Six Secret Teachings

The ***Six Secret Teachings*** (simplified Chinese: 六韬; traditional Chinese: 六韜; pinyin: *Liù Tāo*), is a treatise on civil and military strategy traditionally attributed to the legendary figure Jiāng Zǐyá, a confederate of King Wen of Zhou, founder of the Zhou Dynasty, at around the eleventh century BC. Modern historians nominally date its final composition to the Warring States period (c.475-221 BC), but some scholars believe that it preserves at least vestiges of ancient Qi political and military thought. Because it is written from the perspective of a statesman attempting to overthrow the ruling Shang dynasty, it is the only one of the Seven Military Classics explicitly written from a revolutionary perspective.[1]

Chapter Summary

1. The **Civil Strategy**: The Civil Strategy provides the narrative of how Jiang Ziya came to dictate the *Six Secret Teachings* to King Wen, and elaborates on how the state must be organized in order to provide a logistical base for any future military expansion. "Moral, effective government is the basis for survival and the foundation for warfare. The state must thrive economically while limiting expenditures, foster appropriate values and behaviour among the populace, implement rewards and punishments, employ the worthy, and refrain from disturbing and harming the people."[2] This strategy teaches commanders never to delight in small advantages, or that is all they will achieve. It teaches that the greatest gains result from benevolence and helping others achieve their aspirations for a better world.
2. The **Military Strategy**: The Military Strategy continues the previous section's discussion of civil affairs, analyzes the current state of Zhou, and assesses the prospects of successfully overthrowing the Shang. "Attracting the disaffected weakens the enemy and strengthens the state; employing subterfuge and psychological techniques allows manipulation of the enemy and hastens its demise. The ruler must visibly cultivate his Virtue (德) and embrace government policies that will allow the state to compete for the minds and hearts of the people; the state will thus gain victory without engaging in battle."[2] This strategy teaches commanders to achieve victory via benevolence and wit, preferably without actually fighting. It teaches commanders to outwit opponents through diplomacy and manipulation.
3. The **Dragon Strategy**: The Dragon Strategy primarily discusses military organization, the necessary characteristics of military officers, and how to evaluate and select for these qualities. It discusses how to establish a system of rewards and punishments for the purpose of establishing and maintaining a general's awesomeness and authority, and discusses the methods necessary to foster allegiance and unity in one's soldiers. The Dragon Strategy's secondary topics include: military communication and the need for secrecy; basic tactical principles (emphasizing flexibility and unorthodoxy); common errors of command and how to avoid them; various cues to interpret the enemy's situation; and, a discussion of common military skills and equipment.[3] This strategy explores the subtle and complex aspects of critical situations without losing control to advisors or becoming confused. It emphasizes that the government depends on a

centralized and orderly overview which must be well informed in order to function effectively.

4. The **Tiger Strategy**: The Tiger Strategy discusses military equipment, tactical principles, and essential issues of command. Most of the section provides "tactics for extricating oneself from adverse battlefield situations. The solutions generally emphasize speed, maneuverability, unified action, decisive commitment, the employment of misdirection, the establishment of ambushes, and the appropriate use of different types of forces."[4] It emphasizes that a commander must guard against laxity and act in accord with ever-changing conditions. A commander must observe and utilize the effects and interactions of variables such as weather, terrain, and human psychology in order to achieve success.
5. The **Leopard Strategy**: "The Leopard Secret Teaching emphasizes tactical solutions for particularly difficult types of terrain, such as forests, mountains, ravines and defiles, lakes and rivers, deep valleys, and other constricted locations. It also contains discussions of methods to contain rampaging invaders, confront superior forces, deploy effectively, and act explosively."[4] This section teaches commanders how to know their strengths, and how to direct those strengths against the weaknesses of their enemy.
6. The **Dog Strategy**: The Dog Strategy discusses a number of diverse topics, miscellaneous to the other sections. The most important sections "expound on detailed principles for appropriately employing the three component forces – chariots, infantry, and cavalry – in a wide variety of concrete tactical situations," and discusses the comparative battlefield effectiveness of these three forces. It discusses a variety of "deficiencies and weaknesses in the enemy that can and should be exploited immediately with a determined attack." It discusses several other, general issues: "the identification and selection of highly motivated, physically talented individuals for elite infantry units and for the cavalry and chariots; and methods for training the soldiers."[4] This strategy teaches never to attack an enemy when his morale is high, and to time a concentrated attack when the moment is right.

The Methods of the Sima

From Wikipedia, the free encyclopedia

(Redirected from The Methods of the Ssu-ma)

The Methods of the Sima (simplified Chinese: 司马法; traditional Chinese: 司馬法; pinyin: *Sīmǎ Fǎ*, also known as ***The Marshal's Art of War***) is a text discussing laws, regulations, government policies, military organization, military administration, discipline, basic values, tactics, and strategy. It is considered to be one of the Seven Military Classics of ancient China. It was developed in the state of Qi during the 4th century BC, in the mid-Warring States period.Content summary

General focus

In the East Han dynasty, *The Methods of the Sima* was classified as a work describing rites and propriety (禮), largely because it discusses methods of organization, administration, and discipline much more deeply than strategy or battlefield tactics. *The Methods of the Sima* rarely discusses direct issues related to battlefield command, instead concerning itself with how to initiate, administer, and manage military campaigns. The limited discussions of strategy and tactics which do appear in the work are broad, general, and common to the other *Seven Military Classics*.[1]

The Justification of War

The Methods of the Sima promotes the view that warfare is necessary to the existence of the state, that it provides the principal means for punishing evil and rescuing the oppressed, and that its conscientious exploitation is the foundation for political power. It states that a balance between war and peace must be maintained for the prosperity of the state: that those states which neglect their armies will perish just as quickly as those states which resort to warfare too frequently. The book promotes the view that war is an unfortunate necessary for peace.[2]

The contributors to *the Methods of the Sima* stress that appropriate civil and military roles must be distinguished because of their contradictory values. Civilian culture is judged to be severe, remote, and languid, placing value in courtesy and benevolence, while military culture is judged to be severe, stern, and active, placing value in order and discipline. The writers of the *Methods* stress that the Virtue (德) of the people will decline both when civilians act in ways that are appropriate for soldiers, and when soldiers act in ways that are appropriate for civilians.[3] The King must conduct himself differently in these two spheres and expect different things from his citizens. In civil life, he must cultivate the people through education and the promotion of regional culture.

The Methods of the Sima stresses that the only justification for warfare is the assistance of the common people. Because warfare must benefit the people of all states involved in a conflict in order to be legitimate, nations must avoid engagements that injure the people of enemy states, and actions which might antagonize a subject populace are severely prohibited. Because it identifies the only justification for warfare as eradicating a government evil, *the Methods* encourages commanders to engage in ceremonial, accusatory formalities before beginning a campaign, and makes it a vital necessity that the army's soldiers understand the virtuous nature of their mission. These policies promote the utilitarian goals of strengthening morale and weakening enemy resistance.[4]

The Importance of Discipline

The text states that an army which is perfectly unified has the greatest chance of success. This requires the Emperor and his representatives to enforce strict discipline. Laws must be clear and consistent and enforced with total impartiality. There must also be active concern for disruption and sedition. Commanders must be aware of rumors and doubts and address them promptly.

They must also be capable of leading by example. Weapons and tactics must be studied with extreme thoroughness. Enemy weapons may be copied if they are superior.

The book's contributors significantly elaborate on the nature of military discipline. Rewards and punishments are necessary in shaping the actions of the military. Because a worthy person could become self-important and disrupt the integrity of the military if reward is excessive or unpredictable, rewards must be appropriate and consistent in order to be most effective. Punishment must also be carefully considered. When the military experiences failure, the commander must encourage everyone to accept responsibility, including himself. If he singles out an officer, the troops could infer that the officer alone was responsible and avoid improvement. [5]

Authorship

Authenticity

There is no consensus on who composed the *Methods of the Sima*. Both Sima Qian and modern historians suggest that it was likely compiled from various extant military treatises present in the state of Qi in the fourth century BC, in the mid-late Warring States period. If *the Methods of the Sima* was compiled from other pre-existent military writings, the origin of its component texts cannot be known with certainty.

Presently, because only five of the 155 chapters reported in the Han dynasty exist, all editions of *the Methods of the Sima* seem to be remnants of a larger, more extensive work. The book has been faithfully transmitted since at least the time of the Tang dynasty, but the disparate number of existent chapters caused Qing dynasty scholars (in particular) to attack the book as spurious. Modern scholars generally support the text's authenticity.[6]

Sima Rangju

One of the alternative names for the book is "*The Methods of Sima Rangju*", based on Sima Qian's description of the work as being largely attributed to the famous fourth-century BC Qi general Sima Rangju. Sima Qian states that, after Sima Rangju's death, King Wei of Qi (r.356-320 BC) compiled all of the most famous military writings then extant in Qi, of which the writings of Sima Rangju were a major component. According to Sima Qian, the resulting book was the *Methods of the Sima*.[7]

Other Qi Writers

Another view, promoted by modern scholars such as Liu Yin, was that the core material present in *the Methods of the Sima* was created during the reign of Duke Huan of Qi (r.685-643 BC), successfully guiding Duke Huan in his efforts to become a regional hegemon (霸). A century later, Duke Jing of Qi (r.547-490) reportedly used the work in his successful effort to retake land previously lost to Qin, and to subjugate several other feudal lords. According to this theory, the

texts used by these rulers were all gathered and compiled during the reign of King Wei of Qi, and the resulting book came to be known as the *Methods of the Sima*.[8]

There are other historical writers associated with Chinese military classics whose writings may have contributed to the *Methods of the Sima*. Because the writer Sun Bin was a relative of Sima Rangju, and because Sun Bin served Qi as a military advisor in the fourth century BC, around the time that the *Methods of the Sima* was compiled, some scholars theorize that the writings of Sun Bin may have contributed to the *Methods of the Sima*. Because all sources identify *the Methods of the Sima* with the state of Qi, and because Jiang Ziya was enfeoffed as the Duke of Qi shortly before his death, other scholars believe that the tradition of Jiang Ziya's writings may have contributed to the book's compilation.[9] Because the origins of the book are enigmatic, the authorship of *the Methods of the Sima* cannot be either proven or refuted.

Wuzi

The ***Wuzi*** (simplified Chinese: 吴子; traditional Chinese: 吳子; pinyin: *Wúzǐ*) is a classic Chinese work on military strategy attributed to Wu Qi. It is considered one of China's Seven Military Classics.

It is said there were two books on the art of war by Wu Qi, but one was lost, hence leaving the *Wuzi* as the only existing book carrying Wu Qi's military thoughts. The oldest *Wuzi* edition that survives dates to the Song Dynasty (960–1279). Because of the lack of surviving copies, there is no consensus among modern scholars concerning the latest date of *the Wuzi's* final composition, but the core of the work is nominally assumed to have been composed around Wu Qi's lifetime (440–381 BC), in the mid-Warring States period. Historical references indicate that *the Wuzi* was very famous and popular in both the Warring States period and in the Han dynasty. In addition to strategic/tactical studies and the philosophy of war, *the Wuzi* pays significant attention to the logistical achievement of war preparedness.

