

Tonio Andrade. *Gunpowder Age: China, Military Innovation, and the Rise of the West in World History.* Princeton, NJ: Princeton University Press, 2016. 432 S. ISBN 978-0-691-13597-7.



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Both among academics and in the public opinion the essentialist notion that Chinese culture is pervaded by Confucian pacifism, by and large indifferent to warfare and military technology, is still prevalent. However, the ascription of a non-aggressive ‘a-military’ Chinese culture (*wubing wenhua*) The term itself was famously coined by the historian Lei Haizong in the 1930s. For an introduction to the debate about Chinese military culture, see Nicolas Di Cosmo (Ed.), *Military Culture in Imperial China*, Cambridge 2009. is relatively recent and in large parts caused by the “great military divergence” that began to open up in the late eighteenth century. Tonio Andrade’s spirited book, “The Gunpowder Age”, sets out to explain this divergence between Europe and China and correct the picture of an ever peaceful Confucian civilization. He argues that interstate competition and numerous periods of intense warfare were not only vital for state-building in early modern Europe, but also “drove state centralization and innovation in military tactics, technology, organization and logistics” (p. 3) throughout Chinese history. By the time of the First Opium War in 1840–1842, however, the different trajec-

ries of change had culminated in a “technological gap” (p. 270) much larger than a century before. Although Andrade does not deny that other factors were important for the massive imbalance between East and West, he focuses on the hitherto neglected role of gunpowder weapons to explain the great (military) divergence of the nineteenth century.

Andrade’s book consists of four parts, which chronologically examine the development of gunpowder weapons from the tenth to late nineteenth centuries. In the first part, “Chinese Beginnings”, he challenges conventional wisdom by suggesting that the Song and Ming were militarily very vibrant eras that saw multiple inventions and innovations in weaponry. The alleged military weakness of the Song Dynasty was only relative and the Song only succumbed to the powerful Mongols after holding them off longer than any other state at the time. Song, Mongol, and other troops made use of different types of gunpowder weapons and in the 1200s proper guns, shooting projectiles, were developed and deployed. The Ming made extensive use of guns or cannon, but

these were small and were used as anti-personnel weapons and not against walls or ships. By and large, however, the use of firearms increased and the Ming became the first 'gunpowder empire' in history.

Part II, "Europe Gets the Gun", deals with the more or less sudden appearance of guns in Europe in the fourteenth century. Without any substantial record of experimentation with gunpowder weapons similar to that in East Asia, Europeans probably drew on Chinese experiences, but the exact way of transmission is unclear. In the beginning, guns were as small as in China but by the end of the century, they were big enough to destroy walls and eventually "transformed warfare" (p. 91). By 1500, the development of the 'classic gun' was completed, and the latter became the decisive element on the battlefield, with its design not changing very much until the mid-eighteenth century. This prompts Andrade to ask why there were no big guns in China at the same time. After dismissing a number of possible explanations, such as the prevalent assumption that Confucian officials were suspicious of technology and despised the military, he convincingly argues that the reason were different cultures of fortification (without sufficiently explaining the genesis of these differences though). While Europeans preferred relatively thin stone walls, cities and fortresses in China possessed very thick and huge earth walls, impregnable for even the most powerful cannon. Moreover, while warfare increased tremendously in Europe from 1450, it decreased in Ming China and thus there was simply no need to develop artillery warfare any further.

Nevertheless, as Part III, "An Age of Parity", shows, Ming officials and the military were very quick to adopt the more efficient 'Frankish guns' in the early sixteenth century and soon possessed equal or even better cannon. Moreover, while infantry drill had to be reinvented in Europe, there was an unbroken tradition of drill in China and even the technique of (crossbow) volley fire had

existed at least since the Tang dynasty. Consequently, Ming troops were actually the first to use firearms volleys – even before the Japanese, who admittedly developed volley fire before the Europeans. In this part, Andrade also vividly describes the first conflicts between Ming and Qing Chinese militaries with European (Dutch and Russian) forces. Although gunpowder weapons and their actual use were evenly matched, and the Chinese prevailed in all early military conflicts, the Europeans had two technological advantages which the Chinese never managed to copy: ships and the Renaissance fortress, which, Andrade confirms, might have worked as an actual 'force multiplier' for European colonialism.

The final section, "The Great Military Divergence", addresses how and why English and other European armies and navies proved massively superior to the Chinese military from the First Opium War onwards. In Europe, industrialization and, possibly, economic growth as well as geopolitically motivated competition between states and experimental science all led to numerous military innovations such as steamships, better gunpowder and ballistics, as well as improvements in casting, boring, aiming, timing. In China, on the other hand, there was no need for any military technological developments or for maintaining strict practice and drill due to a long-standing peace in the high Qing era. As a result, the great military divergence between Europe and China took shape between about 1760 and 1840. Immediately after the First Opium War, Confucian officials, backed by the court in Beijing, sought to adopt European military technology, but they lacked the "machines to make machines" (p. 278), i.e. the industrial machinery and knowledge to produce steam engines and weapons. Other reasons for this early failure were factionalism and impassiveness of the Emperor, rather than an alleged anti-modern Confucian culture. The next attempt to adopt the latest Western military technology, the Self-Strengthening reforms that ended in 1895 with the Sino-Japanese War, were more

successful, but eventually failed as well. As Andrade argues, this was not down to cultural conservatism or technological problems, but to an increasingly dysfunctional state unable, for instance, to provide stable funding for modern shipyards. At the same time, the emergence of chemical and smokeless powder effectively ended the age of gunpowder.

“The Gunpowder Age” brings together numerous insightful episodes of battles, sieges, and military experimentation in both European and Asian history. Andrade masterfully links these episodes with comprehensible technical explanations and embeds them in a larger narrative to explain the great military divergence. He demonstrates that there was no Confucian (or more broadly Chinese) cultural disdain of technology and experimentation per se, nor a general absence of a centralized state in China. Until the nineteenth century, Andrade reminds us, China was ahead of Europe in terms of administrative centralization and the state’s ability to sustain well-drilled standing armies equipped with guns. The military imbalance between China and Europe played out in the nineteenth century due to internal political power struggles and because China lacked a breakthrough in experimental science comparable to the one in Europe. Although more research needs to be done regarding Chinese military culture – in other words the inner values, mission and professional attitude of armed forces or the inclination of society towards war and the armed forces –, to explain the great military divergence, *The Gunpowder Age* is a worthwhile reading for anyone interested in global (military) history. It is especially recommended for historians of Early Modern Europe who still believe in both Europe’s ‘invention’ of the state and its superior military faculty.

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