number of Logs they normally would. A worker may not utilize an Adze or Saw, though may utilize research topics that increase Logs per Person (5 Logs / Person, 6 Logs / Person, etc). <p>Other Clans:</p> <ul style="list-style-type: none"> • Sawmills may be built for other tribes, but that Tribe must have Milling 10 and Forestry 4 or better to gain the bonus.
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Name	Windmill
DL	3
Pre-Req	N/A
Recipe	1 Windmill: People 500, Eng 10, Wd 4, Stn 4, Logs 500, Stones 1000, Iron 500, Coal 1000, Millstones 2, Materials installed at normal rates
Description	<p>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.</p> <p>The total number of Windmills plus Oilmills are restricted to 100 per site. (Windmills + Oilmills must be less than or equal to QTY:100 total)</p> <p>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.</p>

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	<p>Geology may be attempted at Mining 11. The effect of gaining an Geology topic is to add levels to your Mining Skill.</p> <p>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).</p> <p>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.</p> <p>Books may be written.</p>

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	<p>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.</p> <p>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.</p>

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	<p>For Mining purposes, the additional AMs would be shown as “Effective Workers” in orders.</p> <p>For Refining purposes, the additional AMs would be shown as “Effective Workers” in orders, and would require additional Smelters to cover the increased AMs.</p> <p>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.</p> <p>Hammer Mills are items and not buildings. They can be traded.</p> <p>Weight: 2000 lbs</p> <p>Proposed by Chris S.</p>
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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	<p>(Also Under Engineering, Mining and Woodwork)</p> <p>A Mining Ladder provides a Bonus to Mining output equal to +100% to ten (10) miners and a Bonus to Digging output (Clay, canals, sand, moats, etc) equal to +100% to ten (10) diggers. This is cumulative with other implements (Picks, Shovels, Ore Carts, Seam Wedges, etc). This bonus is additive, not compounded.</p> <p>Example:</p> <ul style="list-style-type: none"> 5 Miners with 1 Mining Ladder would count as 10 Miners 10 Miners with 1 Mining Ladder would count as 20 Miners 15 Miners with 2 Mining Ladders would count as 30 Miners 20 Miners with 2 Mining Ladders would count as 40 Miners 20 Miners with 2 Mining Ladders and 20 Picks would count as 60 Miners 20 Miners with 2 Mining Ladders, 2 Ore Carts and 20 Picks would count as 80 Miners <p>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</p>

	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.
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Name	Ore Cart
DL	5
Pre-Req	N/A
Recipe	1 Ore Cart: People 12, Wdw 3, Log 10, Iron 15, Coal 100
Description	<p>An Ore Cart provides a bonus to Mining output equal to +100% to ten (10) miners. This is cumulative with other implements (Picks, Shovels, Mining Ladders, Seam Wedges, etc). Each Ore Cart requires it be pulled by 2 Cattle or 1 Elephant when used in Mining.</p> <p>Example:</p> <ul style="list-style-type: none"> 5 Miners with 1 Ore Cart would count as 10 Miners 10 Miners with 1 Ore Cart would count as 20 Miners 15 Miners with 2 Ore Carts would cost as 30 Miners 15 Miners with 2 Ore Carts and 15 Picks would count as 45 Miners <p>Ore Carts may also be used in place of Wagons with the same capacity and rules. 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.</p> <p>Weight: 300lb</p>

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	Metalwork Activity

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	<p>1 Person adds 50% to mining with Pick or Shovel.</p>
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	<p>Weight: 1 lb</p>
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Mobilisation

Name	Local Guard I, II, III, IV, V
DL	2,3,4,5,6
Pre-Req	All: Local Support Settlement of Town or City Local Guard II: Local Guard I (Mobilisation research) Local Guard III: Local Guard II Local Guard IV: Local Guard III Local Guard V: Local Guard IV
Recipe	1 Guard Barracks (GBarr): People 100, Eng 3, Stone 500
Description	<p>Once a Local Support network has been established, then the Defenders that patrol the territory begin to get familiar with the surrounding lands. Every level of Local Guard increases their Terrain Proficiency.</p> <p>At Level I, they gain Terrain Proficiency 1 in their settlement's hex. At level II, their Terrain Proficiency is increased to 3. At Level III, their Terrain Proficiency is increased to 5. This Terrain Proficiency is only in their settlements hex. Further research increases this by +2 TP per level of research, to a maximum of TP of 9 at Local Guard V.</p> <p>To utilize this bonus in combat, the Settlement must have enough Guard Barracks available. Guard Barracks are built in the local support settlements that host the Defenders. 1 Guard Barracks is good for 100 Defenders. If there are not enough Guard Barracks, the bonus to the Defenders from that Settlement is proportional to the number of Guard Barracks. If there are 300 total defenders and only enough barracks for 200, then the Bonus is reduced to 2/3rds, rounded up, of the full bonus.</p>

Name	Local Guard Training I, II, III
DL	6, 7, 8
Pre-Req	All: Local Guard I (Mobilisation research)
Recipe	1 Guard Training yard (GTYard): People 100, Eng 3, Stone 500
Description	<p>A Local Support network with Guard Training allows its Defenders to gain in combat skill over the years. Initially, the Defenders starts off with all skills at 0.</p> <p>Upon completion of Guard Training I topic, Militia controlled by the Clan's Local Support settlements have their Combat and Archery set to Skill Level 3. Guard Training II sets it to Skill Level 6 and Guard Training III sets it to Skill Level 9.</p> <p>To utilize this bonus in combat, the Settlement must have enough Guard</p>

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	<p>Training Yards available. Guard Training Yards are built in Local Support settlements. 1 Guard Training Yard is good for 100 Defenders. If there are not enough Guard training yards, the bonus is reduced proportionately, rounded up. If there are 3000 total Defenders and Home Guard Training I is complete giving a +3 to skills, and 1500 worth of Militia training yard, then the +3 skill bonus is reduced to +1.5, rounded up to 2.</p>
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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. Weight: 6lbs

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	Music in the Field
DL	7
Pre-Req	Military Band (Music) Generalship (Leadership research)
Recipe	N/A
Description	Music in the Field is a further development of the Military Band which allows instantaneous enactment of pre-defined commands such as <i>Left Wing will Charge, Recall skirmishers, etc.</i> Benefits: <ol style="list-style-type: none"> 1. For Land Combat, All units (via Battle Groups or Meeting of the Clan) gain the following for the duration of Combat in which they meet the requirements: <ol style="list-style-type: none"> a. +1 to effective Leadership skill b. +2 to effective Tactical skill

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	<ul style="list-style-type: none"> c. A further +0.04 Morale for combat purposes <p>2. For Naval Combat, All units (via Battle Groups or Meeting of the Clan) gain the following for the duration of Combat in which they meet the requirements:</p> <ul style="list-style-type: none"> a. +1 to effective Captaincy skill b. +2 to effective Tactical skill c. A further +0.04 Morale for combat purposes <p>Requirements:</p> <ul style="list-style-type: none"> 1. In order to gain Music in the Field Benefits, a Unit must have 5 Warriors allocated to utilizing Music in the Field for every 100 Warriors participating in the battle. These extra warriors do not count against the 1/3rd limit. *See example. 2. Each Warrior allocated to gain Music in the Field must be equipped with a Drum. <p>Example:</p> <ul style="list-style-type: none"> 1. A unit with 900 Warriors may assign up to 300 Warriors to a single Combat. This is the max that can participate in a single battle ($900 * 1/3 = 300$). To utilize MitF, the Unit should assign an additional 15 Warriors to the Combat but they will not fight, they merely beat the drum. <p>Notes:</p> <ul style="list-style-type: none"> 1. Increasing Leadership skill levels has a decreasing effectiveness in regards to increasing Leadership Modifier as the Leadership skill increases. 2. Leadership Modifier increases always affect Potential Casualties.
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Name	Spring Arts Festival
DL	*See Art
Pre-Req	*See Art
Recipe	*See Art
Description	*See Art

Navigation

Name	Astral Navigation 1, Astral Navigation 2, Astral Navigation 3
DL	Astral Navigation 1 – 2 Astral Navigation 2 – 3 Astral Navigation 3 – 4
Pre-Req	Astral Navigation 1 – N/A Astral Navigation 2 – Astral Navigation 1 (Astronomy/Navigation research) Astral Navigation 3 – Astral Navigation 2 (Astronomy/Navigation research)
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.