Military theory

The present text of the Wuzi consists of six sections, each focusing on a critical aspect of military affairs: Planning for the State; Evaluating the Enemy; Controlling the Army; the Tao of the General; Responding to Change; and, Stimulating the Officers. Although each chapter is less concentrated than the traditional topic headings would suggest, they depict the subject matter and general scope of the book as a whole.[1]

As a young man, Wu Qi spent a formative three years as a student of Confucianism. After gaining several years of administrative experience, he came to believe that, in order for

benevolence and righteousness to survive in his time, military strength and preparation were necessary. Without a strong military to defend the just, he believed that Confucian virtues would disappear, and evil would dominate the world. Because of his emphasis on the importance of the military for safeguarding civil rights and liberty, the author of the *Wuzi* states that commanders must be selected carefully, ideally from those possessing courage and who excelled in military arts, but who also possessed good civil administration skills, and who displayed Confucian virtues, particularly those of wisdom and self-control.[2]

Because armies in the Warring States were heavily dependent on the horse, both for transportation and for the power of the chariot, *the Wuzi* places a greater importance and focus on raising and maintaining a force of cavalry more than on maintaining infantry in its discussions of logistics. Because of the shift away from warfare fought among nobility, towards the mass mobilization of civilian armies, *the Wuzi* stresses the importance of gaining the strong support and loyalty of the common people. Because of its focus on the importance of civil administration as a necessary aid to military strength, *the Wuzi* stresses the implementation of Confucian policies designed to improve the material welfare of the people, gain their emotional support, and support their moral virtues.[3]

Harmony and organization are equally important to each other: without harmony, an organization will not be cohesive; but, without organization, harmony will not be effective in achieving collective goals. There are three steps to achieving a disciplined, effective fighting force: proper organization; extensive training; and, thorough motivation. It is only after the creation of a disciplined, cohesive army that achieving victory becomes a matter of tactics and strategy. Much of *the Wuzi* discusses the means to achieve such a force.[4]

Regarding the Legalist theories of achieving desired action through the proper exercise of reward and punishment, *the Wuzi* states that rewards and punishments are, by themselves, insufficient: excessive reward may cause individuals to pursue profit and glory at the expense of the group, while excessive punishment can lower morale, in the worst cases forcing men to flee service rather than face the consequences of failure. In addition to reward and punishment, the general should inculcate (essentially pseudo-Confucian) values into his soldiers: men fighting for what they believe is a moral cause will prefer death to living ignominiously, improving the chances of success for both the individual soldier and the army as a whole. It is only with the combination of both moral focus and effective rewards and punishments that the army will become a disciplined, spirited, strongly motivated force.[5]

The Wuzi advises generals to adopt different tactics and strategy based on their assessment of battlefield situations. Factors affecting appropriate tactics and strategy include: the relative terrain and weather of the engagement; the national character of the combatants; the enemy commander's personal history and characteristics; and, the relative morale, discipline, fatigue, number, and general quality of both friendly and enemy forces. In gathering this information, and in preventing the enemy from gaining it, espionage and deception are paramount.[6]

Authorship

Because of the lack of archaeological evidence, there is no consensus among modern scholars concerning the date that *The Wuzi* was composed, and/or last modified. A work known as *Wuzi* was one of the most widely referenced books on military strategy among the records that existed in the Warring States period. (Notable contemporary records mentioning *the Wuzi* are the *Spring and Autumn Annals* and the *Han Feizi*.) Sima Qian, in his *Shiji*, equates the popularity of *the Wuzi*, in both the Warring States and the Han dynasty, with that of Sun Tzu's Art of War.[7] There is evidence that, in the Warring States, two different texts titled "*Wuzi*" existed, but (at least) one of them has been lost. The fact that large portions of the text seem to have been either lost or deliberately excised from surviving editions makes the dating of the work more challenging.[8] There is evidence both supporting the theory that much of the present text was authored in the mid-Warring States, and that it was modified after this date.

The most systematic study of the of *the Wuzi's* date of composition and authorship, based on historical references and the book's content, concludes that the core of the work was likely authored by Wu Qi himself, but was likely subject to serious losses of content, revisions, and accretions after his lifetime. This theory assumes that Wu Qi's disciples initially continued amending the text, but cannot account for some content that seems to have been inserted as late as the Han dynasty (possibly in an effort to "update" the work).[9] The following five points summarize this study's conclusions regarding *the Wuzi's* date of composition.

Historical references

The writings of Wu Qi were known to be in wide circulation by the late Warring States period. The assertion of the book's early popularity is based on the comment, from the *Han Feizi*, that "Within the borders everyone speaks about warfare, and everywhere households secretly store away the books of Sun and Wu." The *Shiji* corroborates this information. *The Wuzi* continued to be studied both by famous Han dynasty figures, and by those in the Three Kingdoms period. The record of continuous attention supports the view that was continuously transmitted from the Warring States until at least the Three Kingdoms period.[10]

Shared passages between contemporary works

The Wuzi shares both concepts and whole passages with other works dated more conclusively to the Warring States period. (The texts with which *the Wuzi* shares the greatest resemblance are the *Wei Liaozi*, Sun Bin's Art of War, and the *Six Secret Teachings*.) The close similarities that *the Wuzi* shares with other works from the Warring States period suggest that *the Wuzi* predates these other works, largely because Sun Bin's Art of War had been lost for two thousand years, so passages from Sun Bin's work could not have been lifted to forge *the Wuzi* (just prior to the Tang dynasty, as was claimed in later Chinese history.)[11]

Legalist / Confucian synthesis

The philosophical content of the work mainly consists of a synthesis between Confucianism and Legalism. The work attempts to resolve a humanistic (Confucian) concern for moral values and benevolent government with an administrative (Legalist) need for strict, predictable rewards and

punishments. The attempted synthesis between Confucian and Legalist values is common to other military treatises dated more conclusively to the Warring States period.[12]

Perspective / occupation of writer

Wu Qi was both a civil and military leader, and excelled in both occupations. This dual role was common until the early Warring States period, but disappeared in later Chinese history. The fact that *the Wuzi* was written from the perspective of an official with both civil and martial responsibilities supports the theory that it dates from the early Warring States.[13]

Archaeological support

Qing scholastic criticism discounted the possible authenticity of the text based on its mention of military practices then considered anachronous to the Warring States period. The list of items (then) considered anachronous includes: playing pipes in camp; the inclusion of terms not otherwise known to have been invented until after the Warring States; and, the appearance of certain astrological banners used by different units. Because recent archeological discoveries have confirmed that all of these "anachronous" practices existed by the Warring States, this Qing-era evidence for the Wuzi's forgery is not valid.[14]

Remaining criticisms

Remaining criticisms which the defenders of *the Wuzi's* authenticity cannot account for center on the book's description of cavalry as a major, important branch of the military. Because the use of cavalry (presumably) did not become important until the (very) late-Warring States period, the text's emphasis on cavalry implies that present editions must have been edited after Wu Qi's death (unless cavalry became important in central China much earlier than presently believed). Unless evidence is found that cavalry became important in China before c. 300 BC (the date modern scholars generally assume Cavalry became important), then either parts of the Wuzi, or the entire text, must be attributed either to the late Warring States or the early Han dynasty.

Modern scholars conclude that the most satisfying conclusion, accounting for the above facts, is that the text was substantially created by "Wu Qi himself, but that in the course of transmission and revision, later Warring States strategists (and probably Han students)... added passages on cavalry and otherwise emended some of the terminology."[15] By being a work which was the product of a famous historical figure, but amended by future generations of strategists, *the Wuzi's* composition is very similar to most of the other Seven Military Classics.

Wei Liaozi

The ***Wei Liaozi*** (simplified Chinese: 尉缭子; traditional Chinese: 尉繚子; pinyin: *Wèi Liáozi*) is a text on military strategy, one of the Seven Military Classics of ancient China.[1] It was written during the Warring States period (403-221 BC).[2]

History and authorship

The work is purportedly named after Wei Liao,[3] who is said to have either been a student of Lord Shang or an important advisor during the Qin Dynasty. However, there is little evidence to support either view. The only textual reference to Wei Liao outside of the *Wei Liaozi* is in the *Records of the Grand Historian (Shiji)*, where he is cast as an advisor to Qin Shi Huang, the youthful king of the state of Qin. Since the Wei Liaozi contains almost no actual strategy, it is thought that Wei Liao was a theoretician. Questions of authorship are further clouded by the fact that two different works of the same name appear to have been known during the Han Dynasty. The work assumed its present form around the end of the fourth century BC. A new version of the *Wei Liaozi* was discovered in 1972 at a Han Dynasty tomb in Linyi. It is more philosophical in tone than the received text, but differs significantly in only a few places.[4]

Content

The *Wei Liaozi* frequently advocates both a civil and military approach to affairs. According to the text, agriculture and people are the two greatest resources of the state, and both should be nurtured and provided for. Although the *Wei Liaozi* does not specifically mention Confucianism, the text advocates a government based on humanistic values, in line with that school of thought. The ruler should be the paradigm of virtue in the state. However, heterodoxy and other values not conducive to the state should be punished using draconian measures

Three Strategies of Huang Shigong

The ***Three Strategies of Huang Shigong*** (simplified Chinese: 黄石公三略; traditional Chinese: 黃石公三略; pinyin: *Huáng Shígōng Sān Lüè*) is a text on military strategy that was historically associated with the Han dynasty general Zhang Liang. The text's literal name is *"the Three Strategies of the Duke of Yellow Rock"*, based on the traditional account of the book's transmission to Zhang. Modern scholars note the similarity between its philosophy and the philosophy of Huang-Lao Daoism. It is one of China's Seven Military Classics.[1]

Content

As its title would suggest, *the Three Strategies of Huang Shigong* is organized into three sections, which can be interpreted as a hierarchy of importance or as simple indicators of position in the work. The work itself states that all three types of strategy are necessary for different styles of government. Much of the work is concerned with administrative control, but some important tactical concepts are also developed. Generals are placed in a high position, and must be unquestioned once they assume command. Attacks should be swift and decisive.[2]

There are three points which should be mastered:

1. Alternate hard and soft approaches. This means a leader must be both benevolent and awe-inspiring according to what is appropriate. This links to the second principle-
2. Act according to the actual circumstances. Avoid responses which are based on imagination, memory of the past, or habits acquired in other circumstances. You must rely only on observation and perception and be willing to modify plans at any time.
3. Employ only the capable. This requires an accurate insight into others.

Each of these principles have deep and various implications.[3]

Philosophical and Administrative Focus

Many of the themes and ideas present in *the Three Srategies* are similar to those found in the other Seven Military Classics. The text contains almost no direct emphasis on battlefield strategy and tactics, instead focusing on logistical concerns: "concepts of government, the administration of forces; the unification of the people; the characteristics of a capable general; methods of nurturing a sound material foundation; motivation of subordinates and the soldiers; implementing rewards and punishments"; and, how to foster majesty via the balance between hard and soft administrative practices.[4]

Philosophically, the book is a synthesis of Confucian, Legalist, and Daoist ideas. Confucian concepts present in the text include an emphasis on the importance of the commander's cultivation of benevolence (仁) and righteousness (義), humanitarian government via the promotion of the welfare of the people, rule by Virtue (德), and promotion of the Worthy (賢人). Legalist concepts present in the text include an emphasis on strengthening the state, the implementation of rewards and punishments through the strict and impartial enforcement of the law, and the assumption that power is best concentrated in a single, majestic sovereign. The book's general Daoist perspective is recognized by its emphasis on a passive, harmonious social ideal, the ideal of achieving victory without contending, the importance of preserving life, the importance of Dao and De, and the fundamental evilness of warfare. This Daoist perspective pervades the book, but is modified to reflect the complicated realities associated with involvement in politics and warfare. The text asserts that aspects of all three theories are useful for achieving good government.[5]

Military Theory

The sections of *the Three Strategies* which directly discuss military strategy and tactics emphasize quality generalship, swiftness, authority, the integration and balance of available

forces, and the relationship between hard and soft tactics. The text supports the view that, once a general assumes command, his authority must be absolute. The commander must be emotionally controlled and never display doubt or indecision. He should be receptive to advice and constructive criticism, but his decisions must ultimately be unquestioned.[6]

The text agrees with *Sun Tzu's Art of War*, arguing that speed must be emphasized in military engagements, and that long, indecisive wars of attrition must be avoided. Secrecy, unity, and righteousness must characterize the commander's decisions. Public doubts, internal dissention, divination, or anything else that would slow an army or weaken its collective commitment must never be permitted.[6]

The general must cultivate his sense of awesomeness by rigorously, severely, and systematically employing a well-known, public system of rewards and punishments. It is only when such a system is unquestioned that the commander's awesomeness and majesty will be established. Without a system of rewards and punishments, the commander will lose the allegiance of his men, and his orders will be publicly ignored and disparaged.[7]

The author confirms the Daoist belief that the soft and weak can overcome the hard and strong, and extends this belief to military strategy and tactics. *The Three Strategies* teaches that an army must adopt a low, passive posture when not directly engaged in action, in order to prevent becoming brittle, exposed, and easily overcome. The text assumes that the employment of both hard and soft tactics must be utilized by a successful army, in order to achieve the desired levels of unpredictability and flexible deployment.[8]

History and authorship

Like *the Six Secret Teachings*, the *Three Strategies* is commonly attributed to Jiang Ziya, also known as "the Taigong". However, four other theories on the origins of the work have been put forth. The first is that the text was actually written and compiled by later followers of the Taigong, rather than by the man himself. Another theory is that the man reported to have given the text to Zhang Liang, Huang Shigong, may himself have written the text. Conservative classical scholars have declared the book a forgery. The final view is that the text was written around the end of the Former Han Dynasty by a reclusive follower of the Huang-Lao school of thought.[9] Because of the absence of archaeological evidence, there is no consensus among scholars as to which of these theories is correct.

