Strategy for Widelands

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The strategy was invented for Empire tribe, but it can be easily adapted to any other tribe. King_of_nowhere provided additional strategy, very useful.

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1. Short introduction

Most good strategies for any game can be divided into three groups:

a) Early game
b) Middle game
c) Late game

Early game strategies assume that the game will end in a short time and it will be a win. On that kind of strategy we have no time to build all the houses in Widelands, because the game will end too fast.

Middle game strategies assumed the same for middle-time games. We can build more buildings, probably not every possible one, and we can't train soldier to the highest level.

Late game strategies assumed that the game will last almost forever. We have time to build whole economy, any buildings and any number of them.

This article will explain the late game strategy. On some maps this strategy won't work well without modifications. But the main idea can be exactly the same.

2. Brief explanation of strategy

The strategy is divided into 3 main stages:

a) Expansion
b) Creating level 2 soldiers
c) Great empire

Each stage contains a different point of view into economy and its stats. The same goes for soldier production. Battles can happen at any stage, but are most effective at the end. At the first stage the battles are only to stop the enemy from expanding which is not recommended. Its only purpose is to show "we are strong, we can attack". This works most of the time.

The second stage contains betters soldiers (we have Colosseums) and usually it works: attacking the enemy when they have weaker soldiers. It doesn't work against opponents of equal power; for this we have to get the third stage. The final stage contains only level 10 soldiers: proficient attackers and with lots of health. With this stage we can attack the enemy with great power and win the game. But we have to be very fast - aster than anybody else!

3. Stage 1: expansion

3.1. Description

This stage has one main goal: expansion. We harvest all possible wares from land (stones, trees, animals, fish) and expand as quickly as possible in all directions. Why? We will need lots of space later. Another consideration is efficient production of basic wares. We also have to provide the opportunity to further develop the economy. Any wares provided by the land are welcome here! They make expansion slower (you have to cut trees) and faster (you have more wood) at the same time.

3.2. Realization

During this stage we have to continue rapid expansion. We can use any means to achieve this goal. Military buildings are welcome, but only some of them are suitable for expansion. We will build and dismantle buildings frequently, so we don't want to lose non-renewable wares. This means use of *outposts*. We will build them along all borders. A maximum of four are enough to start with (but often only two or three. We also have to uncover our territory (fog of war), so for every *outpost* in four can be replaced by a *tower*. They need some *marble columns*, but by then we will be able to produce these. Also on large maps expansion has to be done with *scouts*. Without them we can't see an enemy early enough. S*couts* also provide information about good parts of terrain (mountains, dense soil, water, additional stones).

Sentries are better than *outposts* to expand early. A *sentry* costs 1 stone, 1 plank, 1 trunk, and refunds 1 stone and 1 plank on dismantling. so you can advance by only spending 1 trunk. an *outpost* will lose you 1 trunk and 1 plank, too much to justify the increase in controlled area. An exception is

close to mountains, where you want to push the borders forward to control more ores. But in that case, it can wait later in the game and make a *barrier*, *tower* or even a *fortress*.

We can't build buildings without wares, so we need plentiful and efficient production. First we need wood and stone. It can be done by using 3-4 *lumberjack's houses* next to the starting position, one *sawmill* and two *quarries*. Bigger maps[1] will require additional *sawmills*. When the *lumberjacks* fells trees, we build two or three foresters next to them. If the aim of the map is to mine all of the stones, we can build more *quarries* (as many as possible, but only next to stones).

Empire needs also *marble* and *marble columns*. To have an efficient source of them, we need buildings: *marble mine* (one should be enough for the start and second should be built after a while) and *stonemason's house*. The mine needs also food to work, so the production can be upheld by: one or two *fisher's houses*, one *tavern*, two *vineyards* and one *winery*. If there are any animals, we can build also *hunter's house*. Importantly, *bread* should be forbidden in *taverns* as it is very useful at the beginning of next stage. To finish, let our marble mines have a maximum one *ration* or *meal* and one wine to prevent them from consuming too much wine, which is used for *gold mines* in the future. To set this limitation we should *decrease the number of wares stored* in the mines in their window menus.

When we have *marble* production nearly completed we can build one *smelting works* and one (for smaller maps) or two (for bigger ones[2]) *toolsmithies*. We don't need *coal* or *iron* at first because some of the products are in the stock at the beginning of the game.

After that we have to build our first *farm*. It can be placed anywhere that has room to function correctly. The farm can be dismantled and re-built elsewhere so we shouldn't worry about the initial placement. Where should we use produced *wheat*? Initially the *donkey's farm* as we will need them to have efficient transport in any part of the game. But to produce *donkeys* we also need *water* so we should build a *well*, usually we can do that next to the *donkey's farm*.

At the same time we have to build more *forester's houses* and *lumberjacks* on the best available ground, for example *meadow4* on *greenland*. The number depends on how much suitable ground is available. The maximum should be six the *forester's houses* and seven *lumberjacks* for big maps or just three *forester's houses* and four *lumberjacks* for smaller ones. Additional lumberjacks can be built in the future if needed. Also it is good to keep foresters far from mountains. A *forester* lies at the foot of a mountain, it will place most trees on it. but those trees will die before growing to be harvested, so the *forester* will have wasted its action and the *lumberjack* won't have trees to cut.

Finally we have stable production of construction products, some additional tools, help with transport and some food for miners. We can build *coal* and *iron mines* during this or the next stage, and of course a *brewery* with another *farm*. This provides a stable production of tools.

3.3. End of stage

The stage will end when we can expect to meet an enemy. Sometimes we can see his *scout* and that means the same. But sometimes we can't expect an enemy for a long time, and we should end the stage earlier than reaching the enemy. The best rating of that situation is realization of two assumptions: first is to complete all the buildings described above, and the second one is to have some *trunks* in stock (usually it is the most problematic product, so it is very hard to have it in stock).

Some maps are too small to build everything described in the point 3.2 before we meet an enemy, so that undone things are transferred to the second stage. That game can be very fast for any side of conflict for that possibility.

4. Stage 2: level 2 soldiers

4.1. Description

On this stage our goal is to make short project about available area. We should find good place for soldiers-center. What should be there? Some *trainings camps*, *colosseums* and near that place *bakeries* and *mills* (basic food production) and *smelting works*, *armour smithies*, and *weapon smithies*. But

[1] Maps where we can expect the expansion stage for more than one hour of game time, which is most 128x128 or bigger maps.

[2] The number of *toolsmithies* depends on size and diversity of land on the map. Lots of mountains or vast forests means a greater need of tools and *toolsmithies*.

they are just plans. Sometimes we don't reach designed place (especially when we didn't spot the enemy) and we can't build those buildings now.

Also in this phase our goal is to upgrade our soldiers into level 2 evade. Why? Because to get this level we don't have to produce any metal products, only food. Second thing is that evade makes about twice better soldiers in compare without trained evade[3]. At the end of this stage we have some level 2 soldiers with not big economy. This can be very useful in short games.

4.2. Realization

Planning

At first we have to plan where we should build our soldiers production center. It is a bit hard to plan, because of variety of possibilities. Most players (and the current AI) the neighborhood of first *warehouse* / *headquarters*, but probably the best place is to choose the place near the future front (where we will make battles). How far should we plan the center? About 25 units from the border. Less means faster and more risk game, more means less risk game. Conflict of the algorithm can be when we have more than one front. So if we meet more than one players/ fronts of one player, we should choose bigger place for the production center. That algorithm works on balanced maps, with places to build and mountains everywhere. Sometimes the (chosen) front is very long. In that situation we should choose place closer to the mountains (if the mountains are near to one of edges of the front) or in the center of the front (it the mountains are on both sides of the front, or there is no mountains).

Not always we can say that there is enough place near the front. Also some maps contains lots of economy problem at once. Especially when ships are the major transport it can be useful to plan the production center on quiet place, where nobody would conquer. Then we will have to make transport from that place as fast as possible (*ports*, *warehouses*, short roads only). Any traffic jam there means loses for us.

