

I. Dynasty 59

Chapter 59: The Technology Trap

Rolling bearings are typically used in rotating components, significantly reducing friction during motion.

By applying rolling bearings to the ox-powered waterwheel, the oxen's workload was drastically reduced. What previously required four oxen to operate could now be powered by just two.

In his previous life, the invention of rolling bearings could be traced back to the 17th century. The most crucial component of the bearing was the steel ball, while the outer casing was relatively simple to produce.

Even so, Xiao Ming couldn't produce high-precision bearings with his current technological capabilities. His method of making steel balls was the most rudimentary — free-fall molding.

This method involved letting molten steel droplets fall freely from a height. As they descended, surface tension would naturally shape the droplets into spheres, similar to how water forms droplets in mid-air. Below, a cooling water basin quickly solidified the spheres into steel balls.

However, the resulting steel balls varied in size and had uneven surfaces. The next step was grinding the balls on lathes to make them as uniform as possible.

By incorporating these bearings into the ox-powered waterwheel, Xiao Ming deliberately created an irreplaceable key component, making the device nearly impossible to replicate without the bearing.

He had already set his sights on selling these waterwheels to mine owners.

In this era, flooding in mines was one of the biggest headaches for miners. The ox-powered waterwheel not only irrigated farmland but could also be used to pump water out of mines.

With Pang Yukun issuing orders for each county to send skilled craftsmen to Qingzhou for training, news of the waterwheel began to spread.

The ever-astute merchants naturally took notice. Thanks to Xiao Ming's recent stream of innovations, merchants across Great Yu Empire were closely monitoring Qingzhou, eager to seize opportunities before others.

Xiao Ming didn't bother hiding the invention. He instructed the Machinery Department to install waterwheels on his farmland for public demonstrations.

"Your Highness, this waterwheel is incredible! What it pumps in one day is more than what the old wheels did in ten days."

The first to hear the news were the local aristocratic clans of Qingzhou. Wang Shijie and his entourage found the demonstration site within a day.

Wang Shijie, ever cunning, brought along a servant — but Xiao Ming instantly recognized the man as one of the Wang family's top carpenters. His rough hands and the amazement in his eyes gave him away.

“You’re wrong—at least twelve days.” Xiao Ming replied confidently.

Though still relying on oxen, the waterwheel’s efficiency was nearly equivalent to a small modern electric water pump. With oxen working in shifts, the daily irrigation capacity was astounding.

By now, Qin Mu had returned from Chang’an, along with Wei Qing and Sun Dong — the self-proclaimed “Four Talents” of Qingzhou were finally gathered.

With the recent influx of out-of-town merchants, the four men were now clinging to Xiao Ming like shadows, hoping to latch onto any profitable venture.

“Twelve days?!” Qin Mu exclaimed, studying the waterwheel’s design and committing it to memory.

Wei Qing and Sun Dong did the same. After the recent auction, Xiao Ming had squeezed plenty of silver out of their pockets. Now, they were desperate to copy the design and save costs.

Xiao Ming chuckled to himself but didn’t expose them.

He couldn’t stop others from reverse-engineering the waterwheel — but without the rolling bearings, any imitation would be far inferior.

With the Patent Bureau in place, he could prevent unauthorized replication within his fief, but he had no power over the rest of the Great Yu Empire.

After lingering for a while, the four men eventually left.

“Your Highness, they’re clearly trying to steal your design.” Lülüo pouted with disdain.

Xiao Ming smiled faintly. “Let them steal. Whether they can actually replicate it... that’s another matter.”

Turning toward the Xiaoqing River fields, Xiao Ming’s gaze swept over the busy farmland.

Lu Fei had recently completed the winter conscription, enlisting 5,000 new soldiers — 3,000 stationed in Qingzhou, while the rest were distributed across the other counties.

With one million taels of silver in hand, Lu Fei’s ambitions had grown. They planned to recruit another 5,000 troops in spring, bringing the total military force to 13,000 men.

However, Xiao Ming instructed Lu Fei to prioritize coastal fishermen’s sons for the new recruits.

Building a navy was no overnight task. Even basic navigation skills were a problem in this era, where sailors rarely ventured beyond sight of the coast.

By selecting young men familiar with the sea, Xiao Ming aimed to nurture the first generation of true seafarers.

His plans were unfolding step by step.

On his farmland, the new soldiers plowed fields alongside hundreds of oxen, sweat soaking their uniforms.

In other undeveloped areas of Qingzhou, Lu Fei led troops to clear land for agriculture.

To accelerate the process, Xiao Ming equipped the military construction corps with the best tools — including the ox-powered waterwheels, which had been delivered immediately.

He was betting everything on the coming year's harvest.

Lülüo followed Xiao Ming's gaze and giggled. "Your Highness, I've never seen soldiers farming before."

Xiao Ming flicked her forehead lightly. "Stick with me — you'll see plenty of things for the first time."

By the time they returned to Qingzhou City, the roadside snow was still melting. Winter's chill lingered, but spring was not far off — a season of hope.

Just like his fief — a place full of hope.

In only two or three months, Xiao Ming had introduced several innovations unknown to the Great Yu Empire. These products were rapidly expanding his influence and filling his coffers.

Yet the future was uncertain — and he dared not relax.

In the royal family, standing still meant falling into the abyss.

As they entered the bustling Qingzhou City, merchants from across the Empire crowded the streets.

Xiao Ming's smile widened. At least he had taken the first step.

Next, he needed to attract even more merchants — to buy land, build workshops, and turn Qingzhou into an industrial powerhouse.

The fragrant soap, perfume, and liquor were merely low-end products in his eyes.

The ox-powered waterwheel had a hint of technological content — but the true treasures in his mind were still waiting to be turned into reality.

However, one glaring issue had surfaced. His fief lacked skilled craftsmen.

Pang Yukun's idea of sending craftsmen from various counties for training was a good start — but far from enough.

It was time to establish his own technical reserve.

And the best candidates...

Were slaves.

They were the easiest to control — and with proper training, they could become the foundation of Qingzhou's industrial revolution.

As spring approached, Xiao Ming's vision for Qingzhou began to take shape. Military expansion, infrastructure projects, technology monopolies, merchant influx, and now... Technical Education. Every step was paving the way for his industrial Empire.

In this world, knowledge was the greatest weapon.

While others obsessed over wealth and power, Xiao Ming quietly laid down his technological traps — turning Qingzhou into a ticking time bomb that would one day reshape the entire Great Yu Empire.