Traditional Perspective

The Three Strategies achieved its place in the canon of Chinese military writings through its historical relationship with the early Han general Zhang Liang. Its sudden, semi-legendary appearance is typical of many historical accounts from that period. According to the Shiji, while Zhang was living as a fugitive after his failed assassination of Qin Shihuang (in 218 BC), he met a nondescript old man who recognized him while they were both strolling across a bridge. The old man tested his virtue several times before finally providing him with *the Three Strategies* and identifying himself with a yellow rock at the foot of Mount Gucheng (giving the treatise its received name, "Huang Shigong", meaning "Duke of Yellow Rock"). According to the Shiji,

Zhang Liang then studied *the Three Strategies* and used its teachings to assist him in his future military accomplishments.[10] A somewhat tenuous source from the Song dynasty claims that Zhang ordered that *the Three Strategies* be entombed with him upon his death in order to prevent its transmission to the unworthy, and that the work was only rediscovered in the Jin dynasty by grave robbers.[11]

Scholars who believe the traditional account of *the Three Strategies'* transmission trace its origins directly back to the Taigong, assuming that it was written after *the Six Secret Teachings*, after Jiang Ziya was enfeoffed as Duke of Qi. This theory assumes that the old man who gave the book to Zhang must have been a descendant of Jiang and/or a retired scholar of the recently conquered state of Qi. His action of giving the book to a young fugitive known to have attempted the assassination of Qi's conqueror is explained as an understandable and appropriate gesture.[12]

Alternative Perspectives

An alternative interpretation to the traditional theory is that the work was the product of the Taigong's disciples, growing and evolving around a core of material dating from antiquity until finally being compiled and revised shortly before Qi's conquest by Qin, in 221 BC. A third theory is that, rather than having anything to do with the Taigong, Huang Shigong simply wrote the work himself shortly before giving it to Zhang Liang. Supposedly, this accounts for the book's nominal early-Han Dynasty Daoist perspective. Another theory, historically identified with conservative literati in late Chinese history, is that the work is a forgery dating from the Wei-Jin period (or later). Typical condemnations by scholars associated with this theory are that the work's Daoist perspective is "empty", that its content is "brutal", and that its language is "rustic".[13]

Most Probable Perspective?

A final theory holds that *the Three Strategies* dates from the late West Han Dynasty (206 BC - 9 AD), around the year 1 AD, and that it is a product of the now-extinct Huang-Lao school of Daoism. This theory assumes that the work transmitted to Zhang Liang was not the present *Three Strategies*, but was actually *the Six Secret Teachings*. (The work presently known as *the Three Strategies of Huang Shigong* was supposedly known as *the Records of Huang Shigong* until the Sui dynasty, accounting for this confusion). According to this theory, the late composition date accounts for the numerous references to political circumstances (powerful families usurping power; government affairs in an age of peace; and, philosophical syncretism organized around Huang-Lao concepts) and the advanced use of characters found in the text. In the absence of contrary archaeological evidence, many modern scholars consider this final theory to be the most probable

Questions and Replies between Tang Taizong and Li Weigong

Questions and Replies between Tang Taizong and Li Weigong (simplified Chinese: 唐太宗李卫公问对; traditional Chinese: 唐太宗李衛公問對; pinyin: *Táng Tàizōng Lǐ Wèi Gōng Wèn Duì*) is a dialogue between Emperor Taizong (599-649 AD) of the Tang Dynasty and Li Jing (571-649 AD), a prominent Tang general. It discusses matters of military strategy, and is considered to be one of the Seven Military Classics of China.[1]

Content

The content of *Questions and Replies* differs strongly from the other six Military Classics. The armies that existed by the time of the Tang dynasty consisted of infantry, crossbowmen, and cavalry. The use of the chariot had long since ceased to have any military application, and weapons were exclusively made from iron and steel. Large number of local, cohesive units provided a great degree of flexibility to large-scale deployments. Professional units were supplemented by disciplined and well-armed conscript forces. Weapons and unit sub-types were highly specialized. The recognition of the military value of speed and mobility was widespread, with flanking and other indirect maneuvers preferred over direct, frontal engagements.[2]

The social and technological realities from which *Questions and Replies* was written were very different from the other six Military Classics. Rather than claiming to originate its own strategy, *Questions and Replies* frames itself as a survey of earlier, more widely recognized works, discussing their theories and contradictions according to the writer's own military experience. Because Li Jing was a historically successful general, the tactics and strategies discussed in *Questions and Replies* must be considered the theoretical product of actions tested and employed in battles critical to the establishment of the Tang dynasty, if it is indeed wholly or even partly the product of Li Jing's thoughts.[3]

History and Authenticity

The historical evidence for *Questions and Replies'* authorship is unclear, but the available evidence largely refutes the tradition attributing it directly to Li Jing. Based on its earliest surviving bibliographical references, most modern historians consider *Questions and Replies* to be the product of either the late Tang (618-907 AD) or early Song (960-1279 AD) dynasties.[3] Unlike other military classics, the history of *Questions and Replies* has not benefitted from any significant archaeological discoveries, so the date of its composition can only be inferred by surviving historical records concerning the treatise.[4] There is no consensus among scholars regarding the precise date of its composition.

Evidence of Forgery

Most available data points to a composition date in the North Song dynasty (960–1127). Bibliographies from the Tang and Song dynasties contain references to seven other works attributed to Li Jing, but no reference to *Questions and Replies*. A major work (the *"Dong Tian"*) completed in the eighth century AD quotes Li Jing extensively, but never once mentions "Questions and Replies". Because of the lack of earlier reference to *Questions and Replies*, and because of references from some Northern Songs scholars claiming to have seen drafts of *Questions and Replies* by a contemporary military scholar named "Yuan Yi", many scholars believed that *Questions and Replies* was forged by Yuan Yi in the early Song dynasty. If *Questions and Replies* was created by Yuan Yi, it is not clear if the military theories found in *Questions and Replies* are actually the opinions of Li Jing, taken from other sources and compiled by Yuan Yi to form the present text, or if they are Yuan Yi's original thoughts, using the veneer of Li Jing's speech in order to promote the acceptance of his theories.[5]

Evidence of Authenticity

There is some evidence discrediting the theory that Yuan Yi forged the text. Previous to the compilation of the Seven Military Classics, the Song Emperor Shenzong (r.1068-1085) ordered the study and exegesis of a *"Li Jing Bing Fa"* (*"Li Jing's Military Methods"*). Assuming that this *Li Jing Bing Fa* was an edition of *Questions and Replies*, the existence of the book precedes the supposed date of Yuan Yi's forgery by ten years. Skepticism that every living general and military scholar could have been deceived by a very recent forgery also fails to support the theory that *Questions and Replies* was forged by Yuan Yi.[6]

Conclusion

Regardless of its author and date of authorship, modern military historians recognize the theoretical advances it represents over the other six Military Classics, and recognize that it must be the creation of an advanced and experienced military strategist. The available evidence seems to indicate that it most likely achieved its present form around the time of the Song Emperor Shenzong's reign, possibly at his mandate. If it is a forgery, scholars have been unable to identify the source or sources that the present edition of *Questions and Replies* was drawn from

Ji Xiao Xin Shu

The book **Ji Xiao Xin Shu** (紀效新書, aka. Chi-hsiao hsin-shu) was written by the Chinese general Qi Jiguang (戚继光) of the Ming Dynasty. The title can be translated as *New Book Recording Effective Techniques*.

In the book Qi Jiguang writes about strategy, armed and unarmed fighting and many other aspects of warfare. It also set certain standards for the forging of weapons, this is what he wrote about the forging of the short sword:

> “ The following steps in the manufacturing process of the short sword are necessary:
>
> 1. The material of iron used must be forged many times (that is heated, hammered and folded numerous times).
> 2. The cutting edge must be made from the best steel, free of impurities.
> 3. The entire part of the blade where the back or ridge of the blade joins the cutting edge must be filed so that they appear seamlessly joined together. This process is necessary to enable the sword to cut well. ”

It was also general Qi who promoted the training of unarmed techniques (quan fa). He didn't see much use in it on the battlefield, but thought it provided a good basic training for his soldiers.

Mandarin Duck Formation

In the Ji Xiao Xin Shu general Qi introduces the so-called 'Mandarin Duck Formation' (Yuan Yang Zhen, 鸳鸯阵). This formation consisted of a unit of eleven soldiers and one person for logistics.

1. 1 squad leader (with the squad flag) (队长)
2. 2 men with sabers and rattan shields (盾牌手)
3. 2 men with multiple tip bamboo spears (狼筅手)
4. 4 men with long spears (长枪手)
5. 2 men with tridents or swords (短兵手)
6. 1 cook/porter (logistical personnel) (负责伙食的火兵)

This squad was drilled in coordinated and mutually-supportive fighting with clearly defined roles for everyone. In a smallest fighting unit of 5 men (excluding the squad leader), there are the following roles:

1. One multiple tip bamboo spearman attached to one saber-and-shield man to protect him by entangling the Japanese pirate and his weapon, should the saber-and-shield man become vulnerable during combat.....
2. 2 spearmen to thrust at the enemy should the multiple tip bamboo spearman become vulnerable.
3. The saber-and-shield man to protect the spearmen should they themselves become overextended and vulnerable.
4. The trident man would act as a supportive backup.

If the squad leader was killed in battle, the whole squad would be put to death.

Editions

There are two editions of Ji Xiao Xin Shu. The first edition, written around 1560-1561, consists of 18 chapters, and is thus also known as the 18 chapter edition. The later edition, re-edited and also including some new material, had a total of 14 chapters, and was known as the 14 chapter edition. It was published in 1584 around the time of General Qi's retirement.

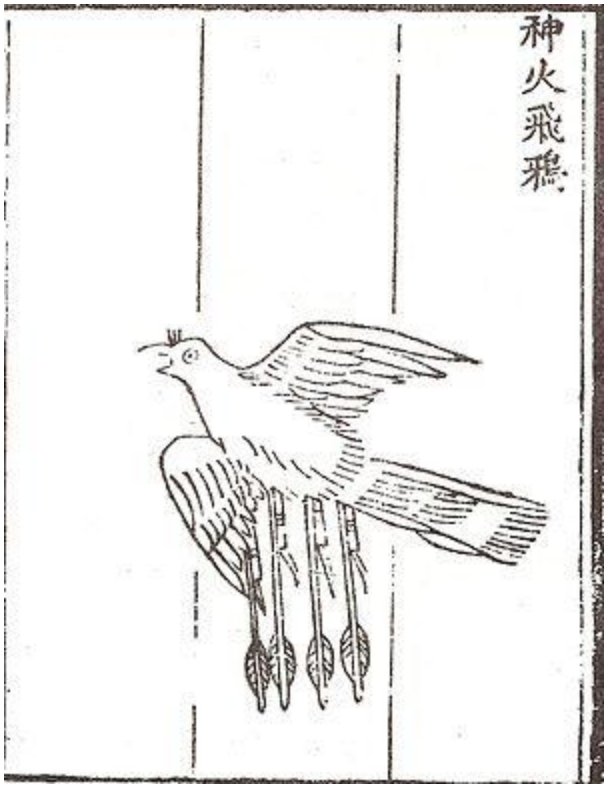
Influence

In the 16th century the *Ji Xiao Xin Shu* (14 chapter edition) served as an example for the Korean martial manual called Mu Ye Je Bo.

In Japan the book was published several times, both in the 14 and 18 chapter edition.

Some methods from the Ji Xiao Xin Shu are written in the Heiho Hidensho(Okugisho) a Japanese strategy book written by Yamamoto Kanasuke in the 16th century

Huolongjing



The 'Flying Crow with Magic Fire', an aerodynamic winged rocket bomb from the *Huolongjing*

The ***Huolongjing*** (traditional Chinese: 火龍經; simplified Chinese: 火龙经; pinyin: *Huǒ Lóng Jīng*; Wade-Giles: ***Huo Lung Ching***; rendered by its translator into English as ***Fire Drake Manual***; in modern English, ***Fire Dragon Manual***) is a 14th-century military treatise that was compiled and edited by Jiao Yu and Liu Ji of the early Ming Dynasty (1368–1644 AD) in China. It outlined the use of various 'fire–weapons' involving the use of gunpowder.