Soldiers production center

When we choose good spot for our heart of empire, we can start building it. At first we have to have it clear: no stones and trees there. During cleaning we can start constructing first arena and upgrade it very fast into colosseum. This construction will last for a while and we can do something else parallel. At first we need some *warehouses*. They will be very important to our economy. We need two or three[4] of them next to the colosseum (but they don't have to be very close to it, only optional third of them should be close). We will also need one more *warehouse* a bit far from the center (about 30 units far). Usage of the warehouses are:

a) One for ores, metal products and weapons
b) Second one for produced food
c) Third (optional) can take metal products and weapons (then the first one should take only ores)
d) Last one (this far away) will take *water*, *wheat* and *flour* (bread ingredients)

Those products can be set by option in warehouse: click on products of interest to us and then click "Preferably store selected wares here" (green arrow up).

Economy: food

After that we should think about some food. It is good to begin a bread production from one *mill* and two *bakeries*. Also *wells* are needed. We should build them next to the *warehouse* where we set the bread ingredients to store.

If we have food production completed, we would upgrade our soldiers quickly. But two bakeries is not enough to feed the *colosseum*. So we need more *bakeries* and *mills* (2 bakeries for every 1 mills). But we have a place for that buildings near existing ones. That was the plan for. Also we will need more *farms*. It is very hard to tell now how many of them we will need. More *farms* usually means better economy. *Wheat* is very useful in many places. But probably 3 or 4 more of them can be a good start. We should think where we have lots of place and probably not the best soil. *Farms* can be placed almost everywhere and they will produce lots of *wheat*. They need only two things: free place around

[3] Exact numbers are here: https://wl.widelands.org/wiki/SoldierLevels/
[4] In huge maps where we will build lots of *training camps*.

(no trees and stones, no *lava* or *snow*, etc.) and big building possible to build on the ground. Most of the maps fulfill both expectations in many places. If we have to decide where exactly we should build them, just take the place with worse ground. On better one we can build more *forester's houses* and *lumberjacks* in the future. Also on the best ground trees can grow without our interference. The worst ground (like *barren steppe*) is perfect for farms. Almost no trees would grow there. Because we have special *warehouse* for *wheat*, we don't have to build *farms* very close to it. They can be far away, but the transport have to be fast (only two units far roads). More about fast and good transport will be later.

Weapons

To have fast soldiers upgrading we need fresh troops. Empire needs one *helmet* and one *wood lance*. To produce that we need one *wood*, *coal* and *iron*. Also we need 2 buildings: *weapon smithy* and *armour smithy*. Also *smelting works* are indicated. Those buildings has their places, so we can just build them up. Building is one thing, but the economy of the empire can't produce what we want. We have to set the *configure economy* options. Defaults are 15 *helmets* and 15 *wood lances*. Our production should be aimed only to those two products, so we can set the values from 15 to 50. Also we should *decrease the number of wares stored* in weapon productions buildings to 0. All except *wood* in *weapon smithy*, and *coal* and *iron* in *armour smihty*. Those settings provide constant and fast production of weak soldiers. Our weapon buildings can't produce any other weapons, because they have no ware to do that. In this stage other weapons are useless and unnecessary.

Also some mines are useful to provide our production for ores. Usually we should build only a few (one or two) of mines for each ore: *iron*, *gold* and *coal*. *Iron* and *coal mines* needs *beer* to work, so we should also build a *brewery* not far away from there. It is good to upgrade a *tavern* to *inn* (if it wasn't upgraded in the past because of other mines, for example *marble mines*).

Specific settings for colosseum

Our goal is to produce lots of soldiers with level 2 evade. That is possible only with using 4 *breads* and 3 *fish*/ *meat* (our starting amount of *breads* can handle two "free" soldiers and that was why first *tavern* shouldn't use the bread). The algorithm for working *colosseum* is to train every soldier in capacity of the building, so we should control that process. At the beginning we should wait few seconds for filling the storage of food, then we can increase the capacity to one. We should hold the window of *colosseum* opened. Every soldier upgraded consume food and we should check if there is enough food for another soldier. If not- we should close the *colosseum* (set capacity to zero). After some time, when bakeries will work fast enough, we can close the window and assume that there is enough food for any soldier. Also if there is even more food, we can set the capacity to two. Then the upgrade would last a bit longer, but it would be constant. With one soldier we are waiting for soldier to come, with two- one soldier is upgrading while second is coming. Other values of capacity can be useful in huge and widespread territory. It is pointless to keep all the capacity of the building, because we would wait long time to have the same amount of good soldiers and till then we couldn't use them.

4.3. Battles: mostly defense

Defense

Our defense will be our territory. Here we assumed that we already reached the enemy and we know where will be the fronts.

There are two basic ways to defend. One assumed a bit aggressive state: building *fortresses*, *barriers* and *towers* near the border, just on the front. Second one assumed defensive state: building military buildings at least 11 units[5] from the border. The best buildings for defense are barriers. They contains 5 soldiers and build pretty fast. But they are useless in attack. At least one *fortress* should be built there. Also *fortresses* are good to hold the border. Their range is more than *barrier* can see, so the enemy have to build another *fortress* or *tower* to see our buildings. It takes few minutes, used by us. Towers are good to see the enemy and should be built there. Then we can see if the enemy is strong or weak on the front. It can be useful to us.

[5] That is the range of the *fortress*.

Also it is good to start the defense from one single tower or fortress on the border. The enemy would try to destroy it and we can just sacrifice it (dismantle or destroy) when he/she would attack. We would have even more time to build main front and fill it with trained (lvl 2) soldiers.

And here is the clue why we tried to expand as fast as possible: our economy is not good enough to produce high skilled soldiers. Probably the first line will be destroyed. But we have enough space to build second or even the third line. Some games contained lots of free space between the front and first non-military buildings. To reach that terrain it takes ages for enemy and we have enough time to prepare great defense and attack.

Attack

One of the proverbs tells: "the best defense is attack". It is good to attack the enemy before he or she will do it. Why? Because the enemy would have to rebuild destroyed buildings or prepare more soldiers for us. Sometimes we can see good strategic paths. Narrow passages between mountains and water are one of them. In some maps attacking that places provides us half an hour time. It can be used wisely. Also sometimes the enemy will not be so strong and it is good to attack him/her as much as possible. If that so, the last stage can be shifted by a few hours, or even never reached. If we get to the headquarters of enemy by attacking on this stage, the game can end fast (and we would win). But if the enemy have better soldiers than us (with general power and single units), we have to stop attacking and concentrate on passing to the third stage.

4.4. End of stage

The stage ends when we want to ☺. But precisely, we have to go there when any of the enemies have better soldiers (single units). We can see them attacking us or another player. Also we can notice that on general statistics (comparing the military, casualties, kills and workers stats[6]). We can also send one soldier to attack far away (one of last military buildings from the enemy's front) and observe all the soldiers coming out from other military buildings.

Not only the military reason can be used to end the state. Also if our economy is good enough to build about 40 new building in a short time, it is good to start the stage. Before that it is good to build some more *forester's houses* and *lumberjacks*, probably two more *sawmills* and two more *stonemason's houses*. In the configure economy menu we can set the number of *wood* from 40 to about 100 (or even more) and the number of *marble columns* to about 10 (but more is not a bad idea). Those wares will be very useful in the future. After that preparation we are ready to go ahead.

This point can be very late on some maps. It can be even 6 or 8 hours of gametime. In shorter versions it can be even 2 hours from the beginning, but creating all the buildings takes hours. It is not easy one. Some players can have great power till then and we have to be prepared to move back the front line. That is the main reason why we have decided to expand in the fastest way.

Expansion

The expansion on this stage should be blocked only by front lines. Also on this stage we should look for mountains. More we have on our territory- more ores we can provide on the next stage.

5. Stage 3: small empire

5.1. Description

This part is written by king_of_nowhere and it is designed especially for small maps. Short time between starting the game and fighting with the enemy will lead to win only well prepared empires with high level soldiers.

This guide supposes that you are playing on a small map, or that you are in a big map but haven't expanded enough yet. if you have a big empire you will make level 10 soldiers without need for micromanagement.

Here are detailed instructions for every tribe. If something is labelled as TIP, it works with all the tribes instead.

[6] Few workers and big military power means good units power. The same with large number of kills and few casualties. Also slight increase casualties which causes a large decrease of military power.

5.2. Theory

Wideland military buildings are programmed to work at best when they have an excess of wares. A *weaponsmith*y will start making the level 0 weapon, then if it still has resources it will make the level 1, then the level 2, until the top level. If it does not have resources enough, it will restart from level 0, and never produce the higher level items. This problem can be circumvented by stopping the military economy for a period of time until enough wares are accumulated, then using them in short bursts.