Name	Heart of Oak
DL	5
Pre-Req	Navigation 11 (Research) OR Sailing 11 (Research) OR Seamanship 11 (Research)
Recipe	N/A
Description	<p>A Fleet with Heart of Oak gains a 1% advantage (Damage done to its opponent is increased) per point of difference when the sum of its Nautical Skills (Nav/Sail/Sea) exceeds the sum of the Nautical Skills of an opposing fleet. For example, a fleet with Nav/Sail/Sea of 10/11/12 versus a fleet with 6/6/6 increases the damage it does to the 6/6/6 fleet by 15% ($10+11+12 = 33$ vs $6+6+6 = 18$).</p> <p>Nautical Skills (Nav/Seail/Sea) now affect Naval Combat, not just Naval Movement. The Royal Navy proved on many occasions, superior Nautical Skills provided decisive advantages in fleet vs fleet combat.</p>

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	<p>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.</p> <p>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).</p> <p>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.</p> <p>The host Tribe may invite one guest Tribe from either inside or outside the Clan.” The guest is subject to Morale increase.</p>

Name	Boat People
DL	4
Pre-Req	Government Level 1 (Politics research)
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 research) Daimyo (Politics research)
Recipe	N/A
Description	Once a tribe, with a Politics 10 Village, has completely researched Capital, the tribe may

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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.

Castles may not be built for other Clans. A Clan may only have one Castle.

Name	Castle (Details may be modified)
DL	8
Pre-Req	25' Stone Wall (Engineering research) in same Tribe as the Tribe attempting Castle
Recipe	1 Castle: Pol10, Eng10, Stones 120000, Logs 2000, Bronze/Iron 500, Lead 500, Gold 50. Normal installation rates of materials apply.
Description	<p>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.</p> <p>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.</p> <p>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 useful research options).</p> <p>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, Mining etc possible (Armour and Weapons may be made – common sense dictates what is possible). All herd is lost unless incorporated stables are present.</p> <p>See also “Locals and Cultural Support” in the Mandate. This research counts as 2 Hamlets for supporting additional Towns once a second Town has already been formed. These virtual Hamlets do not require Longhouses to support them. 20 Administrators are required to support each Hamlet.</p> <p><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.</p> <p>Players should give their Castle a name – this will become the name of the hex.</p>

Name	Daimyo
DL	8
Pre-Req	Government Level 2 (Politics research) Palace (Politics research)

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Recipe	N/A
Description	<p>A Clan may have only one Daimyo. The celebration of the Daimyo costs 20,000 silver.</p> <p>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.</p> <p>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.</p>

Name	Doomsday Book
DL	2
Pre-Req	Government Level 2 (Politics research)
Recipe	1 Doomsday Book: Lit4, Gold 1, Leather 1, Parchment 10
Description	<p>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.</p> <p>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%.</p> <p>The Doomsday Book was the first official census of Norman England. Among other uses, it was used for Tax Collection.</p> <p>Proposed by David Steinheilper</p> <p>Weight: 10</p>

Name	Emigration
DL	N/A
Pre-Req	N/A

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Recipe	N/A
Description	<p>In the initial stages Emigration is not a research project as such.</p> <p>Players need to alert the GM when their population hits 400,000 and then monitor as it approaches 500,000.</p> <p>If and 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.</p> <p>GM see ..\Rules\Miscellaneous\Emigration.doc</p>

Name	Feudal Security
DL	8
Pre-Req	Government Level 1 (Politics research) Close Order Cavalry (Horsemanship research) 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

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	<p>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).</p> <p>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.</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>
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Name	Fortress
DL	8
Pre-Req	Castle (Politics research) Scroll (Item) Relic (Item)
Recipe	*See Castle, Gold 60 / Year
Description	<p>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.</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>

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

Name	Great Wall
DL	9
Pre-Req	Government Level 3 (Politics research) Castle (Politics research)

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	Engineering 10 (Skill) Stonework 10 (Skill)
Recipe	<p>1 Gatehouse, 3 Watchtowers per hex side and 1 Relic to consecrate each hexside.</p> <p>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.</p>
Description	<p>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 <u>the main builders</u> Pol10 centre at all points (if more than one Clan is participating in construction the main builder must be specified).</p> <p>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.</p> <p>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.</p> <p>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.</p> <p><u>Benefits</u> 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).</p> <p>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.</p> <p>Effective Seeking Skill is increased +5 for units seeking inside their GW.</p> <p>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.</p>

	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.
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Name	Ho Chi Minh Trail
DL	8
Pre-Req	Control of at least two “Locals” hexes Home City cannot be in Prairie or Tundra hexes
Recipe	Ho Chi Minh Trail: People 2000, Eng7, Silver 20000, Gold 200, Relic 1
Description	<p>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.</p> <p>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.</p>

Name	Import Mission
DL	4, 5, 6....
Pre-Req	Government Level 1 (Politics research)
Recipe	N/A
Description	<p>Upon successful completion of Import Mission, the Clan’s Home City gains an Import Mission similar to International Cities.</p> <ol style="list-style-type: none"> 1) The Home City becomes the Importing City. 2) The Home City must also be a Board of Trade Site (Home City hex must contain Tribe that has active Board of Trade) 3) A City, International or PC, is selected as the Exporting City. This City gains a Trade Mission text similar to that which exists for other International Cities. The mission may be accepted and transfers occur as with any normal International City trade mission. If the City is PC controlled, they may reject it and the researching clan must pick another city. 4) A Primary and Secondary Commodity are selected by the researching Clan. The amount of each is 250x the base amount of a single turn in as per section 14.1.2. This amount increases by 10% for each successful run for a specific Clan. <i>Example: Gold has a commodity value of 1 and an Import Mission would carry 250 Gold. Olives have a commodity value of 10 and an Import Mission would carry 2,500 Olives.</i> 5) The payout for a successful Trade Mission (from Export to Import Mission) is 2% per 10 Full Hexes distance from the Export City to the Import City, with a minimum of 10 Hexes. Distance is calculated based upon number of hexes from

the Exporting City to the Importing City in a direct line regardless of terrain.
*Example: 85 hexes would be $8*2=16\%$ payout. 109 hexes would be $10*2=20\%$ payout, equivalent to current missions.*

- 6) Additionally, the Importing Clan (the one with the research) gains 1% per 10 Full Hexes distance from the Export City to the Import City, with a minimum of 10 Hexes.
- 7) A maximum of 5 Clans may be on the Import Mission at a time. A single Clan may run a single specific mission multiple times but must wait one turn between turn in and accepting the next mission.
- 8) The clan with the Research may not run their own mission, only other clans.
- 9) Failure to deliver the goods in a timely manner will result in a forfeiture of the mission. The Tribe with GL 1 and the Import Mission research loses 0.10 Morale while the Tribe that accepted the mission and forfeited will lose 0.15 Morale. A Clan that forfeits a mission may not accept future Trade Missions from this specific research. The time for the mission to be considered Forfeit is 4 months per 10 hexes (rounded up) of the Trade Mission distance. This forfeiture frees up the mission for future Clans.

