

## I. Dynasty 144

### Chapter 144: The Benefits of Cement

“Your Highness, are we just going to let this matter go?”

Zhan Xingchang was unwilling to accept it.

“Remember, anger without strength is meaningless. Schemes and tricks are nothing but paper tigers in the face of absolute power. Just wait—this prince will make them beg to send us money and provisions. But before that, you should focus your efforts on repairing Cangzhou City’s walls.”

Xiao Ming spoke firmly to Zhan Xingchang.

“Yes, Your Highness.”

Zhan Xingchang nodded. These vassal kings were shameless, and there was truly nothing he could do about it.

When the topic shifted to repairing the city walls, Xiao Ming said, “By the way, come with me to the industrial district. This time, we won’t be using the old methods for wall repairs—they’re too slow.”

With that, the two arrived at the industrial district, and Xiao Ming led Zhan Xingchang directly to the cement workshop.

“Your Highness, what is this powder?”

Even Zhan Xingchang couldn’t freely enter the industrial district, so he naturally had no idea what was inside.

“This is called cement. Up until now, it’s only been used in the construction of the industrial district.” Xiao Ming glanced around at the now well-established industrial zone.

As the district expanded, the living quarters and workshops had been separated.

A canteen had been built in the living area to provide three meals a day for the laborers, and the houses there were made of brick and concrete, constructed from cement and blue bricks.

The designs for these houses, of course, came from Xiao Ming.

Though not as aesthetically pleasing as wooden structures, they were far more durable and sturdy. Each building was long and rectangular, with large communal sleeping quarters housing fifty people per room.

“Cement?” Zhan Xingchang looked at the material between the blue bricks and asked, puzzled, “Your Highness, is this the cement you mentioned?”

He pointed at the substance filling the gaps between the bricks.

Xiao Ming had kept cement low-key until now, and most people hadn't paid much attention to its uses. But the time had finally come for cement to shine.

Traditional city walls were built by quarrying stone and transporting it back for construction—an extremely inefficient process.

Cement, however, was different. Blue or red bricks could be fired on-site using local materials, and only the cement needed to be transported from Qingzhou.

Moreover, cement wasn't used in large quantities during construction. A single shipment would likely be enough for Cangzhou's needs.

Additionally, masonry was highly flexible and fast. If one layer of bricks wasn't enough, another could be added to increase thickness.

Modern masonry techniques were well-established, and generally, ten skilled workers could build a 400-square-meter, three-meter-high house in just three days.

Xiao Ming had already trained a group of experienced masons in the industrial district specifically for the task of repairing Cangzhou's walls.

"Exactly. As you can see, once cement is applied between two bricks and dries, they become extremely sturdy. I'll take you to see how the masons work. Think about how we can modify Cangzhou's walls to better suit cannon fire."

For this barbarian invasion, the cannons were already in production, and now it was time to start repairing Cangzhou's walls.

During the cannon-casting period, Xiao Ming had ordered the cement workshop to increase production, all for this moment—handing the cement over to Zhan Xingchang to begin wall repairs.

Zhan Xingchang nodded and followed Xiao Ming to a building under construction near the water's edge. It seemed to have just broken ground.

"This is the textile workshop. Right now, we're building the factory. Once the spinning machines are ready, this place will produce military uniforms and other textiles for the Qingzhou army."

Xiao Ming was currently having Chen Qi replicate a multi-spindle spinning machine based on Huang Daopo's design. In the Great Yu Empire, current spinning machines could only produce one thread at a time—an extremely inefficient process.

This level of productivity was far from meeting demand. But once multi-spindle spinning machines were introduced, the situation would improve drastically.

During the Yuan Dynasty in his past world, Huang Daopo's spinning machines had dramatically increased cloth production in her hometown, earning the saying, "The cotton cloth of Song Prefecture clothes the world."

The spinning machines Xiao Ming had Chen Qi working on were even more advanced than Huang Daopo's. Moreover, they were foot-powered, making them easy to promote among the common people. This would mobilize women across the six prefectures to spin thread, boosting Qingzhou's textile industry.

When modern Britain rose to power, it was the textile industry that led the way, accumulating vast wealth.

Thus, Xiao Ming took this matter very seriously.

As they spoke, Zhan Xingchang kept his eyes fixed on the masons building the walls. Watching them quickly raise a thick wall, his expression gradually grew excited.

"Your Highness, masonry is much faster than quarrying stone for city walls. If I have enough workers, I guarantee I can turn Cangzhou into an impregnable fortress within five months!"

The failed negotiations with the other vassal kings had dealt Zhan Xingchang a heavy blow. Xiao Ming wanted to restore his confidence—after all, even he might not have done better. At least Zhan Xingchang had managed to extract something from the King of Yong.

"In that case, I'll leave this entirely in your hands. But what's your plan?"

Xiao Ming still wanted to understand Zhan Xingchang's construction strategy. The barbarian invasion was no trivial matter.

“First, we’ll build artillery towers atop the walls. Second, I’ll extend the walls outward and construct additional artillery towers and arrow towers on the extensions. This will allow more cannons to fire simultaneously.”

After a pause, Zhan Xingchang suddenly smirked. “And after seeing how cement and blue bricks work today, I’ve thought of a new idea—building brick pillars in front of the walls. This will slow the barbarians’ advance and make it harder for them to set up scaling ladders.”

Xiao Ming nodded in satisfaction. Zhan Xingchang was a quick learner.

These stone pillars would function similarly to cheval de frise, but for people rather than horses.

Cannons were most effective at long range. Once enemies reached the base of the walls, their usefulness dropped sharply. At that point, close-range weapons like crossbows would be needed.

Zhan Xingchang’s suggestion made Xiao Ming consider producing crude hand grenades.

The method would involve packing gunpowder into medium-sized clay pots, sealing the openings with wooden plugs, and inserting fuses. Light the fuse and throw—like a firecracker, but much more powerful.

When the barbarians were forced to cluster together behind the stone pillars, tossing these into their midst would be... quite satisfying.

With this in mind, Xiao Ming grew even more confident about repelling the barbarian invasion. Once they arrived, these new weapons would send them fleeing in terror.