The *Huolongjing* provided information for various gunpowder compositions, including 'magic gunpowder', 'poison gunpowder', or 'blinding and burning gunpowder'. It had descriptions of the Chinese hollow cast iron grenade bomb, shrapnel bombs, and bombs with poisonous concoctions. The book had descriptions of the 10th-century Chinese fire arrow, a simple wooden arrow with a spherical soft casing attached to the arrow and filled with gunpowder, ignited by a fuse so that it was propelled forward (and provided a light explosion upon impact). However, the book explained how this simple 'fire arrow' evolved into the metal-tube launched rocket. The book provided descriptions of various rocket launchers that launched tons of rockets at a time, the advent of the two stage rocket having a booster rocket igniting a swarm of smaller ones that were shot from the mouth of a missile shaped like a dragon, and even fin–mounted winged rockets. The book described the use of explosive land mines and descriptions of explosive naval mines at sea and on the river; this incorporated the use of a complex trigger mechanism of falling weights, pins, and a steel wheel lock to ignite the train of fuses. The book described various proto–guns including the fire lance (a short-burst flame-thrower that emitted a charge of shrapnel), multiple metal barrel handguns (with up to ten barrels), and descriptions of handguns with possible serpentine locks, used as components in matchlock firearms. The book provided descriptions of the early bombard and cannon, including the use of hollow gunpowder–packed exploding cannonballs, cannon barrels filled with metal balls containing poisonous gunpowder solutions, and cannons that were mounted on wheeled carriages so that they could be rotated in all directions.

Although Jiao Yu did not provide the book's preface until the Nanyang publication of 1412 AD,[1] the book was previously published in the 14th century (written before Liu Ji died on May 16, 1375), and was a compilation of material written since the late 13th century.[2] From his own personal accounts Jiao Yu also described gunpowder weapons that were used since 1355 AD, with his involvement in the Red Turban Rebellion and revolt against Yuan Dynasty Mongol rule.[3]

By the 15th century, European innovations in firearms, cannons, and other gunpowder weapons began to surpass Chinese innovation that was made in the 14th century. This included the European breech–loading gun and culverin, the wheellock musket, and then the flintlock musket of the mid 17th century. By the late 16th century, the Chinese adopted Western-style muskets while employing Ottoman Turkish style firing positions.

Gunpowder warfare and weapons

See also: History of gunpowder

Firearms and flamethrowers

The *phalanx-charging fire-gourd*, one of many fire lance types discharging lead pellets in the gunpowder blast, an illustration from the *Huolongjing*.

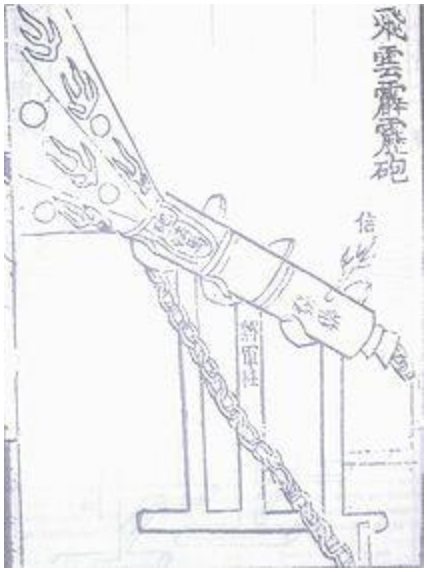
A small bronze cannon dated to the Ming Dynasty, on display at Beijing's Capital Museum

The military treatise of Jiao Yu and Liu Ji went into a great amount of detail on the gunpowder weapons of their time. The fire lance and fire tube (i.e. a combination of a firearm and flamethrower)[4] came in many different versions and were styled with many different names by the time Jiao Yu edited the *Huolongjing*.[5] The earliest of these were made of bamboo tubes, although the earliest transition to metal was made in the 12th century.[5] Others, according to description and illustrated pictures of the *Huolongjing*, emitted arrows called the 'lotus bunch' accompanied by a fiery blast.[6] Some of these low–nitrate gunpowder flamethrowers used poisonous mixtures, including arsenious oxide, and would blast a spray of porcelain bits as shrapnel.[7][8] The earliest depiction of a fire lance is dated c. 950 AD, a Chinese painting on a silk banner found at the Buddhist site of Dunhuang.[9] Furthermore, the oldest existent bronze

handgun is from the Heilongjiang archeological excavation, dated to 1288 AD.[10] For that year, the *Yuan Shi* historical text describes the rebellion of the Christian Mongol prince Nayan and the Jurchen-born military commander Li Ting who, along with a Korean brigade conscripted by Kublai Khan, suppressed Nayan's rebellion by using foot soldiers armed with handguns and portable bombards.[11] The earliest metal barrel guns were not designed for high–nitrate gunpowder and a bore–filling projectile; rather, they were designed for the low–nitrate flamethrower fire lance that shot small co–viative missiles.[12] This was called the 'bandit–striking penetrating gun' (ji zei bian chong), and was illustrated in a drawing of the *Huolongjing*.[12] In the Islamic world the fire lance first appears in a book of 1280, written by Hasan al–Rammah, and again appears in a manuscript of 1320.[13] In Europe the first representation of the fire lance is of a horse–mounted knight wielding the weapon in a Latin manuscript illustration dated to 1396,[14] and also appeared in an illustration of Taccola's *De Mechinis* (1449). The *Huolongjing* also described and illustrated metal–barrel handguns as well, including guns with three barrels, five barrels, six barrels, and even up to ten barrels.[15] Furthermore, it described the use of a 'match–holding lance gun' (chi huo–sheng qiang), it described its arrangement as a match brought down to the touch hole of three gun barrels one after the other.[16] During the reign of the Yongle Emperor (1402–1424 AD), the Shenji Brigade was formed, with cavalry horses that were said to have tubes filled with flammable materials holstered to their sides, along with troops with firearms and light artillery on carriages.[17]

In addition to firearms and fire lances, the Huolongjing also illustrated the tall vertical mobile shield to hide and protect infantry gunmen, known as the 'mysteriously moving phalanx–breaking fierce–flame sword–shield'.[18] This large rectangular shield would have been mounted on wheels, with five rows of six circular holes each where the gun barrels could be placed, and the shield itself would have been accompanied by swordsmen on either side to protect the gunmen.[18]

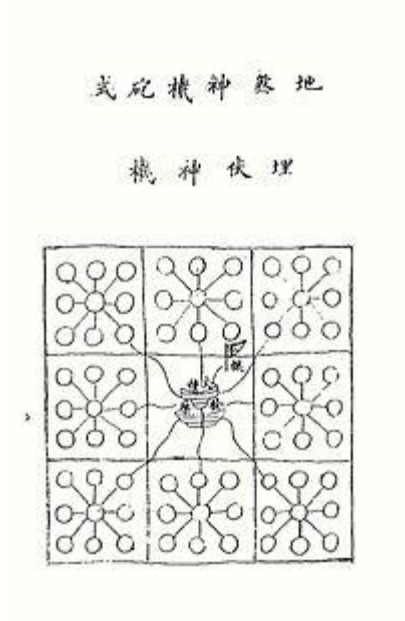
Bombards and cannons



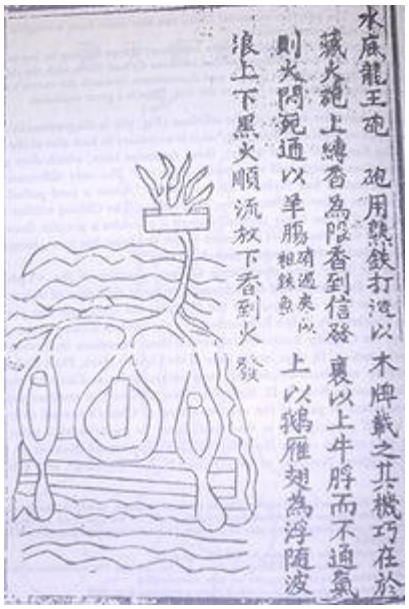
The 'flying-cloud thunderclap-eruptor' cannon from the *Huolongjing*.

In China, the first cannon–barrel design portrayed in artwork was a stone sculpture dated to 1128 AD, found in Sichuan province,[19] although the oldest archeological discovery of a cannon is a bronze cannon of China inscribed with the date "2nd year of the Dade era, Yuan Dynasty" (1298 AD). The prototype to the metal barrel was of course one made of bamboo, which was recorded in use by a Chinese garrison commander at Anlu, Hubei province, in the year 1132.[20] One of the earliest references to the destructive force of a cannon in China was made by Zhang Xian in 1341, with his verse known as *The Iron Cannon Affair*.[21] Zhang wrote that its cannonball could "pierce the heart or belly when it strikes a man or horse, and can even transfix several persons at once."[21] Jiao Yu wrote that the cannon, called the 'eruptor', was cast in bronze, and had an average length of 4 ft and 5 in.[22] He wrote that some cannons were simply filled with 100 or so lead balls, but others had large rounds that produced a bursting charge upon impact, called the 'flying–cloud thunderclap eruptor' (飞云霹雳炮; feiyun pili pao).[22] He wrote of how the Chinese in his day had figured out how to pack hollow cast iron shells of cannonballs with gunpowder to create an explosive effect upon contact with enemy targets.[22] In perspective, exploding cannonball rounds were not discovered in Europe until the 16th century.[23] Furthermore, he noted the use of the 'poison–fog magic smoke eruptor', where 'blinding gunpowder' and 'poisonous gunpowder' were packed into the hollow cannonball shells, and were effective in burning the faces and eyes of enemies, along with choking them with a formidable spray of poisonous smoke.[24] He wrote that cannons were mounted on frames or on wheeled carriages, so that they could be rotated in all directions.[25]

Land mines and naval mines



land mines in Huolongjing



A drawn illustration of a naval mine and page description from the *Huolongjing*.

The first recorded use of a land mine stated that the officer Lou Qianxia of the late Song Dynasty created them in order to kill invading Mongol troops in 1277 AD.[26] Jiao Yu wrote that land mines were spherical in shape, made of cast iron, and their fuses ignited by the enemy movement disturbing a trigger mechanism.[27] Although his book did not elaborate on the trigger mechanism, a late Ming Dynasty book of 1606 AD revealed that a complex system of a pin release, dropping weights, and chords and axles worked to rotate a spinning 'steel wheel' that acted as a flint to provide sparks that ignited the mines' fuses underground.[28] For the use of naval mines, he wrote of slowly burning joss sticks that were disguised and timed to explode against enemy ships floating nearby:

> The sea–mine called the 'submarine dragon–king' is made of wrought iron, and carried on a (submerged) wooden board, [appropriately weighted with stones]. The (mine) is enclosed in an ox–bladder. It subtlety lies in the fact that a thin incense(–stick) is arranged (to float) above the mine in a container. The (burning) of this joss stick determines the time at which the fuse is ignited, but without air its glowing would of course go out, so the container is connected with the mine by a (long) piece of goat's intestine (through which passes the fuse). At the upper end the (joss stick in the container) is kept floating by (an arrangement of) goose and wild–duck feathers, so that it moves up and down with the ripples of the water. On a dark (night) the mine is sent downstream (towards the enemy's ships), and when the joss stick has burnt down to the fuse, there is a great explosion.[29]

In the later *Tiangong Kaiwu* ('The Exploitation of the Works of Nature') treatise, written by Song Yingxing in 1637 AD, the ox bladder described by Jiao Yu is replaced with a lacquer bag

instead, along with a cord pulled from a hidden ambusher located on the nearby shore, which would release a flint steel–wheel firing mechanism to ignite the fuse of the naval mine.[30]

Gunpowder and explosives

Suenaga facing Mongol arrows and gunpowder bombs during the Mongol invasions of Japan in 1281 AD, painting dated to 1293 AD.