This research may be taken multiple times, up to three, with different commodities for each Import Mission and different Export Cities.

Beijung, Whulan, Tokyo, Osake, Lugdunum, Trier; These are all well known international cities with major trade routes. Today, we take the next step forward into becoming a power in this work. Merchants will bring their wares to our gates and our tolls will increase. Our soldiers will patrol the streets and the trade routes beyond. We will see prosperity.

Name	Local Trade Routes
DL	4
Pre-Req	Politics 10 (Skill) Government Level 1 (Politics research)
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 across limited distances. Benefits: <ul style="list-style-type: none"> • Transfers: The Clan may make up to 4 total transfers between a City and any Unit(s) within range of the Local Trade Route research. A transfer is considered any number/quantity of different goods between two Units.

	<p>Restrictions:</p> <ul style="list-style-type: none"> ● Range: Local Transfer allows trades up to a number of hexes equal to the Government Level (GL) of the City plus 2. Range = GL + 2. Range is not affected by terrain, water hexes, rivers, impassable terrain or weather. <ul style="list-style-type: none"> ○ For example: A City with a GL of 1 would have a Range of 3. ○ For example: A City with a GL of 2 would have a Range of 4. ○ For example: A City with a GL of 5 would have a Range of 7. ● Other Clans: Units from other Clans may be traded to/from but only if that Clan also has a City that is Government Level (GL) 1 or higher. ● War: Local Trade Routes cannot be used if the sender or receiver is under Siege or DEVA. <p>Performing the Local Trade Route transfers:</p> <ul style="list-style-type: none"> ● One off Trades / Trades between mobile units: For Trades between mobile unit(s), a comment to the GM that includes the Transferring Unit, the Target Unit, the Goods and Quantity to be traded and the reason the trade can happen (<i>Local Trade Route</i>) should be used. ● Fixed location Trades: For Trades between two fixed locations within range of the Local Trade Routes, it is recommended that the player fill out and turn in the Special Trade Route spreadsheet (specific hexes) so that trades can be used using the Automated Order transfer tab and would not require GM involvement once established.
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Name	Logistics 1
DL	3
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p>

Name	Marshals
DL	3
Pre-Req	Government Level 3 (Politics research) Sheriffs (Politics research)

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Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>Counters: Loss of Governing Level 3</p>

Name	Militia Training
DL	5
Pre-Req	Capital (Politics research)
Recipe	Yearly: Silver 1 per Militia each Year (12 months after completion)
Description	<p>(see also Training)</p> <p>Once a tribe researches Militia Training, its Home City may initiate the training of Militia.</p> <p>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.</p>

Name	Mission
DL	4 (First) 5 (Second) etc.
Pre-Req	Castle
Recipe	As per Temple
Description	<p>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.</p>

Name	Palace (may be modified)
DL	6

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Pre-Req	Castle (Politics research)
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 and Cultural Support” in the Mandate. This research counts as 4 Hamlets for supporting additional Towns once a second Town has already been formed. These virtual Hamlets do not require Longhouses to support them. 20 Administrators are required to support each Hamlet. It also attracts a one-off contingent of Elite Troops.

Name	Palace Renovation Gardens												
DL	8												
Pre-Req	Palace (Politics research) Daimyo (Politics research)												
Recipe	PRG: Eng10, Stone 80k, Logs 8k, Silver 50k, Iron 1k, Gold 50, Tigers 2, Sculptures 10, Relics 2												
Description	<p>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.</p> <p>The Palace Gardens contain many smaller building such as stages for artistic 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.</p> <table> <tr> <td>Basic garden maintainance</td> <td>200 actives per month</td> </tr> <tr> <td>Herding of Tigers</td> <td>1 herder per animal</td> </tr> <tr> <td>Artisans</td> <td>At least 20 performers (from a Tribe with a</td> </tr> <tr> <td>completed research topic in</td> <td>a cultural skill per month)</td> </tr> <tr> <td>Security</td> <td>as per pacifying a controlled hex</td> </tr> <tr> <td></td> <td>(if sheriffs or marshals are used they do not require horses)</td> </tr> </table> <p><u>Benefits:</u></p> <ol style="list-style-type: none"> 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 – <u>in addition</u> 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 	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)
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)												

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	<p>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.</p> <p>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).</p> <p>5. A one off of 1000 Hirelings will be attracted to the Home City.</p> <p>Proposed by Mark Ryan</p>
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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 (Politics research)
Recipe	N/A
Description	<p>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.</p> <p>Counters: Loss of Governing Level 2</p>

Name	Treaty
DL	3
Pre-Req	Government Level 1 (Politics research)
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.

Breaking Treaties:

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.

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 research)
Recipe	1000 Terracotta Warriors: Eng8, Rel 10, Stones 10k, Logs 1k
Description	<p>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.</p> <p><u>Benefits:</u></p> <p>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.</p> <p>Proposed by Mark Ryan Weight: 100 lbs each</p>

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
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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 <u>in addition</u> to a Mattock; they will produce an extra +5 Stones (15 in total; in effect working as <u>three people</u>). 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	Greater Masons
DL	4
Pre-Req	Master Masons (Quarrying research)
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 50% bonus towards production of Stones (this replaces the bonus gained under Master Masons). Effectively 1000 people will do the work of 1500 people.

Name	Inactive Quarriers
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Inactives can perform up to one-third of the Quarrying activities labour. If not doing this they “work” for the public service. Inactives in major quarrying operations perform menial tasks such as leading carts and oxen, cleaning paths, fetching water and sharpening tools. 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	Masons
DL	4
Pre-Req	N/A
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 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

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	equivalent workers.
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Name	Master Masons
DL	4
Pre-Req	Masons (Quarrying research)
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.

Name	Quarry Blocks
DL	5
Pre-Req	Masons (Quarrying research)
Recipe	N/A
Description	<p>Quarrying Activity</p> <p>Units with access to this research have the knowledge to cut larger blocks of stone from mountains and cliff faces. These quarry blocks measure 2' x 2' x 5' instead of the standard 1 cubic foot dimensions of normal stone blocks.</p> <p>1 Worker produces 1 Quarry Block. Implements that affect Quarrying affect Quarry Block output. Research affects Quarry Blocks as well with the exception of the # Stones / Person research (such as 6 stones / person, 7 stones / person, etc).</p> <p>1 Worker with a Mattock and Chisel would produce 3 Quarry Blocks.</p> <p>1 Quarry Block replaces 20 stone for any project that requires at least 2,000 stone, including Walls, Towers and larger buildings. If using Quarry Blocks in a building, the building must be completely built out of Quarry Blocks.</p> <p>Prior to starting an engineering project that will use Quarry Blocks, notify the GM so that the updated recipe may be added to the database.</p> <p>Weight: 2,000 lbs</p>

Name	Quarry Ladder
DL	5
Pre-Req	N/A
Recipe	1 Quarry Ladder: People 15, Wd3, Log 4, Iron 25, Coal 150
Description	Each Quarry ladder (implement) doubles the base output of 10 people performing Quarrying and Digging (Clay, canals, sand, moats, etc.. Does not stack with Mining

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<p>Ladders) activities before implements. Quarry Ladders can be used in conjunction with other tools, but increases are additive and are not compounded. For example, 1 Quarrier with both a Mattock and a Quarry Ladder produces his base output x 3 (not x 4). These wood and metal ladders and ramps are used to for more advanced vertical quarrying and to facilitate the movement of personnel and stone up the quarry pit. These would not be standard wood ladders or ramps but would have iron reinforcement to handle the added weight of the stone and wagons. We have called it Quarry Ladders research to shorten the name but it would really be both ladders and ramps.</p> <p>1 Quarry Ladder weighs 50 lbs.</p>
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Refining

