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Chapter 46 Longbow

The drizzle arrived as expected, washing away all the fresh blood and temporarily halting all martial prowess. The birds retreated to their nests in the forest, and the vast army, like returning hornets, silently guarded Otapan City, uncertain when this fruit would ripen and fall.

Xiulote sat in the small hut in the camp, closely examining the Tlaxcala long wooden bow in his hands.

This type of bow was clearly a self bow, made from a single material, and was indeed a longbow, with a length of over 1.4 meters. The bowstring was made from treated deer sinew, tough and without elasticity. The bow's body was likely made of oak, one of the better materials for bow-making. The ends of the bow were wrapped and secured with cotton thread, then glued with bone adhesive.

Overall, the craftsmanship was rather skilled, and the cost wasn't overly high; it should be possible to produce them on a large scale. The people of Tlaxcala certainly had sizable archer troops.

Xiulote tested the bow's power several times and found it stable. With a small angle of shooting, it could kill at 120 meters without armor.

"The Thirty-three Hall Long Shot"! This high-difficulty flat shot over a distance of 120 meters. Xiulote slapped his forehead, remembering his visit to the Tiantai Sect temple in Capital City during a past trip to Kyoto. It appeared that this self bow was slightly inferior to the composite Japanese bow used at the beginning of the samurai era.

Ever since the last attack, Xiulote had been contemplating the long wooden bow in his hands.

Arrows and bows, equipment that strayed from the samurai's glory and couldn't capture prisoners, were widely overlooked by the Mexica people. Yet they were actually the weapons with the most development potential among the various parts of Central America. Their development ceiling had the smallest gap with the Europeans and they could potentially breach the chain mail of ordinary knights in the future, harming cavalry horses that even armored knights couldn't protect perfectly. They did not have a high demand for metal, which made them the most powerful weapons for rising primitive civilizations similar to the Jurchens or Mongolians. Dense volleys of arrows or crossbow bolts were the best method for the Mexica, who had no cavalry, to confront the conquerors' cavalry.

At the same time, Central America was rich in high-quality wood resources. The best naturally were ironwood and sandalwood, types of wood that were very hard and had the strongest energy storage, with a quality even surpassing the yew used for English longbows. Thinking this, Xiulote chuckled. Names like Ironwood Bow and Sandalwood Bow were very familiar in his memory.

For those with slightly lower production costs, there were the commonly found spruce and oak, which were also quality materials for making bows. Spruce bows and oak bows were widely used throughout Europe by the Germanic peoples. These trees were all very common in America, and all spruce species originated from North America.

Develop the bow and arrow! While pondering the resources at hand and considering the future, Xiulote got swiftly excited. He'd finally found a bright path for the Mexica people to develop their military might under the current conditions!

Following that, he continued to ponder the design and types of bows, searching through the fragments of memory in his mind.

The scenes from various period dramas naturally came to mind first. Cavalry horn bows from the North? Xiulote shook his head, no cattle, no horns, no livestock, no go. The Great General's iron-tire bows? That

must also be a type of high-difficulty compound bow, not worth considering. Soon, he realized that it was impossible to recreate any of the classical Chinese bow designs.

"Whichever bow it is, in winter split the wood and in spring laminate the horn, in summer process the sinew, in autumn combine the three materials, in cold weather shape the body, and in the following spring string it up." It is mentioned in "Kaogong Ji·Bowmen" that to make the most classic compound bows of ancient China, "wood, horn, sinew, glue, silk, lacquer" six materials were required, which are wood, animal horns, animal sinew, adhesives, silk, and paint.

Additionally, it was necessary to take advantage of the "spring, summer, autumn, winter" four seasons: in winter prepare the wood, in spring shape the horn for the bow's ears, in summer process the sinew for the bowstring, in autumn create the bow's composite body, in winter shape the composite bow, and in spring finally string and adjust it, and finally apply paint to prevent insects.

Who could afford this? Xiulote shook his head. Although a compound bow of equal length had more power, faster speed, and greater accuracy than a single-material bow, it was simply too expensive to use. He counted on his fingers; there were not enough materials, the production time was too long, and the abundant rainfall and high humidity of Central America made the compound bows too prone to damage; moisture and insect prevention were very difficult.

Throughout the history of the Celestial Empire, when the Mongols and the Jurchen moved south, they always avoided the plum rainy season, one reason being it was too damaging to bows, and it was common for several bows to be ruined over the course of a summer. Forget it, better to adapt to local conditions and develop single-material bows.

When it came to single-material bows, the first thing Xiulote recalled were the various Japanese bows seen in grand historical dramas, made of bamboo and wood, over two meters long, yet their range was not even half that of the smaller horn bows of the Celestial Empire. This was because Japan lacked high-quality timber, and without enough cattle, they could only substitute with bamboo. The stored energy of a bow comes from its limbs, and bamboo's energy storage efficiency is too low, leading to insufficient range and power. Of course, with the introduction of Celestial Empire technologies, Japan later began to

widely produce compound Japanese bows, using a greater draw length to compensate for the power of the Japanese bows.

Next naturally came to mind the famous English longbow, from European films, where arrows fell like rain and knights fell from their horses tragically. Xiulote calculated carefully, it had been less than seventy years since the famous English-French Battle of Agincourt. In this battle, eight thousand English longbows defeated thirty thousand French knights, capturing the French marshal, killing five thousand nobility, and nearly ten thousand knights. Whereas the English suffered only a few hundred casualties, the reputation of the longbow became renowned worldwide from that point on. While the terrain played the greatest role in this battle, and there were significant problems with the French command, the large-scale combat capability of the longbow was also affirmed.

