

I. Dynasty 287

Chapter 287: The Tungsten Mine

“We’ve located the tungsten mine?”

Joy instantly washed over Xiao Ming. They had been searching for the mine for nearly a year, and now, finally, there was news.

“Your Highness, this old servant’s search has truly paid off! What a good omen to start the year with—this must mean you’ll have great fortune ahead,” Qian Dafu said, grinning from ear to ear.

Xiao Ming had returned from Dengzhou in a somber mood, but this sudden good news lifted his spirits. He said, “Come to the main hall and tell me everything in detail.”

Still smiling widely, Qian Dafu followed Xiao Ming into the main hall.

Once they sat down, Xiao Ming asked eagerly, “Where exactly is the tungsten mine located?”

“Your Highness, it’s fifty li outside Laizhou City,” Qian Dafu replied.

Laizhou and Dengzhou were neighboring prefectures on the same peninsula, just 200 li apart. According to the Japanese invasion plan, they intended to land at Dengzhou in three years, seize Laizhou next, and then take over the entire Shandong Peninsula.

According to the map in the technology crystal, Laizhou was the only place in Shandong with tungsten reserves. That made this mine critical—losing it would seriously hinder future technological advancements.

So, now that it was found in Laizhou, Xiao Ming knew he couldn't afford to lose control of either Dengzhou or Laizhou. Both were also crucial coastal prefectures with strategic seaports.

"Immediately send laborers to begin mining the tungsten. If we're short on workers, bring them in from other mines. There must be no delays. Go now!" Xiao Ming ordered sternly.

The discovery of tungsten and cobalt meant he could begin producing tungsten steel and high-speed steel—ideal materials for crafting lathe tools.

Although Qing Prefecture's current technology couldn't match modern tungsten carbide hardness, this steel would still outperform their existing iron and steel.

Hearing the urgency in Xiao Ming's voice, Qian Dafu understood the matter's importance. He nodded firmly, "Yes, Your Highness. I'll go assign the workforce right away."

With Qian Dafu rushing off to prepare the mining operations, Xiao Ming didn't rest either. Now that the mine was found, the next step was to produce tungsten steel tools—an extremely complex process.

Unlike traditional steelmaking, producing tungsten steel tools required a full sequence: powder preparation, wet milling, mixing, grinding, drying, sieving, cobalt addition, more drying and sieving, granulation, pressing, shaping, low-pressure sintering, forming, cylindrical grinding, and fine polishing.

The first major hurdle was tungsten refinement. Although they found the mine, it was low-grade ore and needed to be enriched and processed into concentrate before it could yield usable tungsten powder.

Another technical challenge was pressing the tungsten powder into tool shapes before sintering, which required crafting tungsten steel molds first.

Xiao Ming barely warmed the seat in the main hall before hurrying off to the machinery department.

“Chen Wenlong, call for Zhang Liu!” Xiao Ming ordered upon arrival.

Now that Chen Qi was overseeing the military workshop, Zhang Liu had become the chief craftsman of the machinery department.

Zhang Liu was second only to Chen Qi in skill and had become a pillar of the machinery department. Xiao Ming remembered how nervous Zhang Liu had been last time—that’s how critical he was.

Soon, Zhang Liu, smelling of oil and metal, arrived. He had been helping the craftsmen repair the water-powered trip hammers. Lately, they had been mass-producing parts for the repeating crossbow, and the workload often caused breakdowns.

Only a few craftsmen who had worked on the original hammers could fix them.

“Your Highness,” Zhang Liu greeted, wiping sweat from his forehead and bowing.

Once Zhang Liu arrived, Xiao Ming said, “Gather the top craftsmen from the machinery department. You’re going to start making lathe tools.”

“Lathe tools? Has the tungsten mine been found?” Zhang Liu immediately brightened with excitement.

Xiao Ming nodded. “Yes. Qian Dafu just reported that the mine was discovered near Laizhou. Start preparing the molds immediately.”

“That’s great news!” Zhang Liu beamed.

A year ago, they had built hydraulic lathes in Qingzhou’s workshop, but due to poor-quality tools, the lathes were only suitable for shaping wood. They couldn’t be used to process metal because the tools would break after one cut.

Eventually, with the galleons needing to be built, the lathe workshop was repurposed entirely for woodworking.

But the craftsmen had been waiting for the day they could put those lathes to proper use. If they could machine steel as easily as wood, they believed they could build something even greater than galleons.

“Don’t celebrate yet. Let me explain how tungsten steel tool production works.”

Once all twelve craftsmen involved in the process were gathered, Xiao Ming began teaching the technical procedures.

He sketched and wrote on a blackboard. The visuals were so vivid that the craftsmen felt like they were already inside a workshop producing tungsten steel—it was as if they were witnessing it firsthand.

This feeling wasn't new. By now, they had grown used to it. In their minds, Xiao Ming was simply that brilliant—none of them would guess that the source of his knowledge was a technology crystal.

"Your Highness, will we only be producing tools for the milling machine, boring machine, and drill press?" one craftsman asked.

"Yes. These three machines are sufficient to produce our current parts. Let's not bite off more than we can chew. Focus on mastering how to process steel with these three machines first," Xiao Ming replied.

Zhang Liu and the others nodded. Each machine required a different tool. Drill bits were simple cylindrical shapes, but the milling and boring tools were more complex. Accurately forging those molds would be a real challenge.

After teaching the basics, Xiao Ming didn't leave. Instead, he picked up a pen and drew the tool designs directly in the machinery department, labeling them with precise measurements.

Since announcing the standardization of weights and measures at a previous council meeting, both the machinery department and the military workshop had adopted scientific units of measurement.

Millimeters, centimeters, and meters replaced the old units, bringing precision to manufacturing.

Now, as they prepared to make high-precision tools, Qingzhou's production had to become more refined—and refinement required exact dimensions.

Before Zhang Liu could begin molding, he would need precision measuring tools.

With that in mind, Xiao Ming told Chen Wenlong to make him a compass.