Notice that this section starts on the premise that there will be no contact with the enemy before you have a level 10 soldier. Making a level 10 soldier will take away resources from regular soldiers, so in a small map that may mean that you will lose before you can make that soldier. Use your own judgment and knowledge of the map to determine when you should start working towards a level 10.

5.3. Barbarians

With barbarians you need to have a master blacksmith to make level 10 soldiers. that takes time, so you should start immediately. Make a *metalwork shop* among your first few buildings, upgrade to *axe factory* as soon as it is completed. Also make early a *smelting works* (it is recommended that you make at least a second *smelting works* later, but only after you set up a good number of *lumberjacks* and *farms* and annexed economy) an *iron* and *coal mine*. barbarians start with lots of trunks so you can afford to do it without slowing down your expansion.

Also among your first buildings make a *farm* or 2 and a *microbrewery*, since you will need a *master brewer* for the evasion promotion. Upgrade the brewery as soon as you have a master brewer.

Make sure the *axe factory* keeps working on level 0 axes. they are the cheaper and faster way to gain experience. As soon as the *blacksmith* becomes a master, remove all the wares from it and upgrade it (check the axe factory often. even better, keep it in an open window).

As you expand, try to make a few more *farms* and a *bakery*. It is good to have already a storage of bread (and meat, but that's inexpensive to barbarians) to start promoting soldiers fast with the *arena*. Make sure that bread is not used in *taverns*

Make your *arena* to finish it roughly when you upgrade the *brewery*. Start upgrading the soldiers to evasion 2, but do not consume all the bread, as it is slowly produced and you need to save some for the *training camp*. if your bread run short, stop soldiers from coming to the arena.

Also start working on the *training camp* and *helmsmithy* by that time. just make sure that the 4 gold you start with go all on making the *battle arena* and not on the *training site*, since *battle arena* has priority. But once they are completed, stop the *helmsmith* immediately and set the training site to have no soldiers inside. And start a *gold mine*, since you will need gold soon.

When your *axe factory* has been upgraded to *war mill*, stop it immediately before it can do any work, but let resources gather into it. You need to fill it with iron and coal, and to have at least 3 gold. Once all those resources are inside, you can resume its work. Now it will procede to sequentially make all the axes from level 0 to 5.

TIP: Normally I also set the economy to stop producing level 0 weapons by now (set them to 1 in the "configure economy") because I plan to only fight with level 10 soldiers, but that depends on the map and the situation.

When the *war mill* has made the level 5 axe, stop it, and wait for it to be full again before restarting it.

Same goes for the *helmsmithy*, except that in that case you need 5 iron, 3 coals and 1 gold. After I make the first couple of soldiers, I generally let the *helmsmithy* go by itself; it produces faster than the *war mill* because it only has 3 wares to make instead of 6, so it will soon reach the point where it will "skip work because economy does not need helmet" and you won't need to be bothered about it.

TIP: if you miscalculated the amount of wares, so that your *war mill* will only produce axes to the level, say, 3, they are not wasted. go to the training site and tell it to send out those axes (setting the number of wares to 0 for them). those axes will go to a warehouse. now when you restart the *war mill* it will skip making those axes because the economy already has them.

Now you should have the *training camp* with 1 axe and 1 helm per type. The *training camp* should be full of bread, and you should have excess meat.

At this point, you can send a single soldier inside it, and you have to make sure it also get the evasion promotion. There are 2 strategies for it:

a) cut the roads to all your front military buildings, set them to "prefer rookies" when not possible. then kick out one soldier with evade 2 from one of them. that soldier will go to a warehouse and stay there. Now open the training site. A soldier will come to it, not the one with evasion. So close it again, and reopen. Another soldier will come out. Do so until the soldier with evasion comes out. then reconnect the roads and set back the buildings to "prefer heroes".

TIP: soldiers in a *warehouse* are ordered in a queue. When one soldiers enter it is put at the end of the queue. When new soldiers go out, they start from the beginning. So, if you have 20 soldiers in your *warehouses*, and the evade 2 soldier you want to promote is number 21, you will need to open and close the training sites 20 times to see it. You can use that knowledge to speed things up, for example open it for 12 soldiers, close, then open it for 8, close, then open it for 1 and it will be yours.

TIP: If you opened it for more than one soldier, and the soldier you want to upgrade is there, no panic. Once the group of soldiers come into the training site, kick out the undesired ones and close the slots until only the one you want remains. just be fast, before they can get any promotion on them.

b) open the *training site* and let a random soldier (without evade) go into it. when it completes training, cut the roads to the military buildings or set them to prefer rookies, so your strong soldier will go to a warehouse. then send your level 8 soldier to the arena using the cycling method described above.

TIP: If you know your timing, you can send a soldier in the training site before the *war mill* has completed all the axes, to gain a few minutes. just be sure that those axes will be completed before your soldier will need them.

In both cases, close the *training site* as soon as your upgraded soldier is out. do not open it again until you have full food and weapons, to repeat the process.

A good time for the whole process is to have your first level 10 soldier in less than 80 minutes.

5.4. Empire

With empire you will need a lot of marble columns, because military economy buildings take lots of them. So make a *stonecutter* among your first buildings, and make sure to have plenty of marble. iron won't be of any use if you can't turn it into weapons cause the *weapon smith* costs 3 marble colums, and those weapons will be useless if you don't have the 4 columns for the training site. I found that it is best to have 4 *quarries*[7] and 1 *marble mine* with 2 *vineyards* and a *vinery* to keep it going. Those 2 *vineyards* will also have to be built quite fast.

Then you should just work normally to getting an economy running. You don't need the *arena* immediately, but start accumulating bread (do not send it to the *taverns*!). Also you don't need mines very early, and you need all the wood and marble you can get in the beginning. A good time is to make iron and coal mines after 30 minutes, and finish the arena before one hour (upgrade the *colosseum* to arena as soon as it is finished).

TIP: Empire requires a lot of big buildings, and in a small map you may find yourself out of space without being able to make all of them. You can still dismantle a *farm*, but that will consume time and resources. So it is better to plan your buildings in advance: from the beginning of the game start making all the big buildings like *arena*, *training camp*, *weaving mill*, *weapon smith*, just don't send wares on them. Set them to not receive any trunk, plank, marble, or columns. You can let the stones go to them, as you will always have excess stones with empire. Then reopen the ware slots when you need the building or when you have enough wares. This tip is good for every tribe but it is especially important with empire because it requires so many big buildings.

When you have set up a good economy to produce food, you can complete your military economy. first complete the *colloseum* and have it start producing evade 2 soldiers. Like in the barbarian case, try to keep some bread for the *training camp*. When you complete the *weapon* and *armor smithy*, stop them and let resources accumulate, like in the barbarian case. Both need only 2 gold each. The armor smithy needs 3 cloth, but you should have an excess of cloth anyway, so no worry there. The weapon smith also needs 5 planks.

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[7] I've found that 2 quarries are enough - footnote of einstein13

Now you will produce exactly like in the barbarian case: have 1 copy of each weapon and armor in the training camp, send a single soldier into it, repeat every time you have the wares. The two strategies for making sure your soldier will get evade are the same for barbarian and empire.

A good time for the whole process is to have the first level 10 soldier in about 1 and a half hour. Barbarians can get it faster, but imperials are stronger and cheaper.

5.5. Atlanteans

Atlanteans are quite different from the other 2. On one hand, the *labyrinth* byzantine mechanics make it much more difficult to get a fully promoted soldier. On the other, they can get one good soldier without mines.

Having a proper level 10 soldier (well, 9 actually) with atlanteans is very difficult, but you can get around it by contenting with a level 7 soldier, fully promoted on attack, evade and hp, but without defence. The resulting soldier is a bit more frail (some 30% less endurance), but it is almost as good, especially at slaughtering weaker soldiers, and much easier to get, so you should focus on it first.

Start a normal economy. Do not make mines, but make sure you are producing plenty of food. remember in particular that you need plenty of wood for the *smokeries*, and that fish tend to be the limiting resource with atanteans. Configure your economy to increase the amounf of bread and fish produced; hoard them, you'll be surprised how quickly they disappear once you start mining! Also configure the number of golden tabards to 5; later it will be clear why.