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

Name	Hammer Mill
DL	<u>5</u>
Pre-Req	N/A
Recipe	<u>1 Hammer Mill: People 11, Wd 5, Eng 6, Logs 20, Iron 5, Coal 10, Leather 2</u>
Description	<p>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.</p> <p>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.</p> <p>For Mining purposes, the additional AMs would be shown as “Effective Workers” in orders.</p> <p>For Refining purposes, the additional AMs would be shown as “Effective Workers” in orders, and would require additional Smelters to cover the increased AMs.</p> <p>If operated on a river hexside, cattle or horses need not be available, as the mill would be</p>

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	<p>hydraulically powered via river current. If operated on a hex with no river hexsides, 2 Horses or Cattle are required to operate.</p> <p>Hammer Mills are items and not buildings. They can be traded.</p> <p>Weight: 2000 lbs</p> <p><i>Proposed by Chris S.</i></p>
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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	<p>Increased Refining Output by 10%/50%.</p> <p>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).</p>

Name	Saltpetre Refining
DL	2
Pre-Req	N/A
Recipe	Saltpetre Refinery: 70 AM, Eng5, Stn5, Logs 100, Stone 100, Standard Installation Rates
Description	<p>A Saltpetre Refinery can service up to 100 cattle.</p> <p>Uses Refining Skill for limits.</p> <p>1 person can gather 10 Saltpetre from 2 cattle per turn, that is, 50 people can refine Saltpetre per standard refinery.</p>

Name	Steel
DL	8
Pre-Req	Coke (Refining) in same Tribe
Recipe	Steel 15: People 1, Iron 20, Silver 15, Coke 10
Description	<p>Coded</p> <p>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).</p>

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At this stage some steel items are:

- Armour:
 - Chain (Silver 30),
 - Breastplate (Gold 1, Silver 40),
 - Helm (Silver 15),
 - Shield (Silver 15),
 - Full Plate (Gold 2, Silver 50),
 - Fluted Plate (Gold 2, Silver 40),
 - Bascinet (Silver 20)
 - Greaves (Silver 20)
- Weapon:
 - Sword (Gold 2, Silver 20),
 - Sword – Scimitar (Gold 2, Silver 20)
 - Spear (Silver N/A)

Arrows currently not coded, but coming

The Romans could make Steel around 900 AD.

Research

Name	Golden Age
DL	7
Pre-Req	University (Building) Library (Building) – In same space as University Scroll (Item)
Recipe	N/A
Description	<p>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.</p> <p>Two other research projects being undertaken by the Village, that has reached DL0 or higher, is advanced by one DL but not to completion.</p> <p>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.</p> <p>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 Charlemagne. Historically, almost every Golden Age was supported by large expenditures to encourage the arts & sciences, hence the 300 silver per turn requirement.</p> <p>No Books</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>

Name	Head Librarian
DL	2
Pre-Req	Librarian (Research)
Recipe	N/A
Description	<p>With Head Librarian, a further increase of 10% is added to the Librarian topic (ie effectively a 20% chance becomes a 40% chance).</p> <p>The Head Librarian must be in the same hex as the Library and the unit attempting to read/write a book.</p> <p>Head Librarian represents the limit of the Librarian topic.</p>

Name	Librarian
DL	1
Pre-Req	Researcher (Research) Library (Building)
Recipe	N/A
Description	<p>The Scholar is now also considered a Librarian and acts as the administrator of the Library to make it run more efficiently. As a result, the bonus of a Library is increased.</p> <p>With Librarian, 10% is added to the chances of reading/writing a book (ie a 20% chance becomes a 30% chance) by any Tribe from the same Clan and in the same hex as the Library and Librarian.</p> <p>The Librarian must be in the same hex as the Library and the unit attempting to read/write a book.</p>

Name	Research Team
DL	6
Pre-Req	University (Building) Library (Building) – In same space as University Scroll (Item)
Recipe	N/A
Description	<p>Once a Tribe has completed Research Team, it gains the ability to initiate a subsequent research project <u>once its prerequisite 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.</p> <p>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).</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>

Name	Researcher
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DL	5
Pre-Req	Scholar (Research)
Recipe	N/A
Description	<p>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.</p> <p>Upon completion of the Research, the Scroll is destroyed/lost and is sent to Usage (1263) via transfer.</p>

Name	Scholar
DL	3, 3, 3, ...
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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.</p> <p>The Scholar research topic may be repeated in the same tribe.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. Upon completion of this research, contact the GM to create the extra tribe and to have the research removed so it can be researched additional times. 2. The maximum number of Tribes that a Clan may have is 10. Creation of extra tribes through this research counts against this limit. Be aware that this may restrict your options for International NPC Tribes.

Name	War College
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DL	7
Pre-Req	University (Building) Library (Building) – In same space as University
Recipe	Maintenance: Gold 10 / Year
Description	<p>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.</p> <p>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 insures that the tribe has possesses permanent military leaders that can then benefit from the training provided by a “War College”.</p> <p>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</p>

Rowing

Name	Two Hex Ferry
DL	4
Pre-Req	N/A
Recipe	N/A
Description	Once completed, this research topic allows a ferry to operate across two hexes of Ocean and/or Lake. All ferrying rules apply as written, except that it cost 16 MP's per ferry trip (crossing two hexes) rather than 8 MP's per trip (crossing only one hex).

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	<p>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.</p> <p>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.</p> <p>Fast Fleets increases fleet movement along TR (Trade Routes) only, as described below. It does not affect any other sort of movement.</p> <p>Note: A Fleet may only gain movement bonuses from three research topics simultaneously along a Sea Borne Trade Route. Examples include, but are not limited to, Board of Trade, Fast Fleet, Trusted Maps, etc.</p>

Name	Heart of Oak
DL	5
Pre-Req	Navigation 11 (Research) OR Sailing 11 (Research) OR Seamanship 11 (Research)
Recipe	N/A
Description	A Fleet with Heart of Oak gains a 1% advantage (Damage done to its opponent is increased) per point of difference when the sum of its Nautical Skills (Nav/Sail/Sea) exceeds the sum of the Nautical Skills of an opposing fleet. For example, a fleet with Nav/Sail/Sea of 10/11/12 versus a fleet with 6/6/6 increases the damage it does to the

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	<p>6/6/6 fleet by 15% (10+11+12 = 33 vs 6+6+6 = 18).</p> <p>Nautical Skills (Nav/Sail/Sea) now affect Naval Combat, not just Naval Movement. The Royal Navy proved on many occasions, superior Nautical Skills provided decisive advantages in fleet vs fleet combat.</p>
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Name	Sailing 11
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>Allows Specialists. Specialists double production in the chosen field. 1 Specialist Sailor performs the work of 2 when assigned as crew members of a fleet. Players must show assigned Specialists as effective workers.</p> <p>On completion, the tribe gains an additional +3 to Sailing (Sailing 10 becomes Sailing 14 instead of Sailing 11).</p>

Name	Two Hex Ferry
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Once completed, this research topic allows a ferry to operate across two hexes of Ocean and/or Lake. All ferrying rules apply as written, except that it cost 16 MP's per ferry trip (crossing two hexes) rather than 8 MP's per trip (crossing only one hex).</p>

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	<p>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:</p> <table border="1"> <thead> <tr> <th><u>Activity</u></th> <th><u>Commodity</u></th> <th><u>Quantity</u></th> <th><u>People</u></th> <th><u>Note</u></th> </tr> </thead> <tbody> <tr> <td>Sanitation</td> <td>Sanitation Worker</td> <td>-</td> <td>xxx</td> <td>0999, 1999e1 and 2999</td> </tr> </tbody> </table> <p>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.</p> <p>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.</p>	<u>Activity</u>	<u>Commodity</u>	<u>Quantity</u>	<u>People</u>	<u>Note</u>	Sanitation	Sanitation Worker	-	xxx	0999, 1999e1 and 2999
<u>Activity</u>	<u>Commodity</u>	<u>Quantity</u>	<u>People</u>	<u>Note</u>							
Sanitation	Sanitation Worker	-	xxx	0999, 1999e1 and 2999							