There were several gunpowder compositions proposed by Jiao Yu, with additions to the standard formula of saltpetre, sulphur, and charcoal by adapting gunpowder weapons to early chemical warfare. He described the suitable uses of 'magic gunpowder', 'poison gunpowder', or 'blinding and burning gunpowder' in warfare, which displays the various amounts of compositions used in his time.[31] For the making of poisonous gunpowder in hand–lobbed or catapult–launched grenade bombs,[8] he advised that a mixture of tung oil, urine, sal ammoniac, feces, and scallion juice be heated and then coated upon dozens of tiny iron pellets and bits of broken porcelain.[32] For this, Jiao Yu wrote "even birds flying in the air cannot escape the effects of the explosion".[32] His book also outlined the use of the 'flying–sand magic bomb releasing ten thousand fires'. This included the use of a tube of gunpowder put into an earthenware pot that was previously filled with quicklime, resin, and alcoholic extracts of poisonous plants, which would be released in the explosion.[33] It is important to note that during the 14th century, Chinese gunpowder solutions had reached their maximum explosive potential, with levels of nitrate ranging from 12% to 91% and at least 6 formulas in use by the Chinese that were considered to have maximum explosive force.[34] This also came about due to the enrichment of sulfur from pyrite extracts during the earlier Song Dynasty period,[35] while Chinese gunpowder formulas by the late 12th century and at least by 1230 AD were potential enough for explosive detonations and bursting cast iron shells.[36] The root of all this was the Chinese military handbook written in 1044 AD, the *Wujing Zongyao*; it outlined the earliest use of formulas for gunpowder, employed in bombs hurled by catapults.[36][37] Later, Wei Xing (d. 1164) of the Song Dynasty was said to have created a gunpowder formula of saltpetre, sulphur, and willow charcoal for his projectile carriages launching 'fire–stones' up to 400 yards.[38]

Earliest known representation of a gun (a fire lance) and a grenade (upper right), from the cave murals of Dunhuang, 10th century.

Although its destructive force was widely recognized even by the 11th century, the Chinese had earlier termed gunpowder as a 'fire–drug' (huo yao), due to Chinese beliefs in its pharmaceutical properties.[39] Its valuable use in festival entertainment could be seen in fireworks displays, such as the martial demonstration in 1110 AD to entertain the court of Emperor Huizong, with dancers in strange costumes moving through clouds of colored smoke.[39] Leading up to its 10th century use with Fire Arrows and in fuses for igniting flamethrowers shooting Greek Fire, Daoist alchemists had experimented with various black-powder solutions in the Han Dynasty and Tang Dynasty.[40] After the *Wujing Zongyao* of 1044 had explicitly stated formulas for gunpowder, the Chinese government became frightened that its use could fall into the hands of surrounding enemies at the borders, and in 1076 enacted a strict governmental monopoly over the production and distribution of sulfur.[41] Although saltpetre was a central component of the 'fire–drug' and a flavor enhancer for food during the Tang and Song periods,[42] in 1067 the Song government banned the people of modern Shanxi and Hebei provinces to sell foreigners both sulfur and saltpetre in any form.[43] While engaged in a war with the Mongols, in the year 1259 the official Li Zengbo wrote in his *Ko Zhai Za Gao, Xu Gao Hou* that the city of Qingzhou was manufacturing one to two thousand strong iron-cased bomb shells a month, dispatching to Xiangyang and Yingzhou about ten to twenty thousand such bombs at a time.[44]

Fire arrows and rockets

Model of an early 15th-century Korean hwacha, a two–wheeled cart rocket launcher that fires singijeons.

For the earliest fire arrows launched from bows (not rocket launchers), Jiao Yu had termed these "fiery pomegranate shot from a bow". The term pomegranate stemmed from the fact that the lump of gunpowder–filled paper wrapped round the arrow just below the metal arrow–head resembled the shape of a pomegranate.[45] (This is also the origin of the English term for the modern equivalent, named after the French word for pomegranate: *grenade*.) Jiao Yu advised that a piece of hemp cloth should be used to strengthen the wad of paper, and then sealed fast with molten pine resin.[46] Although he described the fire arrow in great detail, it was mentioned by the much earlier Xia Shaozeng, when 20000 fire arrows were handed over to the Jurchen conquerors of Kaifeng City in 1126 AD.[46] An even earlier Chinese text of the *Wujing Zongyao* (武经总要, "Collection of the Most Important Military Techniques"), written in 1044 AD by the Song scholars Zeng Gongliang and Yang Weide, described the use of three spring or triple bow arcuballista that fired arrow bolts holding gunpowder.[46] Although written much later in 1630 (second edition in 1664), the *Wulixiaoshi* of Fang Yizhi asserted that fire arrows were presented to Emperor Taizu of Song in 960 AD.[47] Even after the rocket was invented in China the fire arrow continued in use; this could be seen in the Second Opium War, where Chinese used fire arrows against the French in 1860.[48]

By the time of Jiao Yu, the term 'fire arrow' had taken on a whole new meaning and incorporated what were the earliest rockets found in China.[8][49] The simple transition of this was to use a hollow tube (of bamboo or metal) instead of a bow or ballista firing gunpowder–impregnated fire arrows. The historian Joseph Needham asserts that this fundamental discovery came sometime before Jiao Yu, however, during the late Southern Song Dynasty (1127–1279 AD).[49] From the section of the oldest passages in the *Huolongjing*,[49] the text reads:

> “One uses a bamboo stick 4 ft 2 in long, with an iron (or steel) arrow–head 4.5 in long...behind the feathering there is an iron weight 0.4 in long. At the front end there is a carton tube bound on to the stick, where the 'rising gunpowder' is lit. When you want to fire it off, you use a frame shaped like a dragon, or else conveniently a tube of wood or bamboo to contain it.[49]”

A multistage rocket from the *Huolongjing*, it may be regarded as an ancestor to the modern exocet.

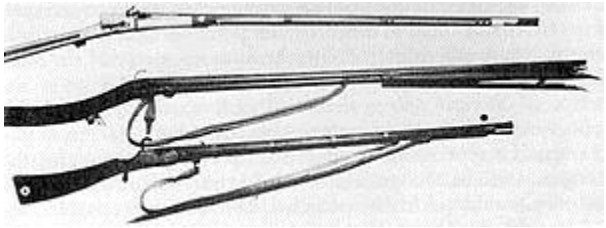
In the late 14th century, the Chinese had figured out how to combine the rocket launching tube with the fire lance.[50] This involved three tubes attached to the same staff, and as the first rocket tube was fired, a charge was ignited in the leading tube which expelled a blinding lachrymatory powder at the enemy, and finally the second rocket was fired.[50] A depicted illustration of this was featured in the publication of the *Huolongjing*, where it described the effectiveness of this weapon to confuse the enemy of where the rockets were fired from.[50] Apart from these hand–held rocket launchers, the *Huolongjing* also provided description and illustration for two different kinds of mounted rocket launchers that featured the firing of multiple rockets.[51] There was a cylindrical basket–work rocket launcher called the 'Mr. Facing–both–ways rocket arrow firing basket', as well as an oblong–section rectangular box rocket launcher known as the 'magical rocket–arrow block'.[52] Rockets described in the *Huolongjing* weren't all in the shape of standard fire arrows, however, as there were some that had artificial wings attached.[53][54] An illustration of this was provided, showing that fins were clearly used to increase aerodynamic stability for the flight path of the rocket,[54][55] which according to Jiao Yu could rise hundreds of feet before landing at the designated enemy target.[54][56]

From an illustration and description in the *Huolongjing* is the oldest known multistage rocket; this was the 'fire–dragon issuing from the water' (huo long chu shui), used mostly by the Chinese navy.[57][58] It was a two–stage rocket that had carrier or booster rockets that would eventually burn out, yet before they did they automatically ignited a number of smaller rocket arrows that were shot out of the front end of the missile, which was shaped like a dragon's head with an open mouth.[57][58] This multistage rocket may be considered the ancestor to the modern cluster munitions.[57][58] Needham points out that the written material and depicted illustration of this rocket come from the oldest stratum of the *Huolongjing*, which can be dated roughly 1300–1350 AD (from the book's part 1, chapter 3, page 23).[57]

Historical perspective

Chinese handgun from the Yuan Dynasty era, 1279-1368.

Gunpowder warfare found its birthplace in medieval China and underwent some stages of technological advancement over the preceding dynasties, however, its technological and methodical perfection would occur outside of it. Although the inventions and written work of Jiao Yu and the Chinese 'fire–weapons' of his time revolutionized warfare in China, there wasn't an incredible amount of Chinese innovation in gunpowder weapons (i.e. firearms, cannons, etc.) during the 15th century onwards. With no significant enemies to combat, there was no need to advance gunpowder weaponry; this is in stark contrast to the competitive European environment, in which failing to adopt and improve gunpowder technology meant conquest by your neighbors.[59] When the Portuguese arrived in China during the early 16th century, they were mostly not very impressed with Chinese firearms in comparison to their own.[59] With the continual progression of the earliest European arquebus, to the matchlock, to the wheellock, and then the advent of the flintlock musket of the 17th century, they surpassed the level of earlier Chinese innovation.[60] The Chinese of the late Ming Dynasty would even adopt the Ottoman Turkish matchlockman's kneeling position, while purchasing European firearms for their infantry musketeers.[61] Illustrations of Ottoman and European riflemen with detailed illustrations of their weapons appeared in Zhao Shizhen's book *Shenqipu* of 1598 AD.[62]



Chinese Ming Dynasty (1368–1644 AD) era matchlock firearms featuring serpentine levers.

A bronze breech-loading cannon from the Ming Dynasty

Although not perfected until the 19th century with the cartridge of Samuel Johannes Pauly in 1809, Johann Nikolaus von Dreyse's 'Needle Gun' in 1836, and the steel–cast Krupp cannon in the 1850s, the history of the European breech–loading gun spans back to the late 14th century, the earliest models found in Burgundy.[63] Before the improvements by those mentioned above, these early breech loading rifles and cannons were somewhat unsatisfactory due to serious loss of gas when firing, resulting in the decreased force of the propellant.[64] Nevertheless, the 16th century breech–loading model entered China around the time that the Portuguese embassy of Fernão Pires de Andrade came to China in 1517 and was eventually rejected; Portuguese and Chinese ships battled near Tuen Mun in 1521 and the Portuguese were repelled by the Ming Dynasty navy.[65] These hostilities began when the Malacca Sultanate (a tributary vassal loyal to the Ming) was defeated and conquered by the Portuguese under Afonso de Albuquerque in 1511,[66] and in the process slaughtered a large community of Chinese merchants living there.[67] In 1523 the Chinese navy captured two Western ships with Portuguese breech–loading culverins aboard, which the Chinese called a *folangji* (佛郎機; meaning either a Frank or Frankish culverin).[68] According to the *Ming Shi*, these cannons were soon presented to the Jiajing Emperor by Wang Hong, and their design was copied in 1529 AD.[65] The Frankish culverin was first illustrated in China in a drawing of a Chinese book published in 1562.[69] However, earlier Ming records indicate that it was actually the War Ministry official He Ru who first acquired these guns in 1522, while copies of them were made by two Westernized Chinese at Beijing, Yang San (Pedro Yang) and Dai Ming.[70] In an even earlier account of Wang Yangming (1472–1529), the philosopher and governor of Jiangxi, he intended to use *folangji* cannons in suppressing the rebellion of Prince Zhu Chenhao in 1519 AD.[70] In any case, the arrival of the breech loading rifle and cannon into China signified the beginning of continual European influence upon Chinese firearms and artillery.[70] However, in describing different metals used for cannons, it was Song Yingxing who wrote in his encyclopedia of 1637 that both foreign and uniquely native gunpowder weapons were employed:

> Refined copper is used in the casting of Western-ocean cannon, the Red-hair barbarian cannon, and the French cannon. Equal amounts of refined and raw [or blister] copper are used in making

such arms as signal guns and muskets. For making guns like Xiangyang, Zhankou, First General and Second General, iron is used

Thirty-Six Stratagems

The ***Thirty-Six Stratagems*** was a Chinese essay used to illustrate a series of stratagems used in politics, war, as well as in civil interaction.

The Stratagems are often misnamed as strategies; however, a stratagem (synonymous with ruse) is not the same thing as a strategy (being a long-term plan or outline).