You start with 4 gold. 2 of those will be needed to make the dungeon, the rest make sure will go in the *weapon smith* and not in the *armor smith* or the *gold weaver*. In fact, you can skip them until later.

You should complete your *labyrinth* after about 40-45 minutes and have a good stock of food. Now, I did mention it works poorly: if you just let it go as it is, it will promote your soldiers to evade 1 and hp 1 and send them out, even if you have excess food. Not only, but it will be very difficult to give the evasion 2 to those soldiers later, as the *labirynth* tends to kick out preferentially soldiers who have already the hp 1. If you send a single soldier with evade 1 and hp 1 into a *labirynth* full of food, it is more likely to kick it out that to promote its evasion. I never found a way to get around that.

So, what you should do is instead set the number of golden tabards in the labirynth to 0 and send 4 or 5 soldiers in it.

First the *labirynth* will give all of them the evade 1 promo.

Then it will start giving the evade 2 promo to each (make sure you have enough food, that's expensive). Once one or two soldiers have the evade 2, you can let the golden tabards in. the *labirynth* will give the hp promotions to a soldier with already the evade 2. Keep it under control. If you see at any time that there are no soldiers in the *labirynth* with the evade 2 promotion, send out the golden tabards immediately, or it will make an evade 1/hp 1 soldier.

To also get the 4 weapon promotions you need 5 planks, 2 gold and full iron and coal. You have enough from the beginning of the game. Just take all the coal out of the *smelting works* and send it to the *weapon smith*. Of course stop the *weapon smith* the moment it is made and do not let it work until it is fully loaded. Send one of your soldiers with evade 2 and hp 1 inside the *labirynth*, using the strategy I described for barbarians (2 doesn't work well with atlantis; if you take a soldier with attack 4 in the labirynth, there is a good chance it will kick it out before completing all the promotions, even if you have all the wares inside) and here you are.

A good time is to get your first level 7 soldier after about 1 hour of game.

That's pretty fast, but you'll need much more to get a second. You will have to start making the *mines*, so a good time is to have the second level 7 soldier after 90 minutes.

You should make level 9 soldiers when you feel comfortable with your level 7 ones, or when the enemy starts having fully promoted soldiers of his own: a level 7 atlantean soldier is only moderately less expensive than a level 9, but it has a much lower chance of defeating a strong opponent. So unstop the *armor smity* (you should have made it and stopped it by now) and start making shields. I never figured out a proper way to micromanage shields, but if you just let the wares flow, the *labirynth* will produce a decent output of soldiers with evade 2, defence 2, hp 1. Using strategy 1, get them out of the military buildings and into the dungeon to get the level 9 soldiers.

NOTE: A level 8 atlanteas soldier with defence 1 will take 5 blows to die against a fully promoted atlantean or imperial soldier, exactly like a fully promoted. Furthermore, they still take 6 hits to kill for an attack 3 soldier. So, if your only opponents are empire or atlantis, and they are good (i.e. most of

their soldiers are fully promoted) then you can skip the defence 2 promotion (set shields in the labirynth to 0) and have soldiers that are just as effective, but slightly cheaper. They are easier to kill for soldiers with attack lower than 3, But if your opponent is sending those against you, then you should be winning anyway. Only drawback, they heal a bit slower.

5.6. How to use a level 10 soldier

One single level 10 soldier won't guarantee you the victory, however it will kill a few enemy soldiers and retreat safely. So you should attack with them whenever possible, before the enemy has his own level 10 to defend.

If you have one level 10, and you attack with one soldier, most of the times the level 10 will be the one to attack. If you have more than 1, one of them will generally remain behind to defend. so if you have 3 level 10 soldiers with many others, and you attack with 2, two level 10 soldiers will attack, but if you then attack with another, it will be a weaker soldier, not the third level 10.

Attacking like that works against a small number of soldiers of level 5 or less. One thing to absolutely avoid is to attack a *fortress* with a single level 10. In that case, your soldier will advance for a while, and then he will be surrounded by enemy soldiers who will force it to keep fighting even when it should retreat, and you have a good chance of losing your level 10 to 4 or 5 level 2, which combined cost less than half your soldier. One way to attack a fortress is to send the level 10, wait half a minute, then send all your other soldiers, so that they will engage the enemy ones and give your level 10 the opening to retreat and heal. You'll still lose soldiers, of course, because your level 2 will face enemy level 2, but you killed some with your level 10, so you will kill more than you lose.

Just continue until you win for attrition. If the enemy is focusing on getting level 2 soldiers this will take a while, as they are very cheap compared to level 10, but don't worry. He will keep losing soldiers, and you will lose nothing, so you will eventually overtake. Especially don't be scared if his power is much bigger than yours. A level 2 soldier counts as 3 on power graph, and your level 10 is worth 11, but your soldier is much more powerful than four of his, and a couple of level 10 used smartly can kill 20 level 2 without giving them any chance.

To stop you, the enemy may retreat in the *fortresses* and attack your new buildings as soon as you make them, before you can get any level 10 in. To advance, you need to make sure those new buildings you make are occupied by level 10 soldiers. Remember the trick to get the right soldier inside the *training camp* / *arena*? if you have level 10 soldiers in your warehouse, you can use the same trick to make sure they will be the ones to occupy a new military building.

If, instead, you are on the defensive, just stay inside the *fortresses* and you will be fine. I've seen 2 level 10 in a *fortress* kill 30 level 2 attackers, because when one was fighting the other was healing. Just be ready to dismantle the building if it seems like your level 10 is getting swarmed and cannot go inside.

When the enemy has level 10 soldiers himself, you cannot attack anymore: your level 10 will likely face one or two level 2 enemies, kill them with some wounds, and then face the enemy level 10. And since he's already wounded, he will likely lose, so you'll lose a level 10 soldier for almost nothing. The reverse applies if you're on the defensive. If you opponent has a few level 10 more than you, you should still be fine as long as you have plenty of level 2 around.

In this case the war will be decided by who can get the better economy in the long term, in a long and bloody war of attrition or in a cold war scenario where both sides mass enormous armies on the border but are too afraid to attack.

6. Stage 3: great empire

6.1. Description

This stage is aimed only to produce the best soldiers in the fastest way. When we reach that aim, nobody will defeat us. To complete the task we have to build whole industry in a massive way. With dozens of farms, mines and processing factory centered at the points. Last thing is to complete the production center designed before. After that our soldiers should be strong and the military power should grow up quickly. In a few hours we should start conquer enemies and win the game (that is the target).

6.2. Realization

Industry development

All the industry can be built at one time. We prepared in the stage before for that move. But we should remember to leave some place for additional buildings. Usually our industry will not work as we wish. Small traffic jams, problems with ships or just too small number of farms can destroy everything. To avoid that we should leave some space for small changes like adding 4 *bakeries* and 2 *mills* or 2 more *warehouses*. They don't have to be very close, but can't be far away. Every should be joined by short roads (2 units long), because they are the fastest and the most efficient one.

Weapons

At first we should think about amount of *trainings camps*. Their number should be estimated by the size of map and number of resources in the mountains. If the map is giant, we can provide weapons for four *trainings camps* and two *colosseums*. Of course we can build more, but why for? Usually enemies don't build more than 3 of them. We want to be faster and more efficient. More *trainings camps* means bigger *bread* consumption. That means more *farms* and more terrain needed. Not every map can provide that.

When we decide that at first we will build **N** trainings caps, we should build **N+1** *weapon smithies*, **N+1** *armour smithies* and about **3(N+1)** *smelting workses*. That means lots of resources to build and lots of ores to provide with. At first it will work slow, but after a while we will have fast production of any weapon. All of the building should be built near *warehouse* with ores and *warehouse* with weapons. Optional thing is to move *toolsmithies* to that place too (build them in the new place and dismantle in old one).

The soldiers training should be done very similar to those from *colosseum*, except that more than one *soldier* in the *trainings camp* can be hard to provide with food and weapons. So we should stay on the capacity of one or zero (if not enough resources to train). The resources only in the *trainings camp* can't feed the *soldier* from level 2 (only *evade*) to 10 (everything), so we should assumed that more food will be brought.

