

I. Dynasty 299

Chapter 299: The Mechanism is Cast

After a spring rain, the weather gradually warmed.

The construction of Qingzhou's roads officially began. The cement workshop was working day and night to produce cement, while at the same time, new cement pipe workshops had sprung up in the community.

These workshops bought cement from the cement factory, then used molds to mix sand and cement to produce cement pipes.

Once the underground pipes in Qingzhou were being dug, the merchants who had contracted the pipe construction came daily to purchase these cement pipes, which brought significant profits to the cement workshop's owners.

Dai Zixing, the owner of the cement workshop, grinned as he accepted fifty taels of silver. He was a local merchant from Qingzhou, and one of the first to join the local merchant guild.

"Zhu Wuliu, I'll accept this silver," Dai Zixing said, smiling at Zhu Wuliu.

Zhu Wuliu, the young man from Zhujia Village, had become quite famous in Qingzhou. He had borrowed three thousand taels from the government, contracted ten local roads and underground pipe constructions, showing courage and ambition far beyond that of ordinary villagers.

“Dai Shopkeeper, you’re too polite. I must also thank you for agreeing to extend credit on the pipes before; otherwise, I wouldn’t have had enough silver to complete the project,” Zhu Wuliu said with a big grin.

The villagers, who had come to help Zhu Wuliu with his projects, were also benefiting from the work. Since he contracted the construction of Qingzhou’s roads, he had returned home and quickly hired people from the village.

Each person earned thirty wen a day. For the elderly and young men, this was an excellent opportunity. Thirty wen a day might not seem like much, but in a month, it added up to almost one tael of silver—quite a lucrative deal for the villagers.

“Don’t be so modest. Your brother is the hero of our village. With your brother’s reputation, I’m more than happy to extend credit to you,” Dai Zixing smiled.

Zhu Wuliu proudly thought of his brother, Zhu Sanyi, who looked majestic in his dark green military uniform. He had been granted an exceptional loan, thanks to his brother’s reputation with the prince.

Looking towards the setting sun in the west, Zhu Wuliu said, “In any case, thank you. I’ll treat you to tea at the tavern another day.”

“Good, good,” Dai Zixing said happily. “The day is getting late. You should quickly transport these pipes to Qingzhou City.”

Zhu Wuliu nodded. This time, he had rented ten carts to transport the cement pipes, and renting those carts also cost money.

At first, Zhu Wuliu knew very little. The borrowed three thousand taels of silver had been spent quickly, but after some guidance from the prince, he started managing his finances more carefully.

The cost of purchasing materials, renting carts, and carefully organizing laborers were all part of his learning process. Only then did he begin to earn profits.

If the carts didn't make it into the city tonight, they would need to stay another day, adding another day's rent to the cost.

Inside Qingzhou City

Xiao Ming rode his horse towards the machinery department. As he passed through each street in Qingzhou, he couldn't help but look around.

With construction underway throughout the city, the roads were currently in chaos—piles of dirt everywhere. Merchants from the six prefectures were busy with the citizens, while some areas already had completed cement roads.

Laying cement roads was relatively simple. First, flatten the surface, lay down a layer of sand and gravel, then erect 20-centimeter-high wooden boards on both sides and pour the concrete on top, flattening it.

While the project was large, the key factor was manpower. Without machinery, Xiao Ming had to use a "human wave" strategy.

After one month, about one-fifth of Qingzhou's roads were paved. The Eastern and Western Markets, as the focus of the construction, not only had cement roads but also cemented ground surfaces.

To maintain cleanliness in these markets, trash bins were set up along the sides, encouraging vendors to dispose of waste in the bins instead of littering.

While the roads were being worked on, the machinery department continued producing cutting tools. Today, Song Changping came with news that he had successfully created spring steel.

The team had already forged most of the musket mechanism parts. Only the main spring was missing, but with the successful production of spring steel, that problem was solved.

Arriving at the machinery department, Xiao Ming saw the team gathered together. Song Changping was holding the musket mechanism's tumbler while explaining something.

When the other craftsmen noticed Xiao Ming's arrival, they quickly turned to face him.

"Your Highness, look," Song Changping said, handing the tumbler to Xiao Ming.

The flintlock musket was now in the mature production stage, bypassing the experimental phase. Forging the tumbler in just one month wasn't difficult.

The real challenge had been the spring steel for the tumbler, but that had been resolved with the iron-manganese alloy.

“Your Highness, I’ve tested the iron-manganese alloy over a hundred times and finally got the right ratio of iron to manganese. The rest of the mechanism parts were forged long ago,” Song Changping explained.

Xiao Ming nodded with satisfaction. Producing spring steel was a critical breakthrough for the flintlock musket. Now, only the barrel remained.

Though the current technology was outdated, and the produced alloy had many impurities, it was still more than sufficient for the musket. Xiao Ming wasn’t aiming to meet modern standards.

“The tumbler is ready. Now let’s install it into the stock,” Xiao Ming instructed.

“Your Highness, which type of wood is best for the stock?” Song Changping asked.

“Peach wood or walnut wood will work. The wood should be dense, flexible, and easy to shape. This ensures the stock will have a good texture, feel, and be resistant to cracking and decay,” Xiao Ming said as he examined the tumbler.

The craftsmen had already riveted the hammer, pan, and frizzen onto the tumbler’s main structure using traditional riveting techniques.

Riveting was a straightforward process—drill small holes in both the parts and the main body, then insert nails and flatten them to secure everything in place.

Song Changping nodded. “Your Highness, now that the tumbler is ready, should we organize the craftsmen to start working on the production of other parts?”

After spending some time at the armaments workshop, Song Changping understood that dividing the labor would greatly increase efficiency.

Just like with the cannons, Xiao Ming planned to use a division-of-labor approach. In fact, Europe had used this system during the flintlock era; otherwise, they could never have produced millions of muskets at this time.

“Yes, follow the current division of labor in your team. Once you return to the workshop, each craftsman should organize small teams to handle the parts—stocks and assemblies should be split up,” Xiao Ming instructed.