Contents

Origin

The Thirty-Six Stratagems

The name of the collection comes from the *Book of Qi*, in its seventh biographical volume, *Biography of Wáng Jìngzé* (王敬則傳／王敬则传).[1] Wáng was a general who had served Southern Qi since the first Emperor Gao of the dynasty. When Emperor Ming came to power and executed many members of the court and royal family for fear that they would threaten his reign, Wáng believed that he would be targeted next and rebelled. As Wáng received news that Xiao

Baojuan, son and crown prince of Emperor Ming, had escaped in haste after learning of the rebellion, he commented that "of the thirty-six stratagems of Lord Tán, retreat was his best, you father and son should run for sure."[2] Lord Tán here refers to general Tan Daoji of the Liu Song Dynasty, who was forced to retreat after his failed attack on Northern Wei, and Wáng mentioned his name in contempt as an example of cowardice.[3]

It should be noted that the number thirty-six was used by Wáng as a figure of speech in this context, and is meant to denote *numerous stratagems* instead of any specific number. Wáng's choice of this term was in reference to the I Ching, where six is the number of Yin that shared many characteristics with the dark schemes involved in military strategy. As thirty-six is the square of six, it therefore acted as a metaphor for *numerous strategies*.[3] Since Wáng was not referring to any thirty-six specific stratagems however, the thirty-six proverbs and their connection to military strategies and tactics are likely to have been created after the fact, with the collection only borrowing its name from Wáng's saying.[4]

The *Thirty-Six Stratagems* have variably been attributed to Sun Tzu from the Spring and Autumn Period of China, or Zhuge Liang of the Three Kingdoms period, but neither are regarded as the true author by historians. Instead, the prevailing view is that the *Thirty-Six Stratagems* may have originated in both written and oral history, with many different versions compiled by different authors throughout Chinese history. Some stratagems reference occurrences in the time of Sun Bin, approx. 150 years after Sun Wu's death.[4]

The original hand-copied paperback that is the basis of the current version was believed to have been discovered in China's Shaanxi province, of an unknown date and author, and put into print by a local publisher in 1941. The *Thirty-Six Stratagems* only came to the public's attention after a review of it was published in the Chinese Communist Party's Guangming Daily newspaper on September 16, 1961. It was subsequently reprinted and distributed with growing popularity.[4]

The *Thirty-Six Stratagems* are divided into a preface, six chapters containing six stratagems each, and an afterword that was incomplete with missing text. The first three chapters generally describe tactics for use in advantageous situations, whereas the last three chapters contain stratagems that are more suitable for disadvantageous situations. The original text of the *Thirty-Six Stratagems* has a laconic style that is common to Classical Chinese. Each proverb is accompanied by a short comment, no longer than a sentence or two, that explains how said proverb is applicable to military tactics. These 36 Chinese proverbs are related to 36 battle scenarios in Chinese history and folklore, predominantly of the Warring States period and the Three Kingdoms Period.

Chapter 1: Winning Stratagems

- (勝戰計)

Deceive the heavens to cross the ocean

- (瞞天過海／瞞天过海, Mán tiān guò hǎi)

- Mask your real goals, by using the ruse of a fake goal, until the real goal is achieved. Tactically, this is known as an 'open feint': in front of everyone, you point west, when your goal is actually in the east.

*Besiege **Wèi** to rescue **Zhào***

- (圍魏救趙／围魏救赵, Wéi Wèi jiù Zhào)
- When the enemy is too strong to be attacked directly, then attack something he holds dear. Know that he cannot be superior in all things. Somewhere there is a gap in the armour, a weakness that can be attacked instead. The idea here is to avoid a head on battle with a strong enemy, and instead strike at his weakness elsewhere. This will force the strong enemy to retreat in order to support his weakness. Battling against the now tired and low-morale enemy will give a much higher chance of success.

Kill with a borrowed sword

- (借刀殺人／借刀杀人, Jiè dāo shā rén)
- Attack using the strength of another (in a situation where using one's own strength is not favourable). Trick an ally into attacking him, bribe an official to turn traitor, or use the enemy's own strength against him. The idea here is to cause damage to the enemy by getting a 3rd party to do the deed.

Wait at leisure while the enemy labors

- (以逸待勞／以逸待劳, Yǐ yì dài láo)
- It is an advantage to choose the time and place for battle. In this way you know when and where the battle will take place, while your enemy does not. Encourage your enemy to expend his energy in futile quests while you conserve your strength. When he is exhausted and confused, you attack with energy and purpose. The idea is to have your troops well-prepared for battle, in the same time that the enemy is rushing to fight against you. This will give your troops a huge advantage in the upcoming battle, of which you will get to select the time and place.

Loot a burning house

- (趁火打劫, Chèn huǒ dǎ jié)
- When a country is beset by internal conflicts, when disease and famine ravage the population, when corruption and crime are rampant, then it will be unable to deal with an outside threat. This is the time to attack. Keep gathering internal information about an enemy. If the enemy is currently in its weakest state ever, attack it without mercy and totally destroy it to prevent future troubles.

Make a sound in the east, then strike in the west

- (聲東擊西／声东击西, Shēng dōng jī xī)
- In any battle the element of surprise can provide an overwhelming advantage. Even when face to face with an enemy, surprise can still be employed by attacking where he least expects it. To

do this you must create an expectation in the enemy's mind through the use of a feint. The idea here is to get the enemy to focus his forces in a location, and then attack elsewhere which would be weakly defended.

Chapter 2: Enemy Dealing Stratagems

- (敵戰計)

Create something from nothing

- (無中生有／无中生有, Wú zhōng shēng yǒu)
- A plain lie. Make somebody believe there was something when there is in fact nothing. One method of using this strategy is to create an illusion of something's existence, while it does not exist. Another method is to create an illusion that something does not exist, while it does.

Openly repair the gallery roads, but sneak through the passage of Chencang

- (明修棧道,暗渡陳倉／明修栈道,暗渡陈仓, Míng xiū zhàn dào, àn dù chén cāng)
- Deceive the enemy with an obvious approach that will take a very long time, while surprising him by taking a shortcut and sneak up to him. As the enemy concentrates on the decoy, he will miss you sneaking up to him. This tactic is an extension of the "Make a sound in the east, then strike in the west" tactic. But instead of simply spreading misinformation to draw the enemy's attention, physical baits are used to increase the enemy's certainty on the misinformation. These baits must be easily seen by the enemy, to ensure that they draw the enemy's attention. At the same time, the baits must act as if they are meant to do what they were falsely doing, to avoid drawing the enemy's suspicion.

Watch the fires burning across the river

- (隔岸觀火／隔岸观火, Gé àn guān huǒ)
- Delay entering the field of battle until all the other players have become exhausted fighting amongst themselves. Then go in at full strength and pick up the pieces.

Hide a knife behind a smile

- (笑裏藏刀／笑里藏刀, Xiào lǐ cáng dāo)
- Charm and ingratiate yourself to your enemy. When you have gained his trust, move against him in secret.

Sacrifice the plum tree to preserve the peach tree

- (李代桃僵, Lǐ dài táo jiāng)
- There are circumstances in which you must sacrifice short-term objectives in order to gain the long-term goal. This is the scapegoat strategy whereby someone else suffers the consequences so that the rest do not.

Take the opportunity to pilfer a goat

- (順手牽羊／顺手牵羊, Shùn shǒu qiān yáng)
- While carrying out your plans be flexible enough to take advantage of any opportunity that presents itself, however small, and avail yourself of any profit, however slight.

Chapter 3: Attacking Stratagems

- (攻戰計)

Stomp the grass to scare the snake

- (打草驚蛇／打草惊蛇, Dá cǎo jīng shé)
- Do something unaimed, but spectacular ("hitting the grass") to provoke a response of the enemy ("startle the snake"), thereby giving away his plans or position, or just taunt him. Do something unusual, strange, and unexpected as this will arouse the enemy's suspicion and disrupt his thinking. More widely used as "[Do not] startle the snake by hitting the grass". An imprudent act will give your position or intentions away to the enemy.

Borrow a corpse to resurrect the soul

- (借屍還魂／借尸还魂, Jiè shī huán hún)
- Take an institution, a technology, a method, or even an ideology that has been forgotten or discarded and appropriate it for your own purpose. Revive something from the past by giving it a new purpose or bring to life old ideas, customs, or traditions and reinterpret them to fit your purposes.

Entice the tiger to leave its mountain lair

- (調虎離山／调虎离山, Diào hǔ lí shān)
- Never directly attack an opponent whose advantage is derived from its position. Instead lure him away from his position thus separating him from his source of strength.

In order to capture, one must let loose

- (欲擒故縱／欲擒故纵, Yù qín gū zòng)
- Cornered prey will often mount a final desperate attack. To prevent this you let the enemy believe he still has a chance for freedom. His will to fight is thus dampened by his desire to escape. When in the end the freedom is proven a falsehood the enemy's morale will be defeated and he will surrender without a fight.

Tossing out a brick to get a jade gem

- (拋磚引玉／抛砖引玉, Pāo zhuān yǐn yù)
- Bait someone by making him believe he gains something or just make him react to it ("toss out a brick") and obtain something valuable from him in return ("get a jade gem").

Defeat the enemy by capturing their chief

- (擒賊擒王／擒贼擒王, Qín zéi qín wáng)
- If the enemy's army is strong but is allied to the commander only by money, superstition or threats, then take aim at the leader. If the commander falls the rest of the army will disperse or come over to your side. If, however, they are allied to the leader through loyalty then beware, the army can continue to fight on after his death out of vengeance.

Chapter 4: Chaos Stratagems

- (混戰計)

Remove the firewood from under the pot

- (釜底抽薪, Fǔ dǐ chōu xīn)
- Take out the leading argument or asset of someone; "steal someone's thunder". This is the very essence of indirect approach: instead of attacking enemy's fighting forces, the attacks are directed against his ability to wage war.

Disturb the water and catch a fish

- (渾水摸魚／浑水摸鱼 or 混水摸鱼, Hún shuǐ mō yú)
- Create confusion and use this confusion to further your own goals.

Slough off the cicada's golden shell

- (金蟬脱殼／金蝉脱壳, Jīn chán tuō qiào)
- Mask yourself. Either leave one's distinctive traits behind, thus becoming inconspicuous, or masquerade as something or someone else. This strategy is mainly used to escape from enemy of superior strength.

Shut the door to catch the thief

- (關門捉賊／关门捉贼, Guān mén zhuō zéi)
- To capture your enemy, or more generally in fighting wars, to deliver the final blow to your enemy, you must plan prudently if you want to succeed. Do not rush into action. Before you "move in for the kill", first cut off your enemy's escape routes, and cut off any routes through which outside help can reach them.

Befriend a distant state while attacking a neighbor

- (遠交近攻／远交近攻, Yuǎn jiāo jìn gōng)
- It is known that nations that border each other become enemies while nations separated by distance and obstacles make better allies. When you are the strongest in one field, your greatest threat is from the second strongest in your field, not the strongest from another field.

Obtain safe passage to conquer the State of Guo

- (假道伐虢, Jiǎ dào fá Guó)
- Borrow the resources of an ally to attack a common enemy. Once the enemy is defeated, use those resources to turn on the ally that lent you them in the first place.

Chapter 5: Proximate Stratagems

- (並戰計)

Replace the beams with rotten timbers

- (偷梁換柱／偷梁换柱, Tōu liáng huàn zhù)
- Disrupt the enemy's formations, interfere with their methods of operations, change the rules in which they are used to follow, go contrary to their standard training. In this way you remove the supporting pillar, the common link that makes a group of men an effective fighting force.

Point at the mulberry tree while cursing the locust tree

- (指桑罵槐／指桑骂槐, Zhǐ sāng mà huái)
- To discipline, control, or warn others whose status or position excludes them from direct confrontation; use analogy and innuendo. Without directly naming names, those accused cannot retaliate without revealing their complicity.

Feign madness but keep your balance

- (假痴不癲／假痴不癫, Jiǎ chī bù diān)
- Hide behind the mask of a fool, a drunk, or a madman to create confusion about your intentions and motivations. Lure your opponent into underestimating your ability until, overconfident, he drops his guard. Then you may attack.

Remove the ladder when the enemy has ascended to the roof

- (上屋抽梯, Shàng wū chōu tī)
- With baits and deceptions, lure your enemy into treacherous terrain. Then cut off his lines of communication and avenue of escape. To save himself, he must fight both your own forces and the elements of nature.

Deck the tree with false blossoms

- (樹上開花／树上开花, Shù shàng kāi huā)
- Tying silk blossoms on a dead tree gives the illusion that the tree is healthy. Through the use of artifice and disguise, make something of no value appear valuable; of no threat appear dangerous; of no use appear useful.

Make the host and the guest exchange roles

- (反客為主／反客为主, Fǎn kè wéi zhǔ)
- Usurp leadership in a situation where you are normally subordinate. Infiltrate your target. Initially, pretend to be a guest to be accepted, but develop from inside and become the owner later.