Bread production

Next thing is to provide our soldiers with food. That means 3 or 4 working mills and 6 or 8 bakeries. Here we can use a tip: *weapon smithy* is a big building. When we try to build it, around we cannot build any of middle- size buildings. Only small are available. Wells are like that size. So we can use that terrain to build wells, but we should remember that they can't be too far to food industry. The same thing is around *colosseums* and *trainings camps*. It happens when our design provides only 2-unit roads, without any curve (so only straight lines).

Farms

The most serious problems are with *wheat*. Usually it is not enough in the empire. We need lots of *farms* to produce enough of it. But the most problematic is the space. *Farms* need lots of space and we shouldn't place them on communication nodes (those places need possible bypasses and those things means less space in the future). We can place *farms* even near one of the lines of our front. If the enemy is stable (don't attack too much), we can place a *farm* even on the front line! Also *farms* (instead of foresters) are ideally placed near mountains: they can grow crops on them without taking space from other buildings.

To know how much farms we should build, just observe the number of wheat in the warehouse. If there is any of wheat stored, it means that there is enough farms for a while. If the number is high (more than 100) probably we built enough farms. This number can be up to 40.

Clothes

Till now we didn't need any clothes. Only ships and ports could use them. But efficient weapon production contains wood and clothes as additional ingredients. To have enough clothes we will need the same number of sheepfarms and weaving mills. Near them we can build also more wells. For small maps one sheepfarm would be enough, for middle ones- two, and for big maps three sheepfarms

would be the best choice. All of the buildings should be near each other, because wool shouldn't pass all the map to get to the weaving mill. It would be ridiculous.

Meat

Meat is used as alternative to fish. Some maps don't contain them as a common product, so we have to build a meat production center. That means less than 10 of *piggeries* surrounded by wells. Water is always good choice. We can easily dismantle redundant wells (especially when traffic jams with bucket are a problem). We shouldn't allow to have water problem in our empire.

Also meat is one of key for late game. When there would be no fish, only meat can feed our troops and miners. We should remember to build some *piggeries*.

Ores

Because we have one warehouse to which our ores will go, it is not very important to build the mines next to the production center. It is recommended to build some *coal mines* near that place (especially in the beginning of the stage), because it is the most used ingredient there. We can build about 10 mines each[8] and that would be enough for all the economy. There are three major possibilities to design where should we build the mines. First (never seen that, but possible) means stealing the ores from the enemy. We can build the mines very close to the borders. When the enemy reach that terrain, there will be hardly any ores in the mountains. Second way (most common) is to build mines in random places, anywhere we know what is in the ground. Third way is to build from the nearest places to the production center. This way is not the worst one. It will provide fast ores and it is good for the start. But in the future it can be hard to import ores from more distant places.

Another thing is the density of mines. For Empire tribe mines are digging up to 2 spaces away from the mine. It means that we can build mines in maximum distances of 5. That means long term digging in one place, but not efficient one. The best alternative is to build mines in distances of 3. It will be hard to provide all the mines with food (3 unit distances on roads means less efficient transport), but they will dig all the possible ores from the ground. The fastest way of digging (2 unit distances) are possible, but with this hardly any *miner* would become a *master miner* during his job. Those method can be used next to the enemy and after we have some *master miners* in stock.

Taverns and inns

After one of the changes in the game, the *inns* can produce both rations and meals. *Taverns* can only produce rations. It can be enough to build only some of *inns* (upgraded *taverns*), but if we want to, we can provide the economy with two *taverns* as a help for *inns*. The number of those buildings can be between four and eight. It depends mostly on size of the map and locations of the mountains. The locations of the inns can be different for different playing. We prefer one place for every inn, to remember where they are and where we should bring food. But some players build *taverns* near mountains. That strategy has one disadvantage: it is very hard to control that economy. Our possibility has another one: we need more time to transport food products to the mountains and so we have to build more mines to have enough ores produced in one time.

Another thing here are *fish*. If there is not enough of them on the map, we have to prohibit in the *taverns* and *inns*. *Meat* substitute lack of the *fish*. Also if we have small bread problem, we can provide inns only for one or two *breads*. *Taverns* shouldn't use *bread* at all. That is unnecessary loss.

Alcohol

We have built one brewery and one vinery in the stage one. That is not enough to feed all the economy. So that we need about three or four vineries (and twice of that plus one vineyards). The number of *breweries* can be about five. It would be enough for big maps. For smaller ones we can provide two *vineries* and three or four *breweries*. Usually the first location after two stages is a bit empty (we dismantle old smithies, maybe nearby *farms* and some other buildings), so we can just expand current location and build near the new ones. If that isn't true, we have to build completely new ones centers. But remember that *vineyards* need some space. Best is to give them as much as possible (don't build a road around the house).

[8] For big maps, for smaller one it can be even 2 or 3

Wood (one more time)

As we can remember, our wood industry was used to build all the building. It was efficient and produced lots of *trunks* and *wood*. Now only smithies and ships can use wood and it is not the highest value. So that we have large surplus production. What should be done at first is to check if the smithies has enough *wood* in their stock (at least 3). If not- we have to move our sawmills nearby the production center. Then we have to move all the wood (especially *trunks*) to one *warehouse*. After that our soldiers production will go faster and better.

Also more *trunks* means more possibilities. Most of territory is conquered, mines are built, so we can build some *coalburners* to process the wood. More *coal* from *coalburners* means less demands for food (mines). If we have enough time we can build even more *forester's houses* and *lumberjacks* and then more *coalburners*. Placing them can be on two major possibilities: first one (simple one) is to place them next to the *warehouse* where all the *trunks* would go. Second one (needs planning) is to set the building next to the roads where *trunks* would go. Both ways are possible at one time. But we should be careful! If we have too much *coalburners*, no *trunks* will left in the *warehouse* and then all the production will stop (no wood, no weapons). Then we have to stop *coalburners* and build more *forester's houses* and *lumberjacks* (if possible, if not- dismantle *coalburners*).

6.3. Battles: defense

Good defense means always lots of military buildings and soldiers inside them. There are two major possibilities to build good defense. First one assumed that we have mostly level 2 soldiers and we have to defend with them. Second one assumed that we have also some good soldiers to help them. In first case we have to build lots of military buildings and have full capacity in them. All the soldiers have two *evade* points and they are defending our empire by a mass. The enemy have to attack us with mass too if he or she wants to break our line. Second way of defending is using another way to protect the lines. We have only some good soldiers so we can let them stay at house and fight only there. The enemy can attack us with great mass of good but not best soldiers and we have mostly chance to defeat every soldier with a single battle. But the mass contains dozens of soldiers. So how can we defeat them with only few units? We have to protect their health. To do that we have to keep only 3 or 4 good soldiers inside the building and when the enemy attacks, only some will go out and fight. One of them will stay and defend the building/ After first battles all the soldiers should go back to the building and restore their health. Next battles are between full-life enemy soldiers and almost full-life our best soldiers. Most of battles should be win by us and the enemy will have lots of loses. After that lose the enemy will prepare more powerful battle, but till then we will have even more power. To have that situation we have to have less capacity in every military building. Four soldiers to each fortress and two or three for other buildings would be enough.

6.4. Battles: offense (guerilla war)

On some fronts we can have only a few good soldiers or even only a few soldiers, where two or three of them can be best soldiers. So how can we attack the enemy with so small power? We can send one best soldier from our front and see how much of enemies he will kill. Current fight algorithm ends with killing our soldier in most of cases. But if we send two soldiers, most of them will stay alive. Even loses of one soldier is not bad for us. We will have hundreds of them in the future. But for the enemy losing some soldiers on the front line can be very harmful. This war works only when we have some power and the enemy is much more powerful than us. Also we have to have those soldiers near the border. The guerilla war means here that we don't want to defeat our enemy but only make him or her less powerful. The enemy is losing lots of soldiers and we aren't. That's the difference.

6.5. Battles: offense (massive war)

After some time we have got lots of good soldiers and our production of them is effective enough to fill new buildings on the fronts. That situation means only one thing: we can conduct effective and fast battles. Attacking lots of good soldiers in many fronts at one time (but only one enemy) is always

a good move. We should attack the most powerful enemy. Why? Because if we lose, other one can try to attack us. So if we attack a weak enemy, powerful ones will attack us immediately. That would be our lost. Attacking most powerful one always is helpful to us. If the most powerful of them has more power than us, other enemies can join us ("The enemy of our enemy is our friend"). We can try some politics to use there. It is always helpful. Of course, the AI can't say anything, but it can send some short messages like "@player1: please attack player2". It should be possible to do.