Overall, the early Japanese bows, Welsh longbows, and the later English longbows all belonged to the category of single-material bows with low technical content. It's essentially one piece of wood made into a bow, with a high draw weight and a large draw length, where the energy storage efficiency comes from the wood material, lower than that of the higher-cost compound bows. Therefore, longbows required high-quality wood and a larger, longer body to achieve greater energy storage and draw length, transferring more kinetic energy to the arrow. High-quality English longbows were all over two meters in length.

The advantage of the longbow was that its production costs were much lower than those of compound bows, it required less maintenance, and it could be made very quickly, because there was no need for the gluing process of the composite materials. If a composite horn bow is compared to a samurai sword, which needs careful handling, cannot be dry or damp, and needs to be warmed by hand in cold weather before use, then the longbow could be likened to a big iron rod, casually thrown aside for half a year, and still ready for rough use when picked up. Xiulote chuckled to himself at this thought.

Compared to the horn bow, the longbow's biggest disadvantage when of the same poundage was that the body was too long and could not be used on horseback, making it unsuitable for cavalry. "Anyway, there are no horses in America at the moment." Another issue was that the firing rate was too slow, the accuracy was somewhat lower, and it made a lot of noise. "A large-scale archery battle formation doesn't care about this." Lastly, it was too wasteful of wood, especially high-quality wood. "Central America isn't lacking in high-quality timber." After weighing the options back and forth, Xiulote finally made a decision, "Longbow, it shall be you!"

With the technological development route now decided, what followed was the concrete implementation of the technology.

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Without hesitation, Xiulote immediately summoned the craftsmen bestowed by the King and then took out the Tlaxcala long wooden bow and asked, "Who has experience in bow-making?"

A few dozen craftsmen looked at each other; a few carpenters seemed ready to step forward but hesitated, clearly lacking confidence in their skills. Only an elderly craftsman examined the long wooden bow closely for a while before nodding and stepping out.

"Respected Priest, this is a long wooden bow from Tlaxcala, which I have replicated before; I can do it." The old man smiled confidently, squeezing out a face full of wrinkles.

"Excellent! Master Craftsman, how may I address you?" Xiulote was overjoyed.

"Priest, I am Kuode, one of the Chief Carpenters of Tenochtitlan, summoned by the King this time to participate in the construction of campsites during the march," he said.

Tenochtitlan, carpenter. Xiulote thought for a moment, then asked, "Do you know Kusora?"
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The old carpenter looked surprised, "He is a junior member of our family, a very promising craftsman, but later he became a Samurai."

Xiulote nodded, "He was my follower and sacrificed himself for me in the previous battle. When we return to the Capital, take me to his house for a visit."

Kuode nodded respectfully. Then, the two began to formally discuss the making of the longbow, with the other carpenters helping to consult.

"I need to make a sufficiently long greatbow, over two meters in length, with a simple form that is just a curved line. For now, use deer sinew or deer hide for the bowstring. Next, you must research how to make replacement bowstrings using cotton or hemp cord..." Leaving only Kuode and a few carpenters, Xiulote dismissed the other craftsmen.

The brief discussion lasted only half an afternoon, and then it was time to start the actual manufacturing.

Xiulote found some leftover rosewood from the previous catapult construction and chose a straight, three-meter-long piece of lumber. Then, the craftsmen took out their bronze tools and cut a wooden strip about two and a half meters in length and eight centimeters in both width and thickness.

Next, Kuode used a tool akin to a marking gauge to draw the center line and then, following that line, sketched the shape of the longbow. He carefully cut and sanded, forming the shape of the bow from the wood.

As it was a first attempt, Xiulote did not dare make the bow too thin. Since the goal was practicality, there was no need to consider decorative elements. Everyone began training the bow directly, a process of conditioning the wood.

Training the bow was done on a training frame, which could simply be understood as a long stick with even grooves. Kuode first hooked the ends of the bow with a string, then placed the exact center of the bow at the top of the long stick, and gradually pulled down both ends of the bow, one groove at a time.

Every quarter of an hour, they pulled down a notch, bending the straight bow into an arc until its maximum, then held it there for twenty to thirty minutes to relieve the tension in the bow. Then, they restored it to its original shape, rested for another quarter hour to let the bow recover, and proceeded to train it again.

Thanks to the superior quality of the wood used, this training took until evening. The scent of food wafted from afar, a flavor of the night. However, Xiulote had no appetite for dinner, instead lighting a fire in the hut and focusing on the craftsmen's work. After a while, Bertade brought him some cornbread, and the two continued to watch while they ate.

Only after the training was finished did a famished Kuode accept Xiulote's cornbread and hastily finished his dinner. What followed was a delicate task; the old carpenter painstakingly polished the bow with tools made of obsidian for a full half hour until the bow was smooth and sleek.

The final step was oiling. In Mexico of that era, oils were precious commodities. Whether it was tung oil from China or palm oil from West Africa, neither had yet spread to the suitable climates of Central America, and the likes of lard or tallow were even more out of the question.

Xiulote negotiated for half the night to obtain a small bottle of sunflower seed oil and even had someone press an expensive bottle of avocado oil; if there was time, one could extract some pine resin

oil. Kuode generously coated the bow with the oil, and then all that was left to do was wait for the oil to seep in, and for the bow to dry.

Before they knew it, the night grew deep; it was far past rest time. Kuode bid farewell with his fellow craftsmen, leaving a restless Xiulote behind. The young man lifted the curtain and gazed at the bright Milky Way in the sky, beneath which lay the ancient city-states and nations, unchanged for thousands of years.

Turning back, he looked again at the longbow in the center of the tent. Its body was white and smooth, over two meters in length, outlining the curves of strength and beauty; it resembled an otherworldly beauty, concealing a fierce potential for martial prowess.

Xiulote watched entranced, full of anticipation, his thoughts drifting far away, "What power might this longbow hold?"