Chapter 6: Desperate Stratagems

- (敗戰計)

The beauty trap (Honeypot)

- (美人計／美人计, Měi rén jì)
- Send your enemy beautiful women to cause discord within his camp. This strategy can work on three levels. First, the ruler becomes so enamoured with the beauty that he neglects his duties and allows his vigilance to wane. Second, other males at court will begin to display aggressive behaviour that inflames minor differences hindering co-operation and destroying morale. Third, other females at court, motivated by jealousy and envy, begin to plot intrigues further exacerbating the situation.

*The **empty fort strategy***

- (空城計／空城计, Kōng chéng jì)
- When the enemy is superior in numbers and your situation is such that you expect to be overrun at any moment, then drop all pretense of military preparedness, act calmly and taunt the enemy, so that the enemy will think you have a huge ambush hidden for them. It works best by acting calm and at ease when your enemy expects you to be tense. This ploy is only successful if in most cases you do have a powerful hidden force and only sparsely use the empty fort strategy.

Let the enemy's own spy sow discord in the enemy camp

- (反間計／反间计, Fǎn jiàn jì)
- Undermine your enemy's ability to fight by secretly causing discord between him and his friends, allies, advisors, family, commanders, soldiers, and population. While he is preoccupied settling internal disputes, his ability to attack or defend, is compromised.

Inflict injury on oneself to win the enemy's trust

- (苦肉計／苦肉计, Kǔ ròu jì)
- Pretending to be injured has two possible applications. In the first, the enemy is lulled into relaxing his guard since he no longer considers you to be an immediate threat. The second is a way of ingratiating yourself to your enemy by pretending the injury was caused by a mutual enemy.

Chain stratagems

- (連環計／连环计, Lián huán jì)
- In important matters, one should use several stratagems applied simultaneously after another as in a chain of stratagems. Keep different plans operating in an overall scheme; however, in this manner if any one strategy fails, then the chain breaks and the whole scheme fails.

*If all else fails, **retreat***

- (走為上／走为上, Zǒu wéi shàng) cf. 退避三舍
- If it becomes obvious that your current course of action will lead to defeat, then retreat and regroup. When your side is losing, there are only three choices remaining: surrender, compromise, or escape. Surrender is complete defeat, compromise is half defeat, but escape is not defeat. As long as you are not defeated, you still have a chance. This is the most famous of the stratagems, immortalized in the form of a Chinese idiom: "Of the Thirty-Six Stratagems, fleeing is best" (三十六计，走为上计).

Sun Bin's Art of War

Inscribed bamboo-slips of Sun Bin's Art of War, unearthed in Yinque Mountain, Linyi, Shandong in 1972

Simplified Chinese 孙膑兵法

Traditional Chinese 孫臏兵法

[show]Transcriptions

Sun Bin's Art of War is an ancient Chinese classic work on military strategy written by Sun Bin, an alleged descendant of Sun Tzu who served as a military strategist in the Qi state during the Warring States period. According to historical records from the Han Dynasty, *Sun Bin's Art of War* contained an extensive 89 chapters, with four volumes of pictures attached, but was lost by the end of the Eastern Han Dynasty. As a consequence, *Sun Bin's Art of War* is sometimes conflated with Sun Tzu's *The Art of War*.

Rediscovery of the lost works

In April 1972, bamboo slips of both Sun Tzu's and Sun Bin's works were unearthed in the Yinque Hills (Lixing, Shandong province). Due to natural erosion, some of the bamboo slips were damaged and difficult to reinterpret. After the initial collection and study by experts, the Cultural Relic Press published a new edition of *Sun Bin's Art of War*, divided into two volumes, each containing 15 chapters, from the 364 bamboo slips, with a total of 11,000 words.

After a decade of textual research and study, the Cultural Relic Press made a major adjustment to the book: the second volume was no longer considered to be Sun Bin's writings; the first volume was edited and one chapter detailing five types of training was added. The current edition of *Sun Bin's Art of War* contains 16 chapters from 222 bamboo slips, with a total of 4891 words.

Contents

Chapter 1 : Capturing Pang Juan

Describes the four stratagems employed in the Battle of Guiling:

1. A southward march at the initial stage of the war, to avoid a decisive battle with Pang Juan
2. Launching a false attack and feigning retreat and defeat in Pingling, which reinforced Pang Juan's determination to attack Handan
3. Direct advance on Kaifeng (capital city of the Wei state) to force Pang Juan to turn back to rescue Wei
4. Ambush at Guiling to destroy the enemy in one move

Chapter 2: Meeting King Wei

Sun Bin discusses with King Wei of Qi about war and states: "Only victory in war can bring about authority and prosperity". Sun believes that the historically progressive unification accomplished in war had been an important means of facilitating the submission of feudal lords. To start a war, one must have "a storage of materials, a just cause for war" and must "be well-prepared before launching an attack". Sun also pointed out that "Warmongers will inevitably lose and those who expect to make a fortune out of war will also suffer defeat and disgrace".

Chapter 3: King Wei asks for advice

Sun Bin advises King Wei and Tian Ji, engaging them in a comprehensive discussion on his basic thoughts about strategy and tactics. The chapter focuses on resolute attacks on weakly defended key enemy positions and on the military philosophy of using Tao and flexible principles to attain victory.

Chapter 4: Tian Ji asks how to construct a defence

Set in the Battle of Maling, Sun Bin and Tian Ji discuss the problems of battlefield positions in field operations. The combination of terrain, weapons and the types of soldiers is emphasized.

Chapter 5: Selection of the best soldiers

Comments on the basic principles of building and training an army, and on the factors of field command that will determine victory or defeat. On the topic of building an army, Sun Bin focuses on the employment of the best soldiers in terms of field command. He stresses 'five factors that will lead to constant victory':

1. *The commander who has won the sovereign's trust and has an independent command will win.*
2. *The one who knows the art of war will win.*
3. *The one who gets uniform support from his soldiers will win.*
4. *The one whose subordinates work in concert with each other will win.*
5. *The one who is good at analysing and utilising terrain will win.*

There are also five corollaries that will lead to constant defeat:

1. *The one whose command is constrained by the sovereign will be defeated.*
2. *The one who does not know the art of war will be defeated.*
3. *The one who does not have the support of his soldiers will be defeated.*
4. *The one whose subordinates do not work in harmony will be defeated.*
5. *The one who does not know to use spies will be defeated.*

Chapter 7: Eight formations

Discusses the methods of a commander and the principles of battle formation. It emphasises that a commander must *be well versed in both meteorology and geography. He also must get the support of his people at home, while understanding the actual situation of his enemy. In a direct battle, he knows well the basic points of the eight formations. If one is sure of victory he will fight; if unsure he should not fight.* Sun Bin also emphasises *that in laying a formation, the army can be divided into three divisions. In each, the best soldiers should be placed as a vanguard and every team should be followed with a sustainable reserve.*
He emphasises *dividing the army into three teams* and *engaging one team in battle in while leaving the other two strictly in defence.*
Sun Bin says that an army must take an advantageous geographical position to attack enemy in a less defensible position. *When land is flat there should be more armed chariots; when terrain is*

difficult, more cavalry should be sent: and when is narrow and blocked, there should be more archers sent.

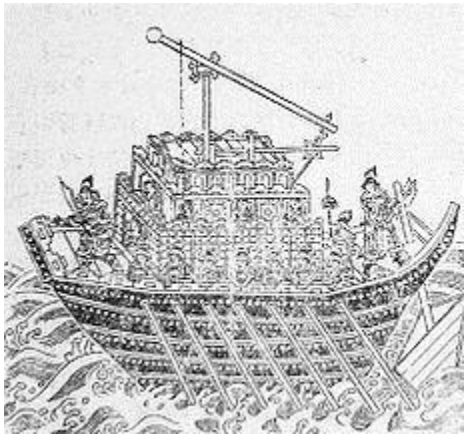
Chapter 14: Organisation of military posts

Chapter 14 is similar to military rules and regulations of the later ages. It may be divided into three parts:

1. Regulations for army organization and command, emphasising that all types of organizations, units and systems must complete and appropriately meet the requirements for battle.
2. Regulations for military operations under different enemy situations, different terrain, and different climates. Its focus is to emphasize flexibility in command and in the employment of soldiers, and on the need to make decisions according to the situation.
3. Specific rules on marching, camping, patrolling, guarding, war preparations and logistics.

Wujing Zongyao

From Wikipedia, the free encyclopedia



A Chinese Song Dynasty naval river ship with a Xuanfeng traction-trebuchet catapult on its top deck, taken from an illustration of the *Wujing Zongyao*.

The ***Wujing Zongyao*** (simplified Chinese: 武经总要; traditional Chinese: 武經總要; pinyin: *Wǔjīng Zǒngyào*; Wade–Giles: *Wu Ching Tsung Yao*; literally "Collection of the Most Important Military Techniques") was a Chinese military compendium written in 1044 AD, during the

Northern Song Dynasty. Its authors were the prominent scholars Zeng Gongliang (曾公亮), Ding Du (丁度) and Yang Weide (楊惟德), whose writing influenced many later Chinese military writers. The book covered a wide range of subjects, everything from naval warships to different types of catapults. Although the English philosopher and friar Roger Bacon was the first Westerner to mention the sole ingredients of gunpowder in 1267 (i.e. strictly saltpetre, sulphur, and charcoal) when referring to firecrackers in "various parts of the world", the *Wujing Zongyao* was the first book in history to record the written formulas for gunpowder solutions containing saltpetre, sulphur, and charcoal, along with many added ingredients.[1] It also described an early form of the compass (using thermoremanence), and had the oldest illustration of a Chinese Greek Fire flamethrower with a double-acting two-piston cylinder-pump that shot a continuous blast of flame.[2]

History

A thunderclap bomb, an early explosive bomb.

Court portrait of Emperor Renzong.

Under the imperial order of Emperor Renzong of Song (r. 1022–1063 AD), a team of Chinese scholars compiled the treatise of the *Wujing Zongyao* from 1040 to 1044, in order to improve the knowledge of all the known martial techniques used in warfare.[3][4] Its chief editor was Zeng Gongliang, while he was assisted by the prominent astronomer Yang Weide and the scholar Ding Du.[3][4] The Wujing Zongyao was one of 347 military treatises listed in the biographical chapters of the *Song Shi* (1345 AD), the historical work that embodied part of the Twenty-Four Histories.[4] Of these 347 different military treatises from the Song Dynasty period, only the *Wujing Zongyao*, the *Huqianjing* (Tiger Seal Manual) of Xu Dong in 1004 AD, and fragments of similar works found in the later *Yonglo Datian* have survived.[4] The original text of the Wujing

Zongyao was kept in the Imperial Library, while a number of hand-written copies were distributed elsewhere, including a copy given to Wang Shao by Emperor Shenzong of Song in 1069 AD.[5] However, with the sacking of the capital Kaifeng in the Jin–Song wars by the invading Jurchens in 1126 AD, the enormous amount of prized literature found in the Imperial Library was lost, including the original copy of the *Wujing Zongyao*.[6] After the original was lost, there was only a scarce amount of surviving copies rewritten by hand. There was a scarcity because the book was meant to be kept a secret amongst a few trustees of the government, as publishing and printing many copies using woodblock printing would have allowed the possibility of it falling into enemy hands.[6] Nevertheless, from a remaining copy of the *Wujing Zongyao*, it was remade into a newly published edition in 1231 AD during the Southern Song Dynasty era.[6] Then, during the Ming Dynasty (1368–1644 AD), a book published in 1439 AD featured fragments of the original *Wujing Zongyao* edition of 1231 while omitting some material and combining it with two other books, the preface of this book written by Li Jin.[7] Then there was a reprinted edition of the entire *Wujing Zongyao* in 1510 AD, this complete version being the oldest extant copy available.[3][6] Furthermore, the historian Joseph Needham asserts that this edition of 1510 AD is the most reliable in its faithfulness to the original version, since it was printed from blocks that were re-carved directly from tracings of the edition made in 1231 AD.[6]

After the edition of 1510 was printed, other Ming Dynasty copies were made. This included the Jiajing edition (1522–1566 AD), the Wanli edition (1573–1619 AD) of Quanzhou, and the Wanli edition (1573–1619) of Jinling by Tang Xinyün (preserved by Cunjingge).[6] During the Qing Dynasty (1644–1911 AD) it was also reprinted in two different editions during the 18th century, and again in 1934 with the Shanghai edition.[6]

Compass and navigation

Layout of a Ming Dynasty mariner's compass.