Other thing is braking the line of front. Usually there is one place with strong front and some others, a bit far with weak lines. So there are three possibilities: one is attacking the weak fronts and conquer that territory in the fastest possible way. Building towers and barriers is always a good idea. But then the strong front can attack us and the front line can move. It can be a bit risky (because of moving the front line), but the main advantage is that we conquer more territory than we can lose. We have to choose which territory is more valuable for us. Second possibility is to attack main front and keep all the others fronts in a state positions. It is most common in the Widelands games and probably the best strategy for both players. There are lots of casualties and lots of loses of power. But if we manage to brake the line, our win would be very close. Last possibility is to break all the fronts in one time. That is very risky. In many ways. At first we need some free soldiers. Just in case of losing somewhere and (also) building new military buildings. About twenty of them should be enough. Second thing is to be prepared for counter-attack. That is the hardest one. But if we can manage that, we will win the battle and probably the war.

Last thing is to conquer the enemy as fast as possible. It is most problematic way for many players. Why? Because most empires are too big to build fast some military buildings in a fast way. In that time the enemy can easily build another front line and make our moving even slower using defensive tools like *forester's houses* near the border.

Of course if we are going to lose, we should use any things to make that slower. *Foresters* are planting trees on which we can't build anything. Enemy too. So it is always good tool to make him or her slower in expansion. Also slower expansion is connected to the *fortresses*. The *fortress* can't be seen by single *barrier*. Only *towers* or other *fortress* can spot that building. So we can use it as a stop for a while of expansion. Only thing is to destroy it before the enemy will get it from us. That effect can make expansion twice as fast.

If we want to win, not to defend, we should look for a *headquarters* and the center of soldier production. Usually those things are in the same place, but if anyone uses this strategy, they don't have to be. Destroying the headquarters almost every time makes the game less interesting for the loser and we will soon win the game. But not always. Some maps are demanding to change places: the *headquarters* can't be the center of everything. On that case we have to find the other place. Usually one of big peninsulas or valleys between mountains. Quiet, far place.

Not all the games are ended by players, so usually it is fine to have twice as much military power as other players (sum of them) and the number is increasing. Also winning the battles can be demanded. Some players can even resign from the game because of our politics. They have great chance to win and they can resign. It can be strange, but that is our occasion to have better game: more battles, more aggressive play and probably some loses on fronts.

But most of our power is connected to good economy, great transport and massive soldiers production. Four *trainings camps* working for 100% all the time is almost impossible without good planning. Also expanding the production is very easy. We are prepared for some mistakes in the economy (short traffic jam or destruction of part of it), so in a stable politics position expanding the production is not a big deal. Our economy can easily handle with that. Then the winning should be even closer to us!

7. General rules

7.1. Roads

One of the keys to win is to have efficient economy with fast transport. Traffic jams are destroying that vision. To avoid them we should use fastest ways to transport. Some ships are optional, but basic roads are the most valuable things here. To have them we need only two unit long roads. The *przepustowość* of two unit road with a donkey (for one way) is about 16.7 wares per minute. The same calculations for three units road makes the number only 11.1 wares per minute. That decrease can destroy our economy in some aspects. Changing three units road into the two roads with length of two makes the single ware transport 3.6 seconds longer, but the road can handle with more wares in the same time. So the calculations show that in main traffic junctions and traffic lines we should build only two units long roads, but for smaller parts of economy (for example for road to three or four farms in some place) we can build any other roads.

To have the roads always two units long we can build them on map nodes. The map is divided into single triangles and we can build triangles from roads. The smallest possible triangles will be always two units long. Then we can easily destroy some of the roads and build huts that we need. That strategy is working on big maps, especially with lots of place with possibility to build. But not always it will work. In small maps we have to save the place and use it wisely. On that situation we have to build any road and really don't care about the transport. We will not have lots of wares to transport and we will not have terrible traffic jams there.

Sometimes after preparation the roads for fast transport (only 2 units long) we still have transport problems. On that situations we need more roads. Building bypasses for main junctions is always good idea. Sometimes the main traffic lines are passing productions centers and for that places we need bypasses too. Longer ways to transport not always means longer transport time. They always mean more abilities to transport more resources, because we use those ways as additional ones.

7.2. Production centers

To have efficient economy we need numerous buildings. Most of them are repeating (for example we need more than one *farm*). This strategy is assuming that we are building them in a groups called production centers. Some of the groups can be repeated, some not. For example we can build two or three groups of *farms*, but we can't build[9] two groups of *mills* and *bakeries*. It is an assumption that we build only one main production center where are *colloseums* and *training camps*. So what is the rule for production centers? Every ware has only one warehouse where it is going to (when it will not be used at once), so we can build numerous production centers of production raw wares (like *wheat*, *water* or *trunks*), but we can build only one production center of processing (like *flour-bread*, smelting-weapons-soldiers). Some of products like *meat* has direct processing from raw material to another and this ware is not important one. So we can build them in any places and many of them. It is very important to have good transport, but sometimes it is almost impossible. Then we should rebuild an important ware production center closer to the usage. The best possibility is to place the production center near it usage just at the beginning of the third stage. Of course the usage place is determined by something. Here it is a *warehouse* with the product. So the production center of soldiers is placed near the *warehouse* with weapons. The *warehouse* with food is near *colloseums* and train*ing camps*.

7.3. Warehouses

It is very important for *warehouses* to provide the economy very fast with resources. We shouldn't have any stagnation in those buildings. Some of them can change into terrible traffic jam. For example we have *warehouse* with thousands of *trunks* and about twenty *coalburners* near the warehouse. The trunks are going out constantly and if we want any trunk to other place (*sawmill* or construction site) it

[9] Because the non-raw wares shouldn't go to the destination by whole empire. So we build specific buildings only in one group. The wares will not go out from the range of the production center.

is impossible to do that. Sometimes first *warehouse* (or *headquarters*) makes that traffic jam with almost all the wares. To protect against that situations we have to make some steps.

First one is to have two units roads. When wares are loading into the warehouse, the way to overcome is one unit longer (*carrier* or *donkey* have to go inside the building), so practically we will have three units roads around the warehouse. Situation with three units long roads is changing into four units long roads and those roads should be built only for assistance, not for main roads.

Second one is to provide warehouses with roads. As many as possible. It should applies/relates/refers?? to *ports* and *headquarters* (when widely used in economy). *Ports* are the most fragile part of transport. It can be easily blocked by several *ships* with full cargo (there is no limit for *ships* to leave products in the *port*), so we should provide every *port* with as many roads as possible. When the traffic jam on the *port* contain too much wares and we have more *ports* (but more than one) in that island we can try to destroy nearby roads and wait until all wares would go to the dock. That situation will be very hard for the economy and we should prevent that early. Another way is to build only one way out from the *port*. The way should contain two units long road with angle. Then we can build second road, symmetric to the first one. That path can handle with twice more wares per minute than straight one. But we can build this only when we have enough space and it is exceptional.

8. Additional rules

8.1. Ships

Ships are the most valuable transport on some of the maps. On that kind of map we should build *ships* as fast as possible. On the other kind of maps with *ships*, we don't have to build them so fast and we can start the production on the late part of first stage. Then we will have more wood and better economy to provide *shipyard* with wood.

To define if the map with port spaces is ships-needed (??) we should look at its design. At first: can the map be conquered without *ships* (for example about 90% of map, so except small islands)? If not- *ships* needed. Second question (if not): what is the distribution of raw materials? If the ores are close to starting positions and we can find them almost everywhere- we don't need *ships*. If the ores are far away from the starting position and it is much faster to get them with *ships*- we should go for them as fast as possible[10]. All the other maps don't need *ships* in the first place, but on some of them it can be valuable transport.

To build *ship* we need some *trunks*, *wood* and *clothes*. First two resources we are already producing, but the last one appears on the last stage. So we have to provide the economy with at least one *farm*, *sheepfarm* and *weaving mill*. This part of economy can provide up to three *shipyards* with clothes. In the late game we can change position of our *shipyards* too (especially when clothes production center would go to other place). In the fast mode (*ships* are valuable for the player on the map) we can build one *shipyard* at first and second one (near the first one) just when the first one will start working. In casual situations we should build second *shipyard* when our wood economy can meets/satisfy the needs of the first one.