Name	BioWar												
DL	8												
Pre-Req	N/A												
Recipe	N/A												
Description	<p>BioWar allows a force that's besieging an enemy village to hurl diseased carcasses, rotten offal and the like into the village under siege. A high Sanitation skill is needed by the besieger in order to handle such diseased material safely without infecting itself.</p> <p>Each turn that a village is under siege by a force that knows BioWar, there is a chance that the Village's SAN rating is reduced.</p> <table border="1"> <thead> <tr> <th>Village Information</th> <th>Chance</th> <th>Effect</th> </tr> </thead> <tbody> <tr> <td>Palisade 10' or 15' Stone Walls</td> <td>66%</td> <td>Village's SAN rating reduced by 1.</td> </tr> <tr> <td>20' or 25' Stone Walls</td> <td>50%</td> <td>Village's SAN rating reduced by 1.</td> </tr> <tr> <td>30' or higher Stone Walls</td> <td>33%</td> <td>Village's SAN Rating</td> </tr> </tbody> </table>	Village Information	Chance	Effect	Palisade 10' or 15' Stone Walls	66%	Village's SAN rating reduced by 1.	20' or 25' Stone Walls	50%	Village's SAN rating reduced by 1.	30' or higher Stone Walls	33%	Village's SAN Rating
Village Information	Chance	Effect											
Palisade 10' or 15' Stone Walls	66%	Village's SAN rating reduced by 1.											
20' or 25' Stone Walls	50%	Village's SAN rating reduced by 1.											
30' or higher Stone Walls	33%	Village's SAN Rating											

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		reduced by 1
<p>When a Village under Siege has its SAN rating reduced to BELOW zero (-1 or lower), it loses the ability to produce new potable water within its walls. This means that all wells are considered polluted and thus cease to produce potable water.</p> <p>However, a jetty into a source of fresh water (Lake or River) is NOT affected by BioWar. Existing water supplies (cisterns, containers, etc) are not affected. The existing supplies (and Fresh water Jetties) allow resistance to continue. However, if and when they are exhausted, the Village under siege surrenders.</p> <p>If and when a siege is broken, the Village's SAN rating immediately returns to full normal value (e.g. equivalent to its full, unreduced SAN skill).</p>		

Name	Sewers
DL	8
Pre-Req	Sanitation 6 (Group C skill) Eng 10 (Group C skill) Home City established University (Building)
Recipe	Sewers: People 1250, Eng 9, San 6, Stn 8, Stones 5000, Logs 500
Description	<p>Engineering / Stonework activity</p> <p>Sewer Requirements:</p> <p>2) Water Access: Note: Sewers may only be built at sites adjacent to water (River, Lake, Ocean) or Swamps.</p> <p>Benefits: Sewers serve all Tribes of one clan in the site.</p> <p>3) Siege Protection: Sanitation skill is increased by 4 during Sieges. This does not allow Specialists (that would require Sanitation 11 research).</p> <p>4) Population Boost: Improves Population growth (0.5%) similar to Hospital.</p> <p>Sewers may be built for other Clans but they require the Sewers research to utilize.</p>

Name	Siege Sanitation
DL	6
Pre-Req	N/A
Recipe	N/A
Description	Siege Sanitation counters BioWar by modifying the Effect Table as shown below:

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Village Information	Chance	Effect
Palisade 10' or 15' Stone Walls	17%	Village's SAN rating reduced by 1.
20' or 25' Stone Walls	8%	Village's SAN rating reduced by 1.
30' or higher Stone Walls	0%	Village is immune to BioWar

Scouting

Name	Expanded Scouting
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Allows a Tribe to employ 16 Scouting Parties if and only if 12 of these parties use the same scouting orders as last turn and these orders are marked in red as required. The four scouting parties that can be changed from turn to turn must all come from <u>one single</u> unit of the Tribe. The remaining 12 scouting parties that must remain the same must come from two other different units of the tribe.</p> <p>Note there will need to be ONE month a year when the player sets up (or resets) his scouting parties for the rest of the year. On this ONE month, new orders can be issued to all scouting parties.</p>

Name	Extra Movement 1
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>Note: when Elements are created this modifier needs to be added manually – so you will need to let me know.</p>

Name	Extra Movement 2
DL	4
Pre-Req	Extra Movement 1 (Scouting)
Recipe	N/A
Description	<p>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.</p>

Name	Site Survey I
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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</p>

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	<p>'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.</p> <p><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).</p> <p>The net effect is to increase the defensive bonus of the site by 10%.</p>
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Name	Site Survey II
DL	5
Pre-Req	Site Survey I (Scouting research) Tactics 4 (Group B skill)
Recipe	N/A
Description	<p>Having used Site Survey I to identify the best part of the hex in which to build your main Village and thoroughly surveyed the hex in question – measuring the height of hills and depths of valleys, digging to find underground rock veins and ledges, etc, - your clan may not study how to use the terrain to defend the hex and others like it.</p> <p><u>Notes:</u> These bonuses only apply to the Clan with Site Survey research (that is, you cannot build the Fortification for another Clan to gain the benefits).</p> <p><u>Benefits:</u></p> <ul style="list-style-type: none"> • Combat Morale: When <u>defending</u> the hex with the Home Village/City, all units within the Clan gain +0.03 Combat Morale for the duration of that battle. • Terrain Proficiency: The Clan gains +2 Terrain Proficiency for the Terrain Type that the Home Village/City is located.

Name	Scout Post
DL	8
Pre-Req	N/A
Recipe	Scout Post: People 2k, Eng 6, Sct 6, Stn 6, Stone:10k, Cloth:100, Lamp:6 Upkeep: Yearly / 8 Oil + 8 Cotton
Description	<p>A Scout Post is a building that provides additional support to scouting groups and command chains that are part of a garrisoned unit. This research provides the Tribe that holds the research the ability to build Scout Posts in villages that have at least one garrison from the Clan. One garrisoned unit in that village gains the ability to operate additional scouting groups that may not be changed each month.</p> <p><u>Benefit:</u></p>

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One Garrison at the village with the Scout Post, from the same Clan, gains 8 additional scout groups which may Patrol or Locate. These Scout Groups do not count towards the standard limit of the Tribe.

Requirements:

A Scout Post must be built in a village that is occupied by a Garrison of the same Clan.

A Scout Post requires a yearly upkeep of 8 Oil and 8 Cotton

The 8 bonus Scout Groups provided by the Scout Post may only be changed once per in-game Calendar year (813, 814, etc).

The Garrison operating the Scout Post needs to have at least Scout 6 skill level.

The Garrison unit that gains the extra scout groups may only use those 8 scout groups and not any further from other sources. (It cannot send out 9 or more scout groups).

Scout Posts may not be built or operated by other Clans, but may be operated by other Tribes.

Seamanship

Name	Heart of Oak
DL	5
Pre-Req	Navigation 11 (Research) OR Sailing 11 (Research) OR Seamanship 11 (Research)
Recipe	N/A
Description	<p>A Fleet with Heart of Oak gains a 1% advantage (Damage done to its opponent is increased) per point of difference when the sum of its Nautical Skills (Nav/Sail/Sea) exceeds the sum of the Nautical Skills of an opposing fleet. For example, a fleet with Nav/Sail/Sea of 10/11/12 versus a fleet with 6/6/6 increases the damage it does to the 6/6/6 fleet by 15% ($10+11+12 = 33$ vs $6+6+6 = 18$).</p> <p>Nautical Skills (Nav/Seail/Sea) now affect Naval Combat, not just Naval Movement. The Royal Navy proved on many occasions, superior Nautical Skills provided decisive advantages in fleet vs fleet combat.</p>

Name	Seamanship 11
DL	5
Pre-Req	N/A
Recipe	N/A
Description	Raises Seamanship skill to 11.

