Looking due south along the shadow measuring wall (or "Sky Measuring Scale") toward the brick tower of Guo Shou jing, we can see a horizontal bar (reconstructed) in the center gap at the top. It was the position of the shadow cast by such a bar that was observed in order to establish the exact dates of the solstices here at Gao cheng zhen, near Dengfeng in Henan province. (Robin Rector Krupp)

The long, low wall was known as the Sky Measuring Scale, and it had to be very long to accommodate the shadow of the low winter sun. Graduated for precise measurements and fitted with water troughs to test its levelness, the Sky Measuring Scale permitted Guo Shou jing to estimate the length of the year with high precision.

The tower was a real observatory. Accounts by early historians tell us that side chambers on top of the platform housed a water clock and perhaps an armillary sphere for measuring the positions of celestial objects. This "Tower for the Measurement of the Sun's Shadow"—one of the most important observatories of its day—is located, as one might guess, at Yang-chhêng—the traditional "center of the world" until the Ming emperor Yong Le moved the "world's center" to Beijing (Peking). This structure at Yang-chhêng tells about more than ancient Chinese astronomy, however. We know it was an observatory, and we know it was precise. Chinese astronomy was official imperial business and not exactly true science, but here we can see that high precision was still desired. Exactness was the handmaiden of authority and stability, and that accounts, at least in part, for the Chinese quest for precision.