

I. Dynasty 244

Chapter 244: The Birth of the Glass Mirror

“Your Highness, it seems agriculture really is the foundation of the nation. Cotton, rapeseed, hemp—these are all things we should encourage the people to start planting.”

As Xiao Ming was fretting over cotton supply, Pang Yukun seized the moment to bring up his concerns. He felt that lately, Xiao Ming had been placing too much emphasis on handicrafts and was beginning to neglect agriculture.

“You’re not wrong. But right now, we’re still facing grain shortages. It’ll be hard to convince the common folk to grow these other crops when they risk not being able to sell them later. Let’s have the Production Corps begin planting on a limited scale. Once our grain production stabilizes, we’ll expand from there,” Xiao Ming said.

Pang Yukun nodded. For weeks now, he and Xiao Ming had been planning the agricultural and industrial layout of the six prefectures. These topics were already part of their agenda.

“Also, Your Highness—what’s this new product you mentioned?”

At the last banquet, Xiao Ming had casually tossed out the hint of a new product. But with the spy crisis dominating everyone’s attention, the topic had been forgotten—until now.

“Mirrors,” Xiao Ming said with a smile, thinking of his latest innovation.

In the Great Yu Empire, the standard was still bronze mirrors, which gave a blurry, distorted reflection that barely revealed any facial detail.

Modern mirrors, by contrast, were glass mirrors, made by coating the back of glass with a reflective layer—typically aluminum in the present day, which created a clear image.

But extracting aluminum wasn't an option. It required electrolysis, something impossible without electricity. And producing a silver-backed mirror through chemical plating also needed nitric acid, ammonia, and glucose, which were similarly unavailable in the current technological environment.

In the end, Xiao Ming determined the only viable method under current conditions was to use glass, tin foil, and mercury—a method historically used in pre-industrial Europe and China.

"Mirrors? You mean bronze mirrors? Those are common throughout the empire—I can't imagine they'll create much of a stir," Pang Yukun said.

Xiao Ming shook his head. "I'm talking about glass mirrors. In two days, I'll have a prototype for you to see."

Li Kaiyuan was visibly excited. After all this time, a new product was finally about to launch. He could already picture merchants lining up outside the Chamber of Commerce, jamming the street.

He chuckled to himself in anticipation.

Seeing the lecherous grin on Li Kaiyuan's face, Xiao Ming warned, "Your task right now is to procure cotton. If you delay my fleet's departure, don't blame me for what happens."

Li Kaiyuan shuddered. “Understood, Your Highness! I’ll get on it right away. But please—don’t forget to finish the mirror soon!” he added, grinning again.

“I’m headed to Bo Wen Academy now to speak with Lu Tong about the mercury-silver mirror,” Xiao Ming said, rising to his feet.

With that, Xiao Ming and Li Kaiyuan left the Commandery Office—one headed to the Chamber of Commerce, the other to Bo Wen Academy.

Several days earlier, when Pang Yukun first brought up the topic of a new product, Xiao Ming had already given Lu Tong instructions on how to produce a mirror, asking him to prepare tin, mercury, and other materials.

Although Xiao Ming hadn’t found a local tin mine, tin was a relatively common metal in the Great Yu Empire. After all, bronze—an alloy of copper and tin—had existed since ancient times.

Mercury was no more difficult to obtain. In ancient times, it was even used in traditional medicine. It could be produced by heating cinnabar, which yields mercury and sulfur.

Cinnabar was a common ingredient in Daoist alchemy, often seen in medicinal formulas. In short, all the materials were obtainable.

Upon arriving at Bo Wen Academy, Xiao Ming went straight to the chemistry lab, where Lu Tong and his students were already waiting.

“Your Highness.”

Lu Tong led the students in a respectful bow.

Xiao Ming nodded. “Are the materials ready?”

“All prepared,” Lu Tong replied.

He then showed Xiao Ming the glass containers holding mercury and tin, as well as a pile of glass plates laid out on the table.

Ever since they had succeeded in producing sulfuric acid, the Chemistry Academy students had been refining granular gunpowder. Out of the “three acids and two bases,” they had already mastered sulfuric acid, caustic soda, and soda ash. Only nitric acid and hydrochloric acid remained.

Xiao Ming had already included the preparation methods for both acids in their chemistry textbooks. Lu Tong was currently planning to conduct those experiments soon.

To make nitric acid, they planned to heat saltpeter at high temperatures to produce nitrogen dioxide, then dissolve it in water. For hydrochloric acid, they would use concentrated sulfuric acid and salt. All of this was still theoretical, but clearly explained in the curriculum.

It was also clear that Xiao Ming didn't intend to spoon-feed them. He had given them the chemical theory—it was now up to them to figure out the experiments themselves.

After inspecting the materials, Xiao Ming said, "Let's begin. I'll instruct—you perform."

Lu Tong nodded. Xiao Ming was clearly transitioning into the role of a hands-off director, increasingly leaving the experiments to his students.

Xiao Ming understood their frustration, but there was no other way. Knowledge wasn't meant to be stored in one's head—it had to be applied. Over the past few weeks, he had already taught Lu Tong and the others about chemical symbols, and they had fully grasped the periodic table.

In fact, Xiao Ming's chemistry curriculum was even more detailed than modern junior high textbooks, with numerous common reaction formulas explained clearly.

From here on, it was up to Lu Tong and his students to turn theory into real chemical processes—and apply them in industry. Otherwise, what was the point of learning all this?

Besides, at the current tech level of the Great Yu Empire, junior high-level chemistry was already more than sufficient. Anything more advanced—like electrolysis—would require electricity, which they didn't yet have.

No electricity meant no progress in high-end chemistry.

Lu Tong picked up a glass sheet and carefully applied a tin foil backing. Since tin had a low melting point—just over 200 degrees—it could be easily softened with gentle heating.

Once the tin foil was securely applied, he poured a thin layer of mercury over it and smoothed it evenly.

A chemical reaction took place between the mercury and tin, forming a silver-white amalgam known as tin-mercury alloy (tin amalgam). Historical records showed that this alloy was used as early as the Spring and Autumn period. While mercury was toxic, the amalgam itself was non-toxic.

This silvery fluid bonded tightly to one side of the glass, forming a reflective layer that wouldn't flake off easily.

With the steps completed, Xiao Ming and Lu Tong waited quietly for the miracle to happen.

Half an hour later, once the metallic mixture had fully dried, Xiao Ming picked up the mirror.

He saw himself clearly for the first time.

A young, slightly handsome face stared back at him. “Wow... it’s been a whole year, and this is the first time I’ve seen my own face properly.”

He couldn’t help but marvel aloud.

The mirror in his hand had virtually no difference from a modern one—only slightly dimmer in luster. After all, tin amalgam lacked the bright sheen of silver.

Still, even so, this mirror would undoubtedly be considered a revolutionary creation.