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	<p>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, Seeking 11 to Seeking 14), Bush Lore 3 adds 5 levels (for example, Seeking 14 to Seeking 19).</p> <p>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.</p> <p>Books may be written.</p>

Name	Elephants
DL	3
Pre-Req	N/A
Recipe	N/A
Description	<p>This research allows Seeking of Elephants during Spring 01. Players with this research should utilize the Seeking spreadsheet “Rich Seeking A” section for determining Elephants gained through this research topic.</p> <p>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 unriden (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.</p>

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

Name	Exotic Seekers II, III
DL	<p>Exotic Seekers II: 2</p> <p>Exotic Seekers III: 6</p>
Pre-Req	<p>Exotic Seekers II: Exotic Seekers (Seeking research), Experienced Seekers (Seeking research)</p> <p>Exotic Seekers III: Exotic Seekers II</p>
Recipe	N/A
Description	<p>Seekers can be allocated to seek out exotic and unusual goods according to normal Seeking rules.</p> <p>Increases the number of exotic items that the Clan may find through Seeking. Exotic Seekers II adds +2 (for a total of 6 exotic items) and Exotic Seekers III adds a further +2 (for a total of 8 exotic items).</p> <p>Players need to indicate Exotic Seeker finders in their Transfer summary from the Seeking table.</p>

Name	Experienced Seekers
DL	2
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p>

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

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Recipe	*See Healing
Description	*See Healing

Name	Seek Population
DL	4
Pre-Req	N/A
Recipe	N/A
Description	When performing Seeking of Actives, a Tribe with Seek Population gains a number of Inactives equal to the number of Actives gathered through Seeking.

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.

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Sewing

Name	Brocade
DL	5
Pre-Req	Sewing 10 (Skill)
Recipe	10 Brocade: People 2, Wv 4, Sew 10 , Silk 10, Cotton 100
Description	<p>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.</p> <p>Weight: 10lbs</p>

Name	Medicine Tent
DL	6
Pre-Req	N/A
Recipe	1 Medicine Tent: People 3, Sew 7, Cloth 5, Log 2, Iron 1, Coal 5
Description	<p>Medical Tents are part of the Battlefield Support roles' equipment. They are large tents where trained and untrained healers may work despite the chaos outside or incimate weather.</p> <p>Requirements: One Medic Tent is required per 100 Warriors participating in a battle. If there are not enough tents, then no bonus is provided.</p> <p>Benefits:</p> <ol style="list-style-type: none"> 1. Healing Skill: Adequate Medic Tents provides a +2 to the averaged Healing skill value for this combat. 2. Battlefield Medicine: Additionally, if the Tribe using the Medical Tent has Battlefield Medicine, then a further +2 to the averaged Healing skill value is provided for this combat. 3. Barber Surgeons: Increases the Inactives gained by 5%. <p>Notes: Medical Tents may be used without the Medical Tent research topic but it only provides the +2 to the averaged healing skill.</p> <p>Weight: 100 lbs</p>

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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	<p>Barge Poles are highly decorative but functional poles used by barge-hands (Barges) to move through swamp as if it were water.</p> <p><u>A Barge with one Barge Pole per Crewmember</u> 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.</p> <p>Barge Poles have no effect on non-barge ship movement.</p> <p>Weight: 20 lbs each</p> <p><i>The bone decorated poles help to ward off the evil spirits that congregate around the swamps while the barges traverse the fetid waters.</i></p>

Name	Felucca Class I, Felucca Class II
DL	6, 6
Pre-Req	Felucca Class I: N/A Felucca Class II: Felucca Class I (Shipbuilding Research)
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	<p>A faster version of the Longship - 58MV (Sail), 54MV (Row). Weight 18000, No ram.</p> <p>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</p> <p>Movement bonus only applicable for fleets composed entirely of Felucca.</p> <p>Once Felucca Class I is researched, Felucca Class II may be researched. Felucca Class II increases Felucca speed to Base 66MV (Sail) and 62 MV (Row)</p>

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

Shipwright

Name	Drydock
DL	4
Pre-Req	N/A
Recipe	1 Drydock: People 130, Eng 6, Wdw 10, Logs 250, Iron 50, Coal 200, Rope 100
Description	<p>Description: An extension of the Shipyard, a Drydock allows more pulleys and lifts for the workers to utilize making them more effective shipbuilders.</p> <p>Creation: Building a Drydock is an Engineering activity.</p> <p>Benefit: Each worker utilizing a Drydock does the work of 1.5 effective workers (+0.5 EW) for Shipbuilding work. A Drydock may be utilized by up to 100 Workers simultaneously.</p> <p>Examples:</p> <ul style="list-style-type: none"> 1 Worker, 1 Drydock = 1.5 Effective worker 2 Workers, 1 Drydock = 3 Effective workers 100 Workers, 1 Drydock = 150 Effective workers 200 Workers, 1 Drydock = 250 Effective workers

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. ShipW 75

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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	<p>6 people to operate. weigh 1000 lbs. Treated as Wagon in terms of MV restrictions</p> <p>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.</p> <p>(see under Trebuchet for more details)</p> <ul style="list-style-type: none"> only one piece of Siege Equipment may be assigned per 20 yards of wall. <p>Weight: 1000 lbs</p>

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	<p>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.</p>

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	<p>(*Blasting Powder is a research prerequisite 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.)</p> <p>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.</p> <p>Cannot be moved out of hex.</p> <p>Ammo:</p> <ol style="list-style-type: none"> 1) Blasting Jar (Qty 5): Base defensive factor bonus reduction is 20% 2) Cannon Balls (Qty 5) <p><u>Operation Skill:</u> <u>With completion</u> 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.</p> <p>If the weapon is transferred to another Clan (without Artillery Skill) then HvyW10 is required to fire. HWpns10 = Artil0</p> <p><u>To Fire:</u> 1 Blasting Jar (or better), Cannon Ball (30 lead). Crew: 10</p> <p>https://en.wikipedia.org/wiki/Cannon</p> <p>Weight: 2000 lbs</p>

Skinning

Name	Slaughter House
DL	3
Pre-Req	N/A
Recipe	Slaughter House: People 104, Logs 200, Iron 20, Coal 100
Description	<p>Can be researched under Skinning, Gutting or Boning.</p> <p>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.</p> <p>One Slaughter House is required per 100 people using it.</p> <p>People using a Slaughter House can process four times as many animals as usual.</p> <p>You would <u>assign four times as many people</u> (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 <u>are all</u> required to use the SH.</p>

Slavery

Name	Janissaries
DL	8
Pre-Req	Combat 10 (Skill) Leadership 10 (Skill)
Recipe	N/A
Description	<p>A Janissary can only fight as an Infantry unit.</p> <p>Attributes of Janissaries:</p> <ul style="list-style-type: none"> • 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	<p>Slaves can be overworked, they need a overseer with a Whip per 10 slaves (see Leatherwork).</p> <p>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.</p>

Name	Press Gang
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p>

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Spying

Name	Avoid Security
DL	5
Pre-Req	Scouting 10 (Skill) Spying 10 (Skill)
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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".</p> <p>Proposed by Steve Simmons</p>

Name	Cross Training
DL	5
Pre-Req	Security 10 (Skill), Spy 10 (Skill)
Recipe	N/A
Description	<p>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.</p> <p>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.</p> <p>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</p>