Lots of maps is very wide with water and the *ships* there have to travel far. It is important to have there even 100 *ships*. How can we check if we have enough of them? It is very easy: just count the *ships* standing near the *shipyards*. If there is more than ten, it is most likely that we have enough *ships*. Then we can stop the production of them. Then we will save some *clothes* and lots of *wood*. And if the situation with *ships* will last for several hours, it probably means that we don't have to build *ships* any more. Then we can dismantle our *shipyards* and free some space there.

Another thing is to plan the expeditions. In the maps where we need ships we have to find places with ores. Sometimes we can have them almost with every place, so we should find the biggest peninsulas/ islands and those places where we can't find the enemy (usually it is harder to tell, where the enemy is). Another thing is to plan whole economy, in the early game. Those planning is more complex, but we shouldn't plan more than three places at the beginning. More colonies mean longer transport to each other (because *ships'* routes aren't optimized in any way). So in maps with needs of *ships* we have to choose good places for wood production (if it is important to have more wood than

[10] Probably on that situation we will stop on stage two (level 2 soldiers) because we will have to fight fast near the mountains, far away from starting position.

from the starting position), place with ores, place to process the ores, additional place with ores (if on the first place weren't all the ores) and place for food production. It is important to build colonies in that order. At first we should build no more than three colonies, and when they are built we can think about expanding more. But we should expand territory as fast as possible, so usually we don't have to build two colonies: for ores and for processing ores, because both can be placed in once, and sometimes we can add there food processing. Then we need only one colony to produce *wheat*.

In maps where we don't have to travel by water (it is additional), we can use *ships* to protect our major empire. We can send them forward the border and build first possible *port*. The expansion will be faster and more efficient. And we will have even more time to build front lines when the enemy would be spotted. In that situation we have no limit of *ports* and probably we will not have more than two of them. But we should remember not to use them as production centers. Those *ports* are treated as a front lines and they can be lost very quickly.

8.2. Coal (burners)

Some of the maps contain not enough coal. To know that we can easily count how much ores is placed in the mountains. If there is less than 25% *coal* it is most likely that the map is designed to burn wood into the *coal*. If there is less than 10% we are sure about that. The best situation is to have 50% of coal or more. Then we don't have to burn wood. In the value between 25% and 50% it is good to build some *coal burners* to help the economy with additional coal. Probably in a very late game we will need *coal burners* almost on every map.

Almost every economy has surplus production of wood and it can be processed into *coal*. That situation can be reached (not in early game!) when we have more than 100 (on small maps) or 500 (on big maps) *trunks* in stock.

But what when we have to burn the *trunks* to get *coal*? At first we have to find good spot for *forester's houses* and *lumberjacks*. Dense ground, wide terrain (in compare of other parts of map) and quiet neighborhood (no enemies nearby) is the best spot. Then we have to conquer the territory there and build wood production centers there. We can build more than one group of forester's houses and lumberjacks, but the place should be big enough to hold all the buildings. Sometimes we have only a few space and then we should build a warehouse for wood outside that place, but in other possibilities we should place the warehouse close to lumberjacks. We should only remember to leave some space between the warehouse and the lumberjacks. When our lumberjacks start working we will have lots of wood to use anywhere. Then we can build some sawmill there to fulfill the demand for wood for all the economy. All the time we should increase the trunks production there and find a way to store more than several hundreds of them in the warehouse. If we have enough trunks we can start coal production by building some coal burners near the warehouse. They use lots of trunks so we should provide them with efficient transport (only two units long roads). If the terrain there is flat enough (there is lots of medium building spaces) we can use triangle- shaped roads and building places (only two units, straight roads between dense located coal burners). The number of processing buildings can be at first low (from 2 to 5 buildings), and during the game we can see that our trunks production can handle more burners and build more of them. The limit for the number is the limit of production. Sometimes we build more than we can provide with trunks, so then we should stop some of the coal burners.

But not always we have large quiet place and the coal burners are definitely needed, for example there is no coal on the map and the map is small one. Then we should use available territory as much as possible. With this eventuality we can handle by building coal burners as a fragmented production: several buildings in a random places near the warehouse for wood.

Also there is one more possibility for the play. We can have lots of territory which isn't used (we already have enough farms, mines, processing centers and soldiers production). On that situation we can imagine any quiet place to produce lots of trunks, probably not so close to our empire's economy. There we can build lots of lumberjacks and forester's houses and don't provide them the fastest transport. Between the lumberjacks we can have any types of roads, and all the trunks should go to the warehouse only with one road. The road should be only two units long parts, but on the end of it we can build a bottleneck: one part of road, three units long. That place will bring terrible traffic jam for all the lumberjacks there. We can use that for our purpose: we can easily build several coal burners near the main road and provide them with trunks. They will use trunks from the main road and every 5

trunks will be replaced by one coal. Additional trunks (maximum 11 per minute) will not cause traffic jams in any other part of the economy of our empire. This kind of strategy can be used only during quiet war with our opponents and it needs some time to work with maximum efficiency. The bottleneck is used to cause the traffic jam and not allow for traffic jams in other parts of the empire.

8.3. Modifications for fast games

Some maps are designed for early contact with the enemy. It is very easy to predict: very close starting positions. The modification contains merging first two stages of the strategy in one time. On that situation we should upgrade our soldiers as fast as possible. So building the coliseum just at the beginning of the game is a good idea. Of course this building needs bread, fish and meat, so we should build up to two bakeries, mill and one or two farms (usually we don't have enough space for two farms). It is very hard to think about the expansion and the basic food economy in one time, so usually we will not expand so fast (like in other maps). Our priority is to upgrade soldiers, not the expansion.

Probably the game will not last for long time, so we should be prepared for the war with only level two soldiers. But sometimes the situation of early contact can cause an impasse. It can happened when more than one players have a front in one place. A war between two of them usually results in increased force a third of the players. So there can be no war for a long time between them. Attacking on that situation can happened only when one of the players have as much power as both of the opponents. Of course the attack will happened before reaching that time, but we can prepare for it by creating great defense line there (several castles, barriers and towers occupied by our best soldiers).

The maps containing that situation are usually divided into three groups: first one are maps very small and those maps ends quickly, sometimes using only level two soldiers. Second group contains big maps with close starting positions, and that is only one path to the enemy. Last group contains maps with close starting position and there are several other paths to enemies. The last one usually is hard to play, because the fronts are appearing very often in numerous positions on the map (on those maps we usually can use ships to build new colonies). In those situations we should be prepared for losing some territory to hold another one and sometimes we can transport whole economy from main place to another, quiet one (where we win territory with the enemies). Also it is worth saying it here: potentially fast game becomes very long one on that situation. We should use this for becoming stronger than the enemies (we know how to build efficient soldiers production).

9. Common problems

9.1. Wood

This product is the most valuable in the early game and sometimes in late parts too. Lack of the products can cause slowdown of expansion or stopping weapon production. It is important not to have those problems. Of course finding out that we have a wood problem is very easy: when we want to build any building or we want to produce something from *trunks* or *wood*, we have to wait for a long time. Also we have to check if there is zero *trunks* and/or *wood*, because long time can be caused because of transport problems (long ways, *ships* and *docks*, etc.).

So how can we prevent against the problem? At first we have to control the stocks. Usually we have not enough *trunks* at the beginning of the game. When we build first *sawmill* the problem will grow more. But this can be not so problematic. We should provide enough *forester's houses* and *lumberjacks*. Usually six of *forester's houses* should be enough for a long time. But when it isn't enough, we should expand this number. How much? Usually the number about ten is enough. Also the number depends on possible terrain where we can build efficient trunk production. If we have enough terrain, we can even build about 12 new *forester's houses* and *lumberjacks*. So the number should be as high as possible.

Except size of good soil (terrain) there is another limit for number of *forester's houses* and *lumberjacks*: tools. In most of cases we have to produce new tools for buildings, because initial number of *shovels* and *axes* is very low. To create all the tools we need working *toolsmithy*, and we need *trunks* to its work. When we don't have the *trunks*, we need to wait and remember to set the priority of *trunks* to high there. The priority there can be set there forever, because *toolsmithy* is working only occasionally, when needed. Also to make faster creating *shovels* and *axes* we can set

their numbers in *configure economy window* to higher values. Then the *toolsmith* will create them a bit faster. Those settings can be done before the wood problem. When we know that the map contain large areas of good soil we know that we will have to cut them in a short time. That means lots of *lumberjacks* and lots of *axes*. So we can produce them before we need to use them. And the constant production of wood is a good idea, so we also we will build some *forester's houses* for those *lumberjacks*, so some *shovels* can be useful too.