In the 3rd century, the Chinese engineer Ma Jun invented the South Pointing Chariot. This was a wheeled vehicle that employed differential gearing in order to lock a figurine of an immortal in place on the end of a long wooden staff, the figure having its arm stretched out and always

pointing to the southern cardinal direction. Although the authors of the *Wujing Zongyao* were mistaken in believing that the design of the South Pointing Chariot was not handed down (as it was reinvented during the Song period and combined with an odometer), they described a new device which allowed one to navigate. This was the 'south pointing fish' (a thermoremanence compass), essentially a heated iron (or preferably steel) object cut in the shape of a fish and suspended in a bowl of water. The *Wujing Zongyao* part 1 vol 15 text stated:

When troops encountered gloomy weather or dark nights, and the directions of space could not be distinguished, they let an old horse go on before to lead them, or else they made use of the south-pointing carriage, or the south-pointing fish to identify the directions. Now the carriage method has not been handed down, but in the fish method a thin leaf of iron is cut into the shape of a fish two inches long and half an inch broad, having a pointed head and tail. This is then heated in a charcoal fire, and when it has become thoroughly red-hot, it is taken out by the head with iron tongs and placed so that its tail points due north. In this position it is quenched with water in a basin, so that its tail is submerged for several tenths of an inch. It is then kept in a tightly closed box. To use it, a small bowl filled with water is set up in a windless place, and the fish is laid as flat as possible upon the water-surface so that it floats, whereupon its head will point south.[8]

Writing several decades after the *Wujing Zongyao* was written, the scientist and statesman Shen Kuo (1031–1095 AD) wrote of the first truly magnetized compass needle in his book *Dream Pool Essays* (1088 AD). With a more efficient compass magnetized by lodestone, the thermoremanence compass fell out of use.[9] The later maritime author Zhu Yu soon wrote of the magnetic needle compass as a means to navigate at sea, in his book *Pingzhou Table Talks* of 1119 AD.

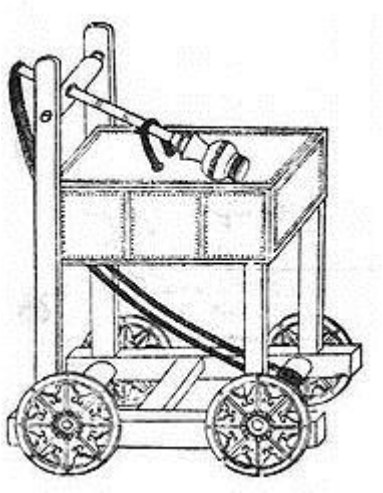
Gunpowder formulas and weapons

A page with the formula for gunpowder from the *Wujing Zongyao* manuscript.

Gunpowder warfare began in China during the early 10th century, with the advent of the black-powder-impregnated fuse that was used to light the burst of the Chinese two-piston flamethrower.[10] However, despite circumstantial evidence to the invention of gunpowder as early as the 3rd–4th century BC by the alchemist Ge Hong,[11] it was not until the *Wujing Zongyao* that the exact formulas for early Chinese black powder was revealed. In the *Wujing*

Zongyao there are three formulas for black powder provided, including one for an explosive bomb launched from a trebuchet catapult, another for a similar bomb with hooks attached so that it could latch on to any wooden structure and set it on fire, and another formula specified for a poison-smoke bomb used for chemical warfare.[12] The *Wujing Zongyao* stated that simple incendiary weapons were launched from catapults, thrown down from city walls at besiegers, or let down by iron chains from a swape lever set up on the top of the wall.[13] There was also description of the 'igniter ball' used in warfare and in finding firing range. The *Wujing Zongyao* stated the following:

The 'igniter ball' (yin huo qiu) is made of paper round like a ball, inside which is put between three and five pounds of powdered bricks. Melt yellow wax and let it stand until clear, then add powdered charcoal and make it into a paste permeating the ball; bind it up with hempen string. When you want to find the range of anything, shoot off this fire-ball first, then other incendiary balls can follow.[14]



An illustration of a trebuchet catapult, from the *Wujing Zongyao*.

The *Wujing Zongyao*'s first recorded black-powder formula used in these bombs held a potassium nitrate level of 55.4% to 55.5%, sulfur content of 19.4% to 26.5%, and carbonaceous content of 23% to 25.2%.[15] For the second labeled formula, the inner ball alone had a nitrate percentage of 61.5% to 50.2%, a sulfur content of 30.8% to 25.1%, and if all carbonaceous matter was taken, 24.7%, if just taking the charcoal content alone, the carbon level was 7.7%.[16] If the outer coating and inner ball are both included with the second black-powder formula, that would yield a nitrate level of 34.7% to 54.8%, a sulfur content of 17.4% to 27.4%, and if all carbonaceous material is used, 47.9% carbon, if only charcoal is used, 17.8%.[16] If the inner ball of the third black-powder formula is only considered, it held nitrate levels of 39.6% if all carbonaceous matter was taken, 49.4% nitrate if excluding the poisons, and 60% if charcoal is specified alone.[17] The sulfur content was 19.8% if all carbonaceous matter was considered, 24.7% if this excluded poisons, and 30% if charcoal is specified alone.[17] The carbon content was 40.5% if all carbonaceous matter was considered, 25.9% if this excluded poisons, and 10%

if charcoal alone was specified.[17] If both the inner ball and outer coating are considered for the third formula, that would yield a nitrate level of 27% if all carbonaceous matter was taken, 31.2% if this excluded poisons, and 51.7% if charcoal alone was used.[17] The sulfur content would be 13.5% if all carbonaceous matter was taken, 15.6% if this excluded the poisons, and 25.9% if only charcoal alone was specified.[17] The carbon content was 59.5% if all carbonaceous matter was taken into account, 53.2% if this excluded poisons, and 22.4% if charcoal alone was specified.[17]

The first black-powder concoction was simply labeled as the "method for making the fire-chemical", with its ingredients and measured weight (in ounces) of each ingredient listed in the section below with the others listed in similar fashion.

Formulas

1st Formula[18]

- Sulfur (14 oz.)
- Wo huang ('nest yellow', perhaps nodular sulfur) (7 oz.)
- Saltpetre (40 oz.)
- Hemp roots (1 oz.)
- Dried lacquer (1 oz.)
- Arsenic (1 oz.)
- White lead (lead carbonate) (1 oz.)
- Bamboo roots (1 oz.)
- Minium (lead tetroxide) (1 oz.)
- Yellow wax (0.5 oz.)
- Clear oil (0.1 oz.)
- Tung oil (0.5 oz.)
- Pine resin (14 oz.)
- Thick oil (0.1 oz.)

Total weight = 82.2 oz.

2nd Formula[16]

Inner ball

- Sulphur (20 oz.)
- Saltpetre (40 oz.)
- Coarse charcoal powder (5 oz.)
- Pitch (2.5 oz.)
- Dried lacquer (pounded to powder) (2.5 oz.)
- Bamboo roots (1.1 oz.)
- Hemp roots, cut into shreds (1.1 oz.)
- Tung oil (2.5 oz.)
- Lesser oil (possibly an edible oil) (2.5 oz.)

Outer coating

- Paper (12.5 oz.)
- Hemp (fibre) (10 oz.)
- Minium (1.1 oz)
- Charcoal powder (8 oz.)
- Pitch (2.5 oz)
- Yellow wax (2.5 oz)

Total weight of outer coating = 36.6 oz.

- Wax (2.5 oz.)

Total weight of inner ball = 79.7 oz.

Total weight = 116.3 oz.

3rd Formula[19]

Inner ball

- Sulphur (15 oz.)
- Saltpetre (30 oz.)
- Aconite (aconitum fischeri) (5 oz.)
- Croton oil (croton tiglium) (5 oz.)
- Wolfsbane (aconitum ferox or lycoctonum) (5 oz.)
- Tung oil (5 oz.)
- Lesser oil (2.5 oz.)
- Charcoal powder (5 oz.)
- Pitch (5 oz.)
- Arsenic (2 oz.)
- Yellow wax (1 oz.)
- Bamboo roots (1.1 oz.)
- Hemp roots (1.1 oz.)

Total weight of inner ball = 77.7 oz.

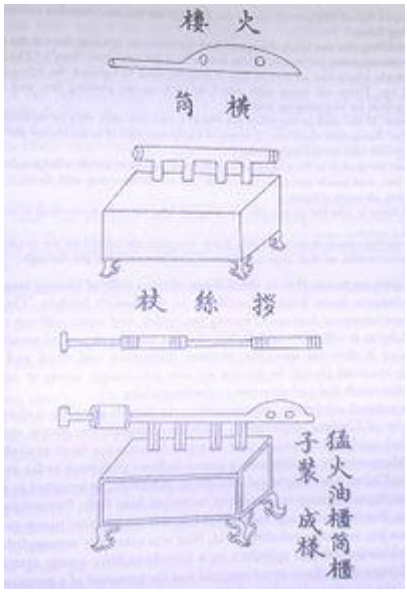
Outer coating

- Old paper (12.5 oz.)
- Hemp (stalk) skin fibre (10 oz.)
- Pitch (2.5 oz.)
- Yellow wax (2.5 oz.)
- Minium (1.1 oz.)
- Charcoal (8 oz.)

Total weight of outer coating = 36.6 oz.

Total weight = 114.3 oz.

Flamethrower and Greek fire



A Chinese flamethrower from the *Wujing Zongyao*

The first Chinese battle to use the piston-pump flamethrower firing Greek fire was the battle between Wenmu Wang and Qian Yuanguan in 932 during the Five Dynasties and Ten Kingdoms period.[20] The Chinese author Lin Yu explained in his book of 919 AD that Greek fire was acquired from their Arab maritime trade contacts in the Indian Ocean.[21] Furthermore, the Chinese had been using the piston syringe since the Han Dynasty (202 BC-220 AD).[22] However, it was the later *Wujing Zongyao* that would provide the first illustrated drawing and greater textual explanation for how this flamethrower operated. In describing the drawn illustration of the flamethrower in the book, the *Wujing Zongyao* states:

On the right is the petrol flamethrower (lit. fierce fire oil-shooter). The tank is made of brass, and supported on four legs. From its upper surface arise four (vertical) tubes attached to a horizontal cylinder above; they are all connected with the tank. The head and the tail of the cylinder are large (the middle) is of narrow (diameter). In the tail end there is a small opening as big as a millet grain. The head end has (two) round openings 1½ inches in diameter. At the side of the tank there is a hole with a (little) tube which is used for filling, and this is fitted with a cover. Inside the cylinder there is a (piston-)rod packed with silk floss, the head of which is wound round with hemp waste about ½ inches thick. Before and behind, the two communicating tubes are (alternately) occluded (lit. controlled), and (the mechanism) thus determined. The tail has a horizontal handle (the pump handle), in front of which there is a round cover. When (the handle is pushed) in (the pistons) close the mouth of the tubes (in turn).[21]

Before use the tank is filled with rather more than three catties of the oil with a spoon through a filter; at the same time gunpowder (composition) is placed in the ignition chamber at the head. When the fire is to be started one applies a heated branding iron (to the ignition chamber), and the piston-rod is forced fully into the cylinder—then the man at the back is ordered to draw the

piston rod fully backwards and work it (back and forth) as vigorously as possible. Whereupon the oil (the petrol) comes out through the ignition chamber and is shot forth as blazing flame.[23]

Then the text goes on to provide further instructions about equipment, maintenance, and repair of flamethrowers:

When filling, use the bowl, the spoon and filter; for igniting there is the branding iron; for maintaining (or renewing) the fire there is the container. The branding iron is made sharp like an awl so that it may be used ot unblock the tubes if they get stopped up. There are tongs with which to pick up the glowing fire, and there is a soldering iron for stopping up leaks. If the tanks or the tubes get cracked and leak they may be mended by using green wax. Altogether there are 12 items of equipment, all of brass except the tongs, the branding iron, and the soldering iron. Another method is to fix a brass gourd-shaped container inside a large tube; below it has two feet, and inside there are two small feet communicating with them (comm: all made of brass) and there is also the piston. The method of shooting is as described above. If the enemy comes to attack a city, these weapons are placed on the great ramparts, or else in outworks, so that large numbers of assailants cannot get through