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	<p>them.</p> <p><i>Proposed by Steve Simmons</i></p>
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Name	Identify Home City
DL	2
Pre-Req	N/A
Recipe	N/A
Description	Should your attempt be successful your Scouts (that is, Spies) will 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	<p>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.</p> <p>A Scouting Party consisting solely of Spying Specialists gets a 25% bonus in evading</p>

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	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.)
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Name	Spy Data I
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>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:</p> <p>What fortifications does Unit 1789 possess? What is the population of Unit 1789? What is the Eng Skill of Unit 1789?</p> <p>And the answers could be:</p> <p>Ditch 1,500; Wooden Palisade 1,500; Wooden Towers 4 2,173 8</p> <p>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.</p>

Name	Spy Data II
DL	6
Pre-Req	Spy Data I
Recipe	N/A
Description	<p>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 <u>same two pieces</u> of data are reported for each targeted Unit. For example:</p> <p>What fortifications do Units 1789 and 2789 possess? What is the population of Units 1789 and 2789?</p>

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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. Weight: 500 lbs

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

Name	Sewers
DL	8
Pre-Req	Sanitation 6 (Group C skill) Eng 10 (Group C skill) Home City established University (Building)
Recipe	Sewers: People 1250, Eng 9, San 6, Stn 8, Stones 5000, Logs 500
Description	Engineering / Stonework activity Sewer Requirements: 3) Water Access: Note: Sewers may only be built at sites adjacent to water (River,

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	<p>Lake, Ocean) or Swamps.</p> <p>Benefits: Sewers serve all Tribes of one clan in the site.</p> <p>5) Siege Protection: Sanitation skill is increased by 4 during Sieges. This does not allow Specialists (that would require Sanitation 11 research).</p> <p>6) Population Boost: Improves Population growth (0.5%) similar to Hospital.</p> <p>Sewers may be built for other Clans but they require the Sewers research to utilize.</p>
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Name	Stone Fords
DL	5
Pre-Req	N/A
Recipe	<p>Ford to River: Eng 3, Stn 4, People 500, Stone 2500</p> <p>River to Ford: Eng 6, Stn 8, People 2000, Stone 10000</p>
Description	<p>Engineering / Stonework activity</p> <p>Fords to Rivers (Eng 3, Stn 4 if using Joint Project) [Removing ford and shoring up bank] 500 AM with Stone 2500 can convert a Ford into a River</p> <p>Rivers to Fords (Eng 6, Stn 8 if using Joint Project) [Building up the ground across river] 2000 AM, Stone 10000 can convert a River into a Ford</p> <p>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.</p>

Tactics

Name	Ambush
DL	4
Pre-Req	N/A
Recipe	N/A
Description	<p>Once completed, Ambush allows a unit that has access to Ambush to attempt to ambush any enemy unit(s) it has combat with.</p> <p>Benefits:</p> <ul style="list-style-type: none"> • Casualties: A successful Ambush allows the Ambusher one free missile round. Only the unit that has the successful Ambush gets to fire missiles. • Enemy Tactics Skill Reduced (Limited): For determining a successful Ambush, the enemy Unit's Tactics skill is reduced by 2 if the enemy does not also know the Ambush research. This only applies for the determination of an Ambush, not for the duration of the combat. <p>Restrictions:</p> <ul style="list-style-type: none"> • Ambush Success Check: Determining the success of an Ambush is based on the total Tactics skill of each Unit. The Unit with the higher Tactics skill has a chance to successfully perform the Ambush equal to: (Difference between Tactics Skills) * 10%. See below for Tactics skill value if in MotC. <ul style="list-style-type: none"> ○ <i>For example, Unit A has Ambush and Tactics 10. Unit B does not have Ambush and has Tactics 10. Unit B's Tactics is reduced by 2 to 8. The chance of Unit A successfully Ambushing Unit B is $(10-8) * 10 = 20\%$ chance.</i> ○ <i>For example, Unit A has Ambush and Tactics 10 and is attacking Unit B. Unit B has Ambush and Tactics 15. Unit B has the higher Tactics and would have a $(15-10) * 10\% = 50\%$ chance of Ambushing Unit A.</i> ○ <i>For example, Unit A and Unit B both have Ambush and Tactics 10. The chance of a successful Ambush is $(10-10) * 10\% = 0\%$ chance. No Ambush will occur or can occur.</i> • Meeting of the Clan Skill Value: Any Unit that is in MotC uses the averaged value for Tactics as per standard MotC skill value calculations. • Maximum Warriors: This Ambush round is limited to a maximum of 20% of warriors in Ambushing force firing missiles except in wide open terrain such as Prairie, Arid, Desert, etc. when the maximum drops to 10% of the Warriors in the Ambushing force. • Types of Combat: Ambushes cannot be attempted in Naval Combat nor can it be used in combat involving any fortifications. Raiders, Security, Suppression and Locate may not use Ambush. <p>How to conduct an Ambush:</p>

	<ol style="list-style-type: none"> 1. Determine Unit A and Unit B's modified Tactics skill and presence of Ambush research. 2. If either Unit does not have Ambush, that Unit's Tactics skill is reduced by 2. (Enemy Tactics Skill Reduced). 3. Determine the Unit that will be Ambushing and the Chance of Success (Ambush Success Check) 4. Determine if the Ambush is successful: Roll 1d100 and compare against chance of success. If roll is \leq Chance of success, the Unit has a successful Ambush. 5. Determine the number of Warriors and the weapons / ammo being used (Maximum Warriors) 6. Run the Ambush missile phase per normal missile phase rules. 7. Apply casualties and remove from Combat 8. Run combat as normal starting with the standard Missile Phase.
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Name	Tactical Systems
DL	5
Pre-Req	N/A
Recipe	N/A
Description	<p>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.</p> <p>Counters: Tactical Systems cannot be used against an opponent who also possesses this research topic.</p>

Name	Wagon Laager
DL	6
Pre-Req	N/A
Recipe	N/A
Description	<p>A circle or wall of wagons used by Defenders (only) in the Field</p> <p>. 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.</p> <p>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!</p>

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	<p>Not in mountains, Forests or Jungle.</p> <p>1 wagon must be available per 10 Warriors. The effect is to increase TP by +4 when the unit has an order to “defend”.</p>
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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.

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	<p>Under more sustained and sophisticated torture a client will prefer to name “sympathisers” in the local area rather than pain and death.</p> <p>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.</p> <p><u>Progression (under development)</u></p> <p>Treachery 2 DL2. Same only 2 torturers, 200 warriors and 200 detainees. Prerequisite Dungeon and Treachery 1. Allowable once per year.</p> <p>Treachery 3 DL3. Same only 3 torturers, 300 warriors and 300 detainees. Prerequisite Dungeon and Treachery 1 & 2. Allowable once per year.</p> <p><i>Treachery 4 DL4. Same only 4 torturers etc and requires companion research of the Rack.</i></p>

	<p><i>Treachery 5 DL5. Same only 5 torturers etc and requires companion research of Thumb Screws.</i></p> <p><i>Treachery 6 DL6. Same only 6 torturers etc and requires companion research of Water Torture.</i></p> <p><i>The Inquisition (DL8 maybe) - a group of torturers can... Probably requiring Treachery 3, Rel10 maybe?</i></p>
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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

Triball

Name	Inactive Players
DL	5
Pre-Req	Member in a Triball Guild
Recipe	N/A
Description	<p>Inactives may perform up to one-half of the Triball activities for a Triball Guild or normal Triball silver generation during Fair.</p> <p>Older players are still crowd favorites and their knowledge and skills are invaluable. Just because they may no longer charge across a battlefield against barbarians does not mean they can't beat people with sticks from horseback.</p>

Name	Large Teams
DL	5
Pre-Req	Triball Guild <Triball research> Guild Master of Triball Guild
Recipe	N/A
Description	Large Teams allows all members of a Triball Guild to assign twice as many Warriors, Horses and Clubs as normal (1,600 Warriors, Horses and Clubs) to determine Gold Generation.