During the wood problem we shouldn't use *trunks* and *wood* to build any buildings except *lumberjacks, sawmills* and *forester's houses*. But we can place some buildings and build from stones. So we should make the priority of the wood (in the building sites) to the lowest one and decrease the number of *wood* and *trunks* to zero there. When the wood problem pass, we can increase the priority and number to higher positions, but slowly. Rapid changes will produce another wood problem.

9.2. Marble

For the empire tribe *marble* is one of building wares. It is important to have some of it in stock. *Marble* can be get from *marble mines* (best source) or from *quarries*. Most of maps has not enough stone to be good source for marble, so we have to mine it. The mines needs *vine* and *rations* or *meals*. Usually there is a moment in the game, when our empire will grow too fast to be satisfied by two mines, one *tavern* (or *inn*), two *vineyards* and one *vinery*. It is good to predict the moment, when we will need more *marble* at once. Usually that is the beginning of third stage for huge empires. And to prevent the marble problem we will need then about three *stonemasons* and three *vineries*. It is also good to build more *marble mines* (if it is possible, if not- we can build only two *vineries*). *Vineries* need *grapes* to work, so as it was described above[11], we need more *vineyards* than *vineries* (2-3 times more). Building those houses need *marble* too, so it is good to start with this one and then build other buildings with *marble*. The same procedure as for wood: reduce the priority and number of marble products for construction sites is a good idea. The worse situation is when the *marble mines* needs upgrading and we have no *marble* to upgrade our *tavern* to the *inn*, so it is good idea to do that (or build completely another one) in one of the first parts of a game. Then we are safe: we will always have a possibility to mine some *marble* in the future, only sometimes we will have to wait for some time to produce *meals, marble* and so on. So We have to control the production and build those houses, that are most important for marble production (sometimes we have to build new *farms*, because *wheat* is the major problem in our country: *wheat* → *flour* → *bread* → *meals* → *marble*).

If the problem of marble is for longer time (even with efficient mines production), then we have to find another *marble* in the mountains and build more mines (with whole *vine* and *rations* production). If there is no marble left- that's our end and we have only two ways: one is to dismantle useless buildings, stop building new ones and prepare only for small production of good soldiers.

9.3. Wheat

Wheat is a raw food product, probably most important of all raw products. From wheat we can produce all the food, except fish. Consumption of wheat can be very high, so we should build lots of farms to provide it. As it was described above[12], forty farms should be enough for the whole empire with good transport. But till then we have usually wheat problem. Not enough wheat results slowdown of everything. It is very harmful for the empire, but we can temporarily forget about the problem by some solutions (two basic one).

First one assumes that we can use some natural resources like animals or fish to get food. It can be used for a while, but if we use all the fish, it will be hard to produce enough meat for the whole empire. Of course, on some maps we can use fish all the time (we can even have about 5 thousand of them in a stock), but some of them aren't so rich in fish and then we shouldn't use them for a long time. Food products are fish, meat and bread. Third one doesn't grow on the tree- we have to produce it. One bakery is enough at the beginning of the game. But then we have to produce more and that makes problem.

Second solution assumes that we don't have to produce lot's of food because we don't use it. Then we have more time to build all the farms. Of course this solution involves more problems: we can't

[11] 3.2, third paragraph
[12] 5.2, paragraph about farms

mine a lot, also we shouldn't upgrade soldiers. This can be used only for the beginning of the game. Wheat is using only to produce ships (wheat → wool → clothes → ship) and donkeys (wheat → donkey). Marble mines are working on rations from fish or meat. Both solutions are very close in economy way.

Of course those ideas can't work for the whole time. One time we meet an enemy and that will be our death. With no good soldiers we can't defend and soon he or she will conquer us.

So what should we do? At first build more farms. Those buildings need some space around and we should provide that. It can be hard in small maps and then we should build farms to maximum number of them. Of course with space around them! Sometimes we can try to give each of them less space, but then we should see if it is working. Farms working on less than 50% of efficiency is a waste of resources. It is good to build farms near each other. But building all the farms at once can cause terrible problems with transport (lots of wood and stones coming to one place), sometimes stonemasons can't keep up with columns production. Also usually we don't know the exact wheat consumption in our country, so we should build farms in groups of 3 or 4. It would be fast enough and then we can see if it is working well. Also we should keep an eye on the number of scythes. If there is not enough of them- we will wait for farmers and building more farms won't increase the wheat production.

Usually the wheat problem is a last problem in our economy, but sometimes it can cause other problems connected to the food or even ores! Most problems are with bread:

9.4. Bread

Bread is used in many places: *tavern, inn, arena, colloseum* and *trainingscamp*. Especially the last ones consume dozens of loafs and it is very important to give enough bread there. Tavern can handle with meat or fish, and to produce a meal in the inn we need only one loaf of bread.

So what when we have not enough bread in our market? At first we should check if there is another problem: wheat. If not- we should build more mills and bakeries. Till then we should stop soldiers upgrading and control them very carefully.

It is important to have lots of good soldiers in a short time, so at first we should have some level two soldiers. *Collesum* is working well when it has four breads in stock. Then we can send one not trained soldier. After the training we should check the stocks again. If there is enough bread, we can send another one (keep the capacity of 1 soldier inside the building). If not- prohibit the upgrading there (capacity is zero then). The same should be with *trainingscamps* when we decided that we have enough level two soldiers (it can be about a dozen in a stock). When we build enough *bakeries* and *mills*, we can start the constant soldiers production and upgrading.

There is one thing that we can do to prevent the bread problem. We can configure economy on its window and set number of bread to something like 100 or 200. Then any temporary food problems (for example wheat problem) can be unnoticed to other parts of economy. We can use bread from the stock any time in almost any number. Only when we have very long problem it can effect on bread problem. Usually at the beginning of the game we have enough wheat and time to produce lots of bread. We can use that wisely.

10.Summary

10.1. Advantages

This strategy can work efficient when we have enough time to build everything and get it worked. In any long-term game it is working well. Great number of good soldiers is effecting on great power and in most of cases on winning the game. Most players don't know how to defend then. Massive war is always working against computer players.

Good planning the production centers also provides good control of the empire. It is very easy to change anything and everything (we don't have to find all the *taverns* scattered around the map, they are on the one spot).

Whole strategy is based on bottleneck. We have lots of products and materials and only some places using them. Last link in the chain of economy is *trainingscamp*, which is producing best

soldiers at 100%. Any small problems, local traffic jams and other stuff is not harmful to other parts of empire, because we can afford some losses.

10.2. Disadvantages

Sometimes the transport is too slow to provide everything in all the places. It is very hard to plan then places for every production center. It doesn't work especially on maps where ships are the most valuable transport. Those maps are very difficult for almost any strategy, but this one assumes production centers in many places (we need lots of space!) so it doesn't work there. It is very difficult to win those games using only this strategy.

Another problem is planning. Most of players can't do that in a very short time. We need to predict the future of the game. It isn't easy, but it is possible.

Also fast expansion is one of the problem here. Big marble or wood problems can cause terrible slowdown and most of the games connected with those problems are lost ones.

The empire tribe has a bit weaker soldiers compared to the atlanteans. They can easily destroy our country when we haven't level ten soldiers. Only those soldiers can handle with the power of tridents.

10.3. Better strategies

Almost every player has its own strategy. Most of them are not as good as this one, but only on big maps. On small ones it is very easy to spot an enemy and destroy him or her very quickly. This strategy don't provide good soldiers in a short time, so it is very hard to play with it on small maps. But some of them are win. We can stand in stage two for a long time and produce lots of not best, but good soldiers. Then enemies had problems with destroying us.

Any faster strategy is better than us. If you know that, just use against those players, who know only this one! But probably you will have some terrible traffic jams.

Many games with other players were played before this strategy was described. Lots of games were lost before some changes were added to the first strategy. This one should work in more cases, but still there are another, faster and better strategies. Faster means you get some level ten soldiers in shorter time, and you can use them.

11. Description of the maps

12. Examples

13. Implementation clues