5.3-5.5 Chinese Mathematics

Enlightening Summary #1: Our reading into the History of Chinese Mathematics begins with outlining the shared knowledge between the Hindu and Chinese. The section in 5.3 describes the methods the Chinese used to solve indeterminate systems of linear and quadratic equations.

Enlightening Summary #2: Section 5.5 more into detail on the state of Chinese Mathematics. Throughout the section it is emphasized that Chinese math was profoundly algebraic and applied, in some cases the antithesis of the Greeks. We are introduced to the The Nine Chapters of Mathematical Art, which is touted as the oldest textbook on arithmetic in existence. The book's intended use was for surveyors and engineers with problems that focused on finding areas, volumes, solving systems of equations, and rules for calculating interest. We saw another sweet proof for approximating π, and what looks to be the beginnings of linear algebra in an example where a matrix is reduced to row echelon form. The section ends with innovations in counting rod notation, binomial expansion, Horner's Method, and the introduction of western mathematics aided by the Jesuit missionary.

Interesting: I was really surprised when I saw Horner's Method was discovered so early on especially because centuries later its still the optimal way of evaluating a polynomial.

Confusing: Its seems from the example on page 257 that the Chinese were solving linear systems in the form of a matrix. I feel like solving systems like this would eventually lead to a situataion where you have simplified a row to all zeros which I think might lead to the infinite solutions conclusion. However in the section before it states that Sun-Tsu might not have been aware that there were infinitely many solutions to indeterminate problems. Is it possible that maybe they didn't fully understand the properties of zero?