Name	Off Season
DL	3
Pre-Req	Triball Guild <Triball research> Guild Master of Triball Guild
Recipe	N/A
Description	Triball Guild – Off Season allows members of a Triball Guild to be assign Warriors to Triball during specific non-Fair months. This works similar to the Triball Guild rules above. The specific Months that the Triball Guild may be utilized outside of Fair Months are Months 1 and 7. The cost per Gold is increased from 250 to 1,000 for the Triball Guild in these Off Season months.

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

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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.
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Name	Triball Club
DL	3
Pre-Req	N/A
Recipe	1 Triball Club: People 1, Wd 4, Log 1, Brass 1
Description	<p>If members of a Triball activity are armed with Triball Clubs, then the amount of silver they generate (for Silver during fair, or for determining Gold generation) is doubled. If only part of the assigned Warriors are armed with Triball Clubs, then apply a ratioed bonus.</p> <p><i>For Example: At Triball 10, 800 Warriors, Horses and armed with 800 Clubs, would normally generate 19,000 Silver / 250 = 76 Gold. If they were all armed with Triball Clubs, they would generate (19,000 * 2) = 38,000 / 250 = 152 gold.</i></p> <p><i>For Example: At Triball 10, 800 Warriors, Horses and only 400 Clubs and 400 Triball Clubs, they would generate (19000 * 1.5) = 28,500 / 250 = 114 Gold.</i></p> <p>Weight: 5lbs</p>

Name	Triball Coaches
DL	2
Pre-Req	N/A
Recipe	N/A
Description	<p>Triball Coaches research allows a Tribe that is performing a Triball activity to increase the amount of Silver / Gold generated by 20%. This increase is cumulative, but not multiplicative, the bonus is added to other bonuses.</p> <p><i>For example, with Triball Clubs and Triball Coaches, 800 Warriors with Horses and Triball Staffs would generate 19,000 * 2.2 = 41,800 Silver / 250 = 167 Gold.</i></p>

Name	Triball Guild
DL	2
Pre-Req	N/A
Recipe	1 Minor League Arena: People 1.5k, Eng 6, Tri 6, Stone 7.5k
Description	<p>Description: The effect of a Triball Guild, also known as a Minor League, is to allow Triball to generate to Gold instead of Silver and is structured identical to a Guild.</p>

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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 of each Type (Traders Guild 20, Bargemens Guild, etc). A Clan may only be a member of one Exclusive Guild, such as Exotic Weavers Guild, **though Triball Guild is not an exclusive 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 applicant 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 be 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 Triball Guild allows Guild Members to gain the ability to assign Warriors to the Triball activity during Fair to generate Gold. This is independent of the normal Triball Activity. To participate in this activity, the Tribe must have access to a Minor League Arena. This Minor League fair activity may be performed during every Fair.

A Clan may assign a maximum of 800 Warriors, 800 Horses and 800 Clubs to this special Triball Minor League. Use the standard Fair calculator for Silver generation for Triball activities. The amount of Gold that is generated by participating in this Triball Guild during Fair is the amount of Silver divided by 250, rounded down.

For Example: At Triball 10, with 800 Warriors, 800 Horses and 800 Clubs, the calculator shows it would normally generate 19,000 silver. Instead it generates $19,000 / 250 = 76$ Gold.

Guild Master: 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 proceeding turn 12 TribeNews is published.
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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.

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	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>

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.

Weight: 0.05 lbs

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). Weight: 5 lbs 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 2, Silver 20, Ivory 1
Description	Curved Sword with a nice Ivory hilt used by Cavalry. <u>A maximum of 30 people</u> in the

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	Clan per turn may be assigned to the making.
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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. <u>A maximum of 40 people in the Clan per turn</u> 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. Weight: 25 lbs 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. <u>When sold</u> 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,

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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.

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

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.

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. Weight: 50 lbs

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	<p>Barge Poles are highly decorative but functional poles used by barge-hands (Barges) to move through swamp as if it were water.</p> <p><u>A Barge with one Barge Pole per Crewmember</u> 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.</p> <p>Barge Poles have no effect on non-barge ship movement.</p> <p>Weight: 20 lbs each</p> <p><i>The bone decorated poles help to ward off the evil spirits that congregate around the swamps while the barges traverse the fetid waters.</i></p>

Name	Hand Plane
DL	4
Pre-Req	N/A
Recipe	1 Hand Plane:
Description	<p>Woodwork Activity (only) Coded</p> <p>A wood and metal hand plane used for shaping wood. A worker with a Hand Plane increases Shipbuilding and Woodwork output by 50%. (1 Worker counts as 1.5 Workers)</p> <p>Weight: 50 lbs</p>

Name	Mining Ladder
DL	5
Pre-Req	N/A
Recipe	People 15, Wd3, Mtl3, Log 4, Iron 25, Coal 150
Description	<p>(Also Under Mining, Metalwork and Mining)</p> <p>A Mining Ladder provides a Bonus to Mining output equal to +100% to ten (10) miners and a Bonus to Digging output (Clay, canals, sand, moats, etc) equal to +100% to ten (10)</p>

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	<p>diggers. This is cumulative with other implements (Picks, Shovels, Ore Carts, Seam Wedges, etc). This bonus is additive, not compounded.</p> <p>Example:</p> <p>5 Miners with 1 Mining Ladder would count as 10 Miners 10 Miners with 1 Mining Ladder would count as 20 Miners 15 Miners with 2 Mining Ladders would count as 30 Miners 20 Miners with 2 Mining Ladders would count as 40 Miners 20 Miners with 2 Mining Ladders and 20 Picks would count as 60 Miners 20 Miners with 2 Mining Ladders, 2 Ore Carts and 20 Picks would count as 80 Miners</p> <p>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.</p>
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Name	Roman Crane (Also under Engineering)
DL	6
Pre-Req	N/A
Recipe	1 Roman Crane: People 6, Eng8, Wdw10, Logs 20, Iron 40, Rope 10
Description	<p>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.</p> <p>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.</p> <p>Weight: 300 Proposed by Brian Whitesell</p>

Name	Scaffolding
DL	5
Pre-Req	N/A
Recipe	1 Scaffold: People 2, Wdw 6, Logs 3
Description	<p>Woodwork Activity</p> <p>A worker with a scaffold does the work of 1.5 effective workers for Shipbuilding or</p>

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<p>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</p> <p>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</p>
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Name	Trellis
DL	2
Pre-Req	N/A
Recipe	1 Trellis (Acre): People 1, Eng 6, Wdw 2, Logs 1, Cotton 1
Description	<p>Woodwork Activity</p> <p>Requires Farm 6 to use Trellis to reduce AM for grape harvesting</p> <p>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 linearly 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.</p> <p>Weight: While the Trellis is stored as an item, it is meant to be a stationary installation. It has a heft weight and is not meant to be moved.</p>

Name	Wain
DL	4
Pre-Req	N/A
Recipe	1 Wain: People 15, Wdw4, Logs 15
Description	Woodwork Activity

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	<p>Holds 5000 lbs (2500 when scouting). Has same restrictions as Wagons. 4 Animals to Pull.</p> <p>Weight: 600 lbs</p>
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Name	Wheelbarrow
DL	4
Pre-Req	N/A
Recipe	1 Wheelbarrow: People 2, Wdw5, Logs 2
Description	<p>Woodwork Activity (only) Coded</p> <p>A worker with a wheelbarrow increases Mining, Engineering output by 50%. Doubles Quarrying output. Weight: 50 lbs</p